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APPENDIX TO THE JOURNALS

OF THE

SENATE AND ASSEMBLY

OF THE

FORTY-FIFTH SESSION

OF THE

LEGISLATURE OF THE STATE OF CALIFORNIA

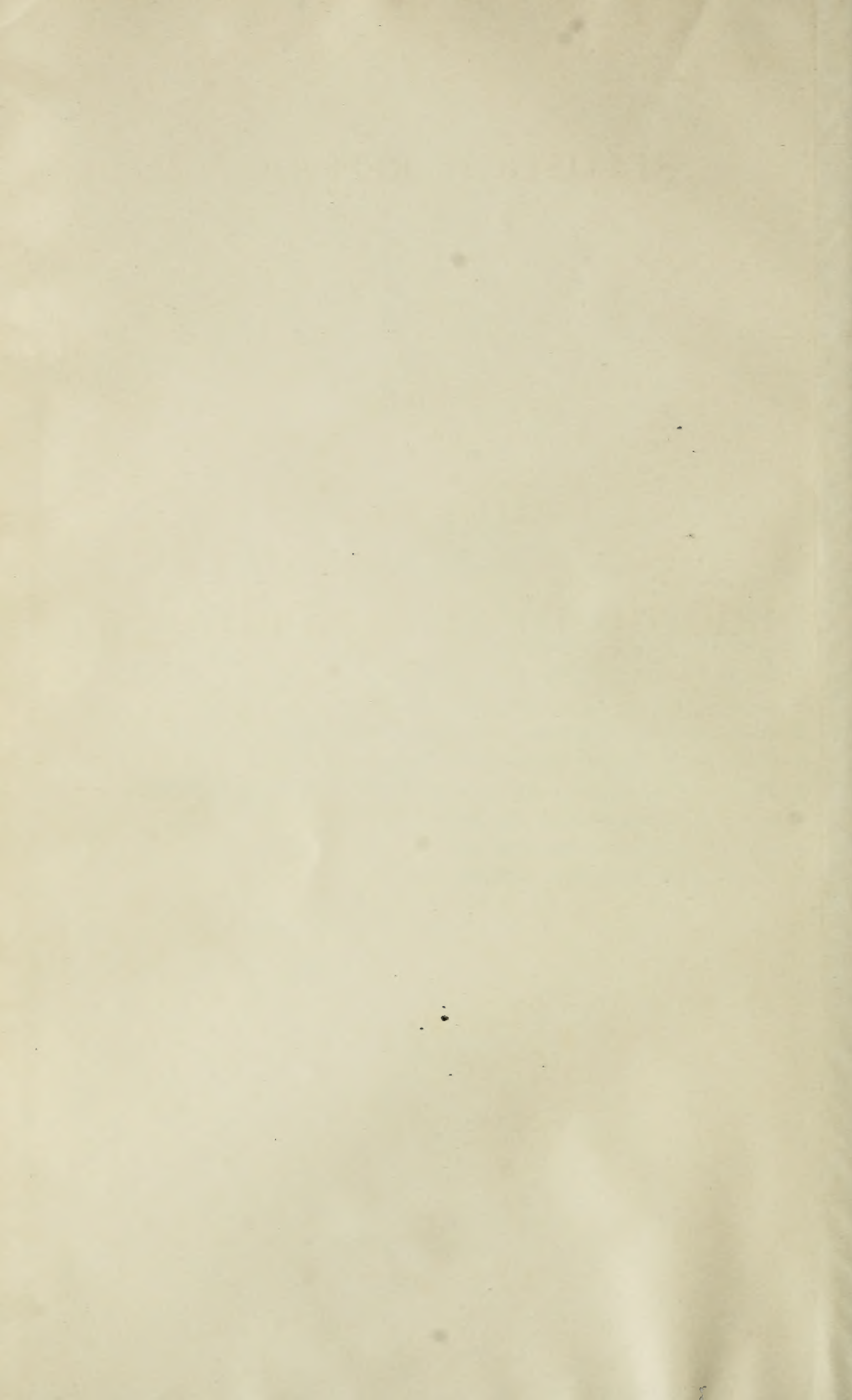
VOLUME III



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

VOLUME III.

- 1—Report of Board of Agriculture, 1920.
- 2—Report of Board of Agriculture, 1921.
- 3—Report of Department of Agriculture, 1922.
- 4—Report of Fish and Game Commission, 1920–1922.
- 5—Report of Board of Charities and Corrections, 1918–1920.
- 6—Report of The Adjutant General, 1914–1920.
- 7—Report of Commissioner of Industrial and Vocational Education, 1920–1922.
- 8—Report of Attorney General, 1920–1922.
- 9—Report of Board of Health, 1920–1922.
- 10—Report of State Controller, 1920–1922.



STATISTICAL REPORT

OF THE

California

State Board of Agriculture

For the Year 1920



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1921

STATE BOARD OF AGRICULTURE.

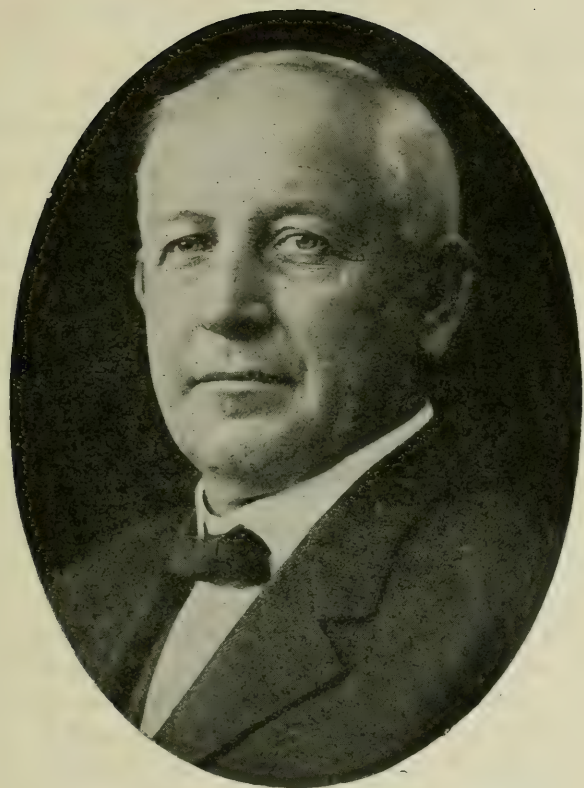
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WILLIAM D. STEPHENS, Governor of California.

REPORT
OF THE
STATE BOARD OF AGRICULTURE

LETTER OF TRANSMITTAL.

Sacramento, California,

July 1, 1921.

To His Excellency

HONORABLE WM. D. STEPHENS,

Governor of the State of California.

DEAR SIR: We have the honor to submit herewith the sixty-seventh annual report of the State Board of Agriculture.

Departing in part from the arrangement of our previous reports, we have this year endeavored to incorporate in our annual Statistical Report such data and information as would be of special interest to those who are looking toward California as a place to make their homes.

With the cooperation of various men who could furnish us with authoritative information regarding the production, cultivation and raising of California's various products, we have succeeded in securing articles that will give to the layman a knowledge of the requirements covering various agricultural and horticultural productions.

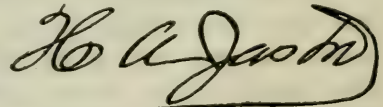
That California stands preeminent in the production of all crops for the entire United States is very clearly shown by the fact that we have within the state two of the largest producing counties in the Union. The county of Los Angeles produced, according to the 1920 census figures, \$61,366,308.00 in harvested crops. Fresno County, which comes within a few figures of the second leading county of the United States, shows a production of \$51,861,422.00 in harvested crops. Not only does California rank first in horticultural products, it also holds first place in the production of oil, gold, and other precious metals, first in University attainment, and the largest increase of new farms in any state during the past decade.

The field to be covered by this report is of such magnitude, and has so developed in the last ten years, that we have found it impossible in this report, with the small amount of money appropriated for the work, to cover in detail every phase of the products and resources of California.

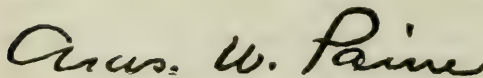
When we consider the fact that the total value of the crops of the entire state amounted to over \$587,600,591.00 last year, that the domestic animals were valued at \$204,378,445.00, that the dairy products totaled within a few dollars of \$100,000,000, that the value of poultry and poultry products amounted to over \$50,021,505.00, it can readily be realized that ample funds should be appropriated to secure for California a report that shall cover in every particular the opportunities that are offered in this wonderful state.

Surpassing all other previous events, the 1920 California State Fair was an event long to be remembered for its wonderful exhibits of California's agricultural and horticultural products, live stock, and dairy productions. Never before had there been gathered within the gates of the State Fair such splendid exhibits. Not only were all attendance records broken, but the number of entries in the live stock, county exhibits, poultry, horse show, and all other departments, exceeded by more than one-third those of any previous years. In the live stock department alone there were over 2,175 head on exhibition, reaching a valuation of over \$2,000,000. The number of entries in that department exceeded in number the entries of any western live stock show, not even excluding the Panama Pacific Exposition in 1915. So great was the success of the various county displays and other exhibits that we have little doubt that the Fair for the coming year will be even a greater success.

The enormous strides in development and production that have been made within the state since the census of 1910 leads us to believe that it shall be but a few years before the total valuation of California's annual production in the agricultural, horticultural, live stock and poultry industries shall total well over the billion dollar mark.



President.



Secretary.

STATISTICAL SUMMARY

OF THE

Population, Agricultural and
Horticultural Products

OF THE

STATE OF CALIFORNIA

LETTER OF ACKNOWLEDGMENT.

Acknowledgement and appreciation are due to the United States Department of Agriculture, Bureau of Census, Department of Commerce, General Land Office, for much of the valuable data which has been included within the pages of this report.

Valuable assistance was also rendered by the various state departments in furnishing information and data for the report.

The writer also desires to acknowledge his obligation to the various growers' associations and exchanges for information supplied regarding their various products.

The use of the splendid maps showing conditions in the State of California was made possible through the courtesy of the Los Angeles Examiner. The Pacific Dairy Review, The California Walnut Growers Association, and the California Almond Growers Exchange also furnished cuts for the report and to these associations is extended appreciation.

To the professors of the University of California and to many other authorities in their respective lines is due appreciation for articles furnished for this publication.

FRED W. LINKS,
Statistician.

Sacramento, California, July 1, 1921.

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COUNTIES AND COUNTY SEATS, ACREAGE AND PROPERTY VALUE, 1920.

Counties	County seat	Elevation, county seats	Approximate county land area, acreage	Number of acres of land assessed	Value of real estate	Grand total of all property
Alameda	Oakland	36	468,480	458,099	\$149,097,785	\$302,649,037
Alpine	Markleeville	*	496,640	47,832	561,065	821,963
Amador	Jackson	1,975	384,640	301,889	3,072,839	6,830,971
Butte	Oroville	250	1,102,080	904,164	24,729,620	42,673,061
Calaveras	San Andreas	*	657,280	530,244	4,829,380	8,286,986
Colusa	Colusa	60	729,600	617,031	15,634,115	24,668,014
Contra Costa	Martinez	125	456,960	459,322	28,684,375	75,168,667
Del Norte	Crescent City	50	655,360	232,490	8,200,890	9,192,600
El Dorado	Placerville	1,875	1,121,920	687,549	5,036,465	8,585,433
Fresno	Fresno	293	3,808,000	2,175,450	92,048,880	169,478,324
Glenn	Willows	136	805,760	631,258	17,810,882	27,704,802
Humboldt	Eureka	64	2,325,760	1,678,306	27,808,215	41,984,519
Imperial	El Centro	-2	2,616,960	1,152,150	48,899,425	80,786,593
Inyo	Independence	3,907	6,412,160	257,360	6,594,337	15,604,943
Kern	Bakersfield	404	5,121,920	3,462,292	67,639,357	123,796,489
Kings	Hanford	249	741,760	896,698	15,987,360	26,817,020
Lake	Lakeport	*	817,920	366,256	4,710,095	6,909,668
Lassen	Susanville	4,175	2,899,840	935,193	5,447,332	12,095,851
Los Angeles	Los Angeles	293	2,602,880	1,193,627	559,263,510	1,275,735,264
Madera	Madera	272	1,351,680	807,160	16,685,240	21,543,685
Marin	San Rafael	*	338,560	311,400	14,495,905	25,551,413
Mariposa	Mariposa	2,018	936,320	373,850	2,452,203	4,379,348
Mendocino	Ukiah	620	2,209,920	1,736,163	18,547,760	29,494,976
Merced	Merced	173	1,276,800	1,185,756	15,248,545	33,139,153
Modoc	Alturas	4,460	2,446,720	732,174	5,079,995	8,654,722
Mono	Bridgeport	6,500	1,939,200	182,512	1,510,205	3,492,512
Monterey	Salinas	40	2,131,200	1,482,680	23,342,220	40,449,052
Napa	Napa	20	501,120	414,780	11,627,705	23,519,194
Nevada	Nevada City	2,580	623,360	475,971	3,426,255	9,056,976
Orange	Santa Ana	137	508,800	446,980	54,091,250	114,089,157
Placer	Auburn	1,360	890,800	627,543	8,011,855	17,425,491
Plumas	Quincy	3,400	1,060,160	542,716	14,298,675	24,130,979
Riverside	Riverside	851	4,633,600	1,739,762	23,210,400	46,364,623
Sacramento	Sacramento	71	629,120	595,263	68,125,511	130,162,551
San Benito	Hollister	284	890,880	598,062	8,091,505	14,150,994
San Bernardino	San Bernardino	1,054	12,900,480	2,221,315	29,975,075	81,750,985
San Diego	San Diego	93	2,701,440	1,179,246	54,362,972	87,373,484
San Francisco	San Francisco	207	27,520	29,760	298,208,815	819,820,078
San Joaquin	Stockton	24	926,720	885,095	58,878,510	108,601,446
San Luis Obispo	San Luis Obispo	201	2,133,760	1,642,043	19,270,192	37,664,508
San Mateo	Redwood City	8	286,050	305,850	22,647,370	38,481,029
Santa Barbara	Santa Barbara	130	1,753,600	1,037,201	26,969,995	54,384,800
Santa Clara	San Jose	95	849,920	950,276	51,243,040	105,987,650
Santa Cruz	Santa Cruz	20	278,400	259,684	11,724,915	23,384,384
Shasta	Redding	552	2,469,120	1,508,877	10,482,265	19,928,304
Sierra	Downieville	3,150	590,720	325,307	1,769,000	2,752,109
Siskiyou	Yreka	2,635	4,003,840	1,909,070	13,951,175	27,068,051
Solano	Fairfield	12	526,080	517,825	15,982,581	32,503,428
Sonoma	Santa Rosa	181	1,009,280	925,408	29,403,240	52,548,305
Stanislaus	Modesto	90	928,000	870,553	27,478,750	50,082,637
Sutter	Yuba City	57	389,120	374,513	13,205,220	19,901,138
Tehama	Red Bluff	307	1,851,520	1,329,516	10,565,470	20,094,623
Trinity	Weaverville	2,046	2,026,240	589,044	2,558,855	3,880,637
Tulare	Visalia	334	3,107,840	1,491,645	31,202,745	60,668,082
Tuolumne	Sonora	1,825	1,401,600	452,588	5,144,973	11,307,484
Ventura	Ventura	43	1,201,920	457,224	30,463,220	45,773,961
Yolo	Woodland	58	648,960	639,550	17,811,345	30,710,368
Yuba	Marysville	67	408,960	356,691	5,781,130	14,881,128
Totals			99,617,280	49,209,275	\$2,163,523,769	\$4,555,445,447

NOTES REGARDING CHANGES IN BOUNDARIES OF COUNTIES AND INCORPORATED PLACES.

- Colusa*—Part taken to form Glenn in 1891.
Del Norte—Part annexed to Siskiyou between 1880 and 1890.
Fresno—Part taken to form Madera in 1893, and part annexed to Kings in 1909.
Glenn—Organized from part of Colusa in 1891.
Humboldt—Part of Klamath annexed in 1874.
Imperial—Organized from part of San Diego in 1907.
Kings—Organized from part of Tulare in 1893, and part of Fresno annexed in 1909.
Lake—Part annexed to Napa in 1872.
Los Angeles—Part taken to form Orange in 1889.
Madera—Organized from part of Fresno in 1893.
Modoc—Organized from part of Siskiyou in 1874.
Monterey—Part taken to form San Benito in 1874.
Napa—Part of Lake annexed in 1872.
Orange—Organized from part of Los Angeles in 1889.
Riverside—Organized from parts of San Bernardino and San Diego in 1893.
San Benito—Organized from part of Monterey in 1874.
San Bernardino—Part taken to form part of Riverside in 1893.
San Diego—Part taken to form part of Riverside in 1893, part taken to form Imperial in 1907.
Santa Barbara—Part taken to form Ventura in 1871.
Siskiyou—Part taken to form Modoc in 1874; part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890.
Tulare—Part taken to form Kings in 1893.
Ventura—Organized from part of Santa Barbara in 1871.

INCORPORATED PLACES.

- Bakersfield*—Part of township 3 (Kern City) annexed in 1909.
Berkeley—Part of Oakland township annexed in 1906 and 1908.
Fresno—Part of township 3 annexed in 1910.
Los Angeles—Parts of Ballona, Burbank, Cahuenga, and San Antonio townships annexed between 1890 and 1900; part of Ballona township annexed in 1906; part of Wilmington township (including San Pedro City) annexed in 1909, and parts of Burbank and Cahuenga townships annexed in 1910.
Oakland—Parts of Brooklyn and Oakland townships annexed in 1909.
Ontario—Parts of Ontario township annexed in 1901.
Pasadena—Parts of Pasadena township annexed in 1904 and 1906.
San Leandro—Part of Brooklyn township annexed in 1909.

THE STATE OF CALIFORNIA.

(Date of organization as a Territory, March 1, 1847; as a State, September 9, 1850.)

PART I.

LANDS AND FARMS.

California and Other States; A State of Contrasts; National Parks and Monuments; Natural Recreation Grounds; Vacant Public Lands; School and Railroad Lands for Sale; Indian Reservations; Homesteads; Land Registration; Dry Farming; Reclamation Projects; Soldier Land Settlements; Farms and Farm Lands; Value of Farm Lands.

The State of California is about 780 miles in length; its breadth varies from 150 to 350 miles and its total area is 158,297 square miles, of which 2,645 are water surface. The coast line is more than 1,000 miles long. In size it ranks second among the states of the Union, Texas being the only one to exceed it. It is almost as large in total area of land and water as the following seven Eastern states combined:

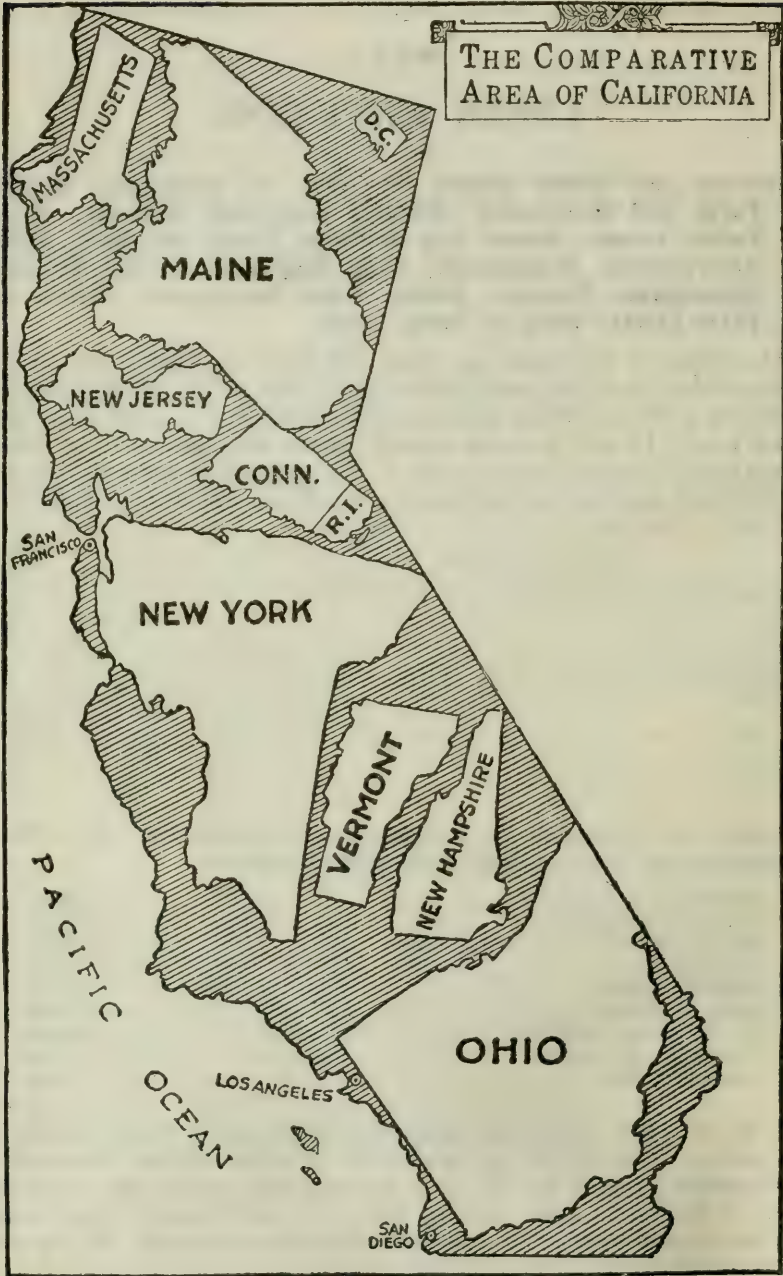
State	Square miles
New York	49,204
Ohio	41,040
Maine	33,040
Vermont	9,564
New Hampshire	9,341
Massachusetts	8,266
New Jersey	8,224
Total	158,679
California	158,297

Among the forty-eight commonwealths comprising the United States of America the State of California ranks as follows:

Horticultural products	First
General agriculture	Fourth
Number of new farms, 1910 to 1920	First
Population	Eighth
Banking capital	Fifth
Gold production	First
U. S. revenue collections	Seventh
University attainment	First
Greatest cities	Tenth

If we average these items California ranks nearly fourth among all the states—judged by her attainment in these diverse measures of development, and it has all been accomplished within the scriptural limit of the age of man; in fact, many eyes still brightly shine which saw the light a decade or two before California was born! It is a wonderful achievement in the building of a state.

Nature gave situation and resources to the one hundred million acres of earth surface now known as California, which qualify and endow it to become the first commonwealth of the United States.



CALIFORNIA—A STATE OF CONTRASTS.*

“Contrast appears to be the keynote to all descriptions of California topography. Within the state are the highest and the lowest points of land in the entire United States.

Mount Whitney, in Inyo County, altitude 14,502 feet, is the highest point in the Union.

Death Valley, though it has not yet been surveyed, is thought to contain places lower than 400 feet below sea level, making the deepest depression in the United States.

A vast portion of the state is included in the Sierra Nevada Mountains, a large part of which area is more than a mile above the sea.

On the other hand, an area larger than the State of Rhode Island is below the level of the sea in Imperial Valley, near the Mexican border.

In this valley there was formed, in 1906, an inland lake, the Salton Sea, when the Colorado River escaped from its usual channel and spilled into the depression.

The larger part of the wonderfully fertile Imperial Valley would have been submerged had not engineers hastily built new banks for the Colorado River and returned its course southward again, with an outlet in the Gulf of California.

The state is unique, too, in that it has within its borders the only active volcano in the United States. Lassen Peak, in Tehama County, at the eastern edge of the Upper Sacramento Valley, broke forth in violent eruption in 1914, and has been sporadically active ever since. Its activity appears to be on the decline again, however, and it will perhaps return to a dormant stage for another century or two.

While no earthquakes were occasioned by the activity of Lassen Peak, California has more earthquakes than all the rest of the United States. During no single month in the past five years has the state been without at least one earthquake.

Fortunately, however, these earthquakes are almost invariably harmless tremors and cause no material damage.

In fact, a whole year's earthquakes in California do less harm to life and property than any one of a hundred thunderstorms which occur every summer in the East.

From a climatic standpoint, California presents many contrasts also. In some respects it is absolutely unique among the states.

The highest natural air temperature ever recorded on the earth occurred in Death Valley on July 10, 1913, when 134 degrees Fahrenheit was registered. This was not a temperature recorded in the hot sunshine, but was a true air temperature obtained from a carefully tested thermometer belonging to the United States Weather Bureau and exposed in the shade in a standard ventilated instrument shelter which had a double roof with an air space in between.

Every summer the highest temperature in the United States occurs in Death Valley. It is not unusual for the temperature there to rise to 100 degrees or higher on every day during July and August.

While California does not have the lowest temperatures in the United States, readings of zero and below occur every winter in the high

*From an article by A. H. Palmer, Weather Bureau, San Francisco.

Sierras. An authentic California record of 40 degrees below zero is included in the government archives.

During midsummer California has the distinction of containing the coolest place near sea level in the whole United States. From daily weather records maintained by about 4,500 Weather Bureau stations throughout the Union, Point Reyes, about twenty miles north of San Francisco, is the coolest spot during July and August.

During these months the average temperature there is about 54 degrees. During the hottest part of the day the thermometer does not often rise above 60 degrees.

The coolness is explained by the semi-marine environment.

The Point projects into the sea, and is bathed in almost perpetual fog during summer by the brave west winds drawn eastward through the Golden Gate by the heated interior valleys. The weather observer at Point Reyes sometimes does not see the sun for three or four successive weeks during midsummer. Moreover, wind velocities of 60 miles per hour are commonplace, and gales exceeding 100 miles per hour have been recorded there.

While Point Reyes looks attractive as a summer resort on account of its low temperatures, it will never compete with other California beaches in this respect.

Prolonged fog is most depressing, and one can not stand erect in a sixty-mile gale. Besides being the coolest place in midsummer, Point Reyes is also the windiest spot near sea level in the United States.

Sunshine, without which agriculture could not prosper, and even human beings could not long survive, is, however, one of California's important assets. For the Southwest, including the states of California, Arizona and New Mexico, enjoys more sunshine than any other region in North America.

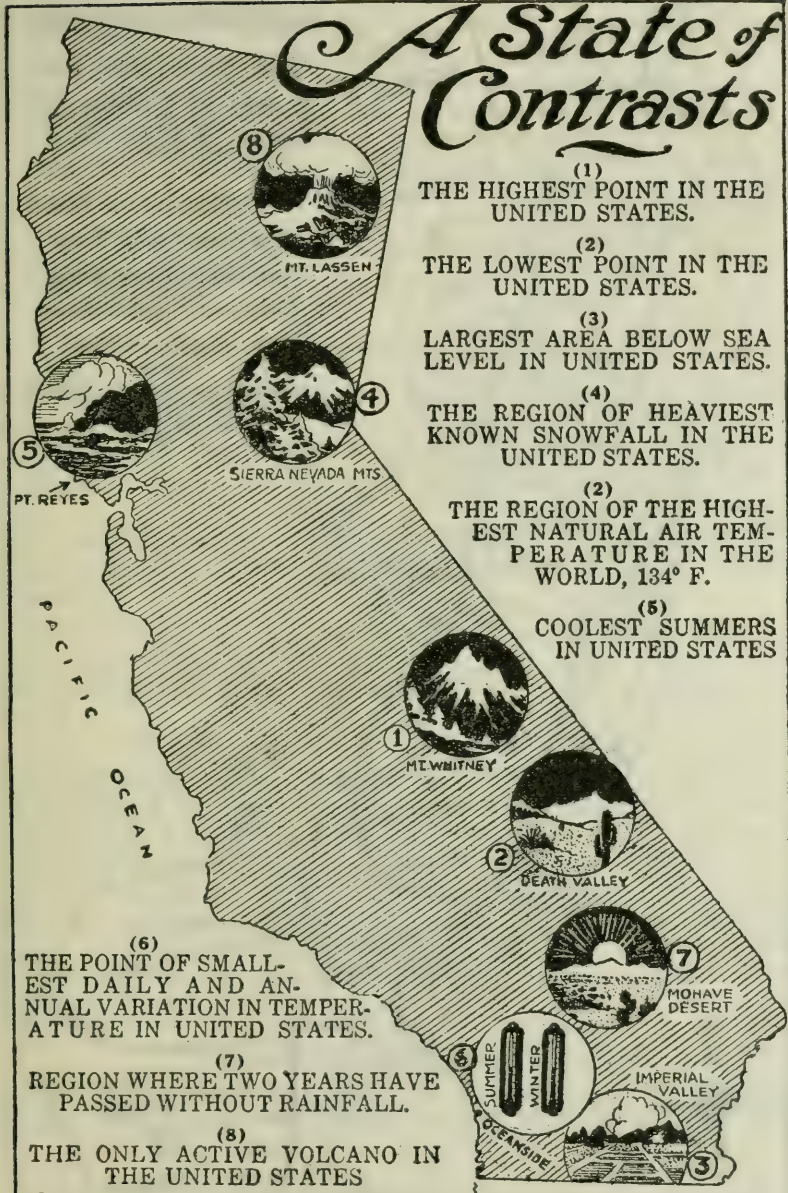
The interior valleys of California receive almost unbroken sunshine during summer, while in Southern California there is scarcely a single day in an entire year when there is not some sunshine. From the standpoint of human health, this is a matter of great significance, for sunshine is the best natural germicide.

Outdoor living, furnishing as it does abundant fresh air and the maximum possible amount of sunshine, is, therefore, the basis of much of California's justly deserved fame as a health center.

However, sunshine is of paramount importance also from an agricultural viewpoint. In the great agricultural valleys of the interior, ample irrigation water and unbroken sunshine combine to produce those ideal growing conditions which make possible the oranges, lemons, grapes, figs, dates, peaches, apricots, prunes and olives which are known the world over.

'The Sunshine State' indeed owes much of the prosperity of her people and the richness of her agricultural resources to the sunshine she so generously receives at all seasons of the year.'

A State of Contrasts



(1)
THE HIGHEST POINT IN THE UNITED STATES.

(2)
THE LOWEST POINT IN THE UNITED STATES.

(3)
LARGEST AREA BELOW SEA LEVEL IN UNITED STATES.

(4)
THE REGION OF HEAVIEST KNOWN SNOWFALL IN THE UNITED STATES.

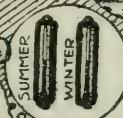
(2)
THE REGION OF THE HIGHEST NATURAL AIR TEMPERATURE IN THE WORLD, 134° F.

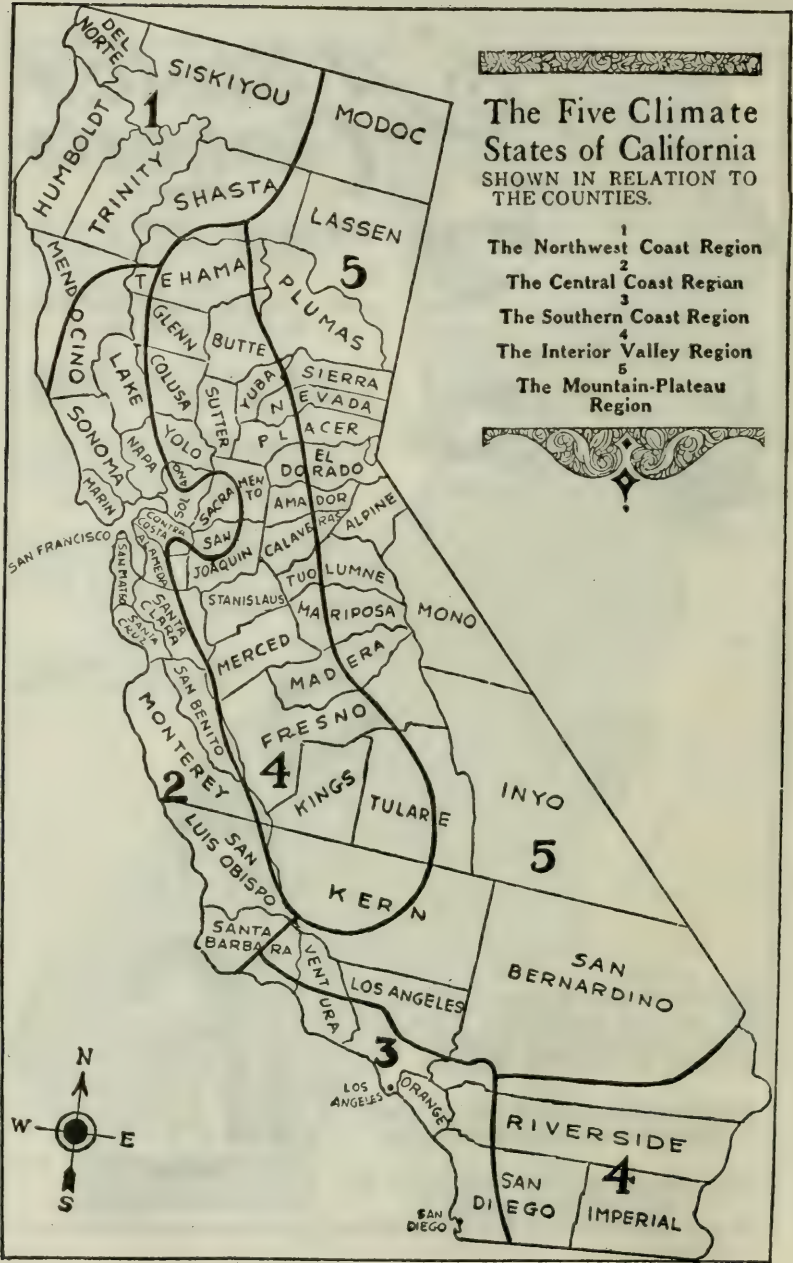
(5)
COOLEST SUMMERS IN UNITED STATES

(6)
THE POINT OF SMALL-EST DAILY AND ANNUAL VARIATION IN TEMPERATURE IN UNITED STATES.

(7)
REGION WHERE TWO YEARS HAVE PASSED WITHOUT RAINFALL.

(8)
THE ONLY ACTIVE VOLCANO IN THE UNITED STATES





California not only has the highest and lowest land of the United States, the greatest variety of temperature and rainfall, it also has the largest variety of products of the soil. The spread of irrigation and of intensive cultivation, and the increase of small farms during the last twenty years, have made California what it is today.

Agriculture had its beginning in wheat raising on great ranches, from fifty to several hundred thousand acres in extent; then deciduous orchard fruits and semitropical citrus fruits, successively.

Both the Spanish and Mexican governments made large grants of land to encourage settlement. These were used as cattle ranches exclusively, up to the time of the American occupation, and the exports consisted entirely of hides and tallow. These grants covered the valleys of the state to a large extent, and later were recognized and patented by the United States Government. About 500 of these claims, covering nearly nine million acres, were found to be valid.

ORGANIZATION OF STATE.

Of the fifty-eight counties into which the state is now divided, the first twenty-seven were organized on February 18, 1850; ten years later the number had increased to forty-two. In 1872 Ventura became the fiftieth county, and Imperial, the latest addition, was formed in 1907.

The land area of the state is about 100,000,000 acres, a great part of which is rough, mountainous country and desert, roughly classified as follows:

	Square miles	Acres
Land surface -----	155,652	99,617,280
Water surface -----	2,645	1,692,800
Total -----	158,297	101,310,080

Approximately one-half of the land surface of the state is under the control of the federal government, including 24,003,190 acres in the national forests, on June 30, 1920. The areas designated as "National Forests" were formerly called "Forest Reserves," but the title was changed by act of Congress of March 4, 1907. Up to June 30, 1920, the amount of swamp land patented to the state was 2,152,280 acres. Of the public lands 80,933,100 acres are surveyed, including 173,863 acres in 1920, and 18,684,180 remain unsurveyed. In 1920, 141 acres were bird reserves.

National Parks and National Monuments.

There are four national parks and six national monuments in California. The former were created by acts of Congress and the latter

by proclamation of the President. The name of each, with the date of creation and present area, is shown by the following table:

Name	Date created	Area, acres
Yosemite National Park*.....	Oct. 1, 1890	719,622.40
Sequoia National Park.....	Sept. 25, 1890	161,597.00
General Grant National Park.....	Oct. 1, 1890	2,596.00
Lassen Volcanic National Park.....	Aug. 9, 1916	79,220.00
Devil Postpile National Monument.....	July 6, 1911	800.00
Lassen Peak National Monument.....	May 6, 1907	1,280.00
Cinder Cone National Monument.....	May 6, 1907	5,120.00
Muir Woods National Monument.....	Jan. 9, 1908	295.00
Pinnacles National Monument.....	Jan. 16, 1908	2,080.00
Cabrillo National Monument.....	Oct. 14, 1913	21,910 sq. ft.

*Boundary changed by Congress in 1905 and again in 1906.

†Boundary changed by Congress October 1, 1890.

‡Within Lassen Volcanic National Park.

California's Natural Recreation Grounds.

California has provided well for the outdoor recreation of its citizens. One-fourth of the territory of the state is devoted to recreation purposes. Millions of acres of mountain slopes and luxurious meadows, rugged peaks, crystal lakes and tumbling streams provide wonderful opportunities for recreation and rest.

Municipal Camps in California's National Forest Parks.

Free permits for eight municipal recreation camps in the national forests of California have been issued by the Forest Service of the United States Department of Agriculture. This state is taking the lead in establishing these camps, where the residents of the cities which maintain the camp may obtain a summer outing at cost.

In 1920 four such camps were operated in the California national forests—two by the city of Los Angeles and one each by Sacramento and Oakland. These four represent an investment of \$70,000, and nearly 5,000 guests were accommodated.

In 1921 Los Angeles will have a third camp in operation, and San Diego and Fresno and Riverside counties expect to open camps also. In addition to its camps, the Los Angeles Playground Department organizes and supervises two-week hiking outings in the Angeles Forest. Three of the eight camps are in the Angeles, two in the Cleveland, and one each in the Sierra, Stanislaus and Eldorado national forests. The camps are from 25 to 150 miles from the municipalities that maintain them.

Only residents or taxpayers of the municipalities that operate the camps are eligible as guests, and, because of the low cost of the outing, each camper is required to render on an average one hour's daily service as outlined by the director in charge, and must also furnish his own bedding. Guests are well housed, fed, and entertained. The following rates for a two-week outing, including transportation, were in effect for 1920:

National forest	City	Name of camp	Miles to camp	Cost
Angeles	Los Angeles	Seeley	75	\$12 75
Angeles	Los Angeles	Radford	90	14 25
Stanislaus	Oakland	Oakland	150	18 00
Eldorado	Sacramento	Sayles Flat	90	25 00

A Recreation Map of California

One-fourth of the territory of the State is devoted to recreation purposes. This territory is divided as follows:

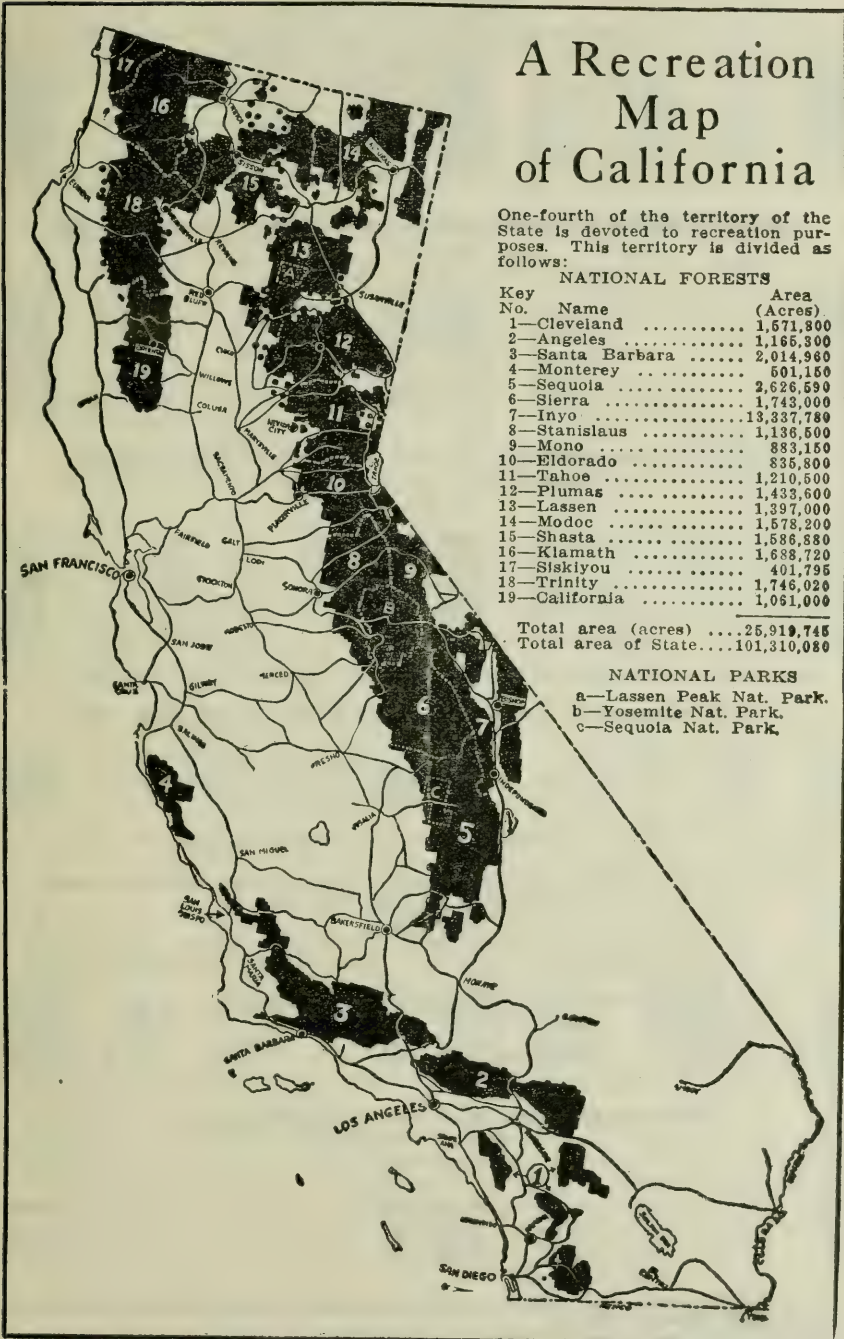
NATIONAL FORESTS

Key No.	Name	Area (Acres)
1	Cleveland	1,671,800
2	Angeles	1,166,300
3	Santa Barbara	2,014,960
4	Monterey	601,150
5	Sequoia	2,626,590
6	Sierra	1,743,000
7	Inyo	13,337,780
8	Stanislaus	1,136,500
9	Mono	883,150
10	Eldorado	835,800
11	Tahoe	1,210,500
12	Plumas	1,433,600
13	Lassen	1,397,000
14	Modoc	1,578,200
15	Shasta	1,586,880
16	Klamath	1,688,720
17	Siskiyou	401,795
18	Trinity	1,748,020
19	California	1,051,000

Total area (acres) 25,919,745
Total area of State 101,310,080

NATIONAL PARKS

- a—Lassen Peak Nat. Park.
- b—Yosemite Nat. Park.
- c—Sequoia Nat. Park.



Public and Indian Lands Originally Entered in California, Years Ending June 30, 1905 - 1920.
(In acres.)

1905	1,032,758	1913	937,230
1906	809,811	1914	878,874
1907	579,224	1915	1,001,633
1908	766,932	1916	640,361
1909	1,290,579	1917	754,564
1910	1,214,348	1918	288,042
1911	1,064,644	1919	520,593
1912	872,301	1920	913,621

Original Homestead Entries in California, Years Ending June 30, 1905 - 1920.
(In acres.)

1905	232,973	1913	381,129
1906	211,597	1914	393,702
1907	173,438	1915	498,477
1908	235,816	1916	499,743
1909	216,639	1917	592,103
1910	278,700	1918	249,704
1911	1,062,005	1919	417,725
1912	871,381	1920	721,681

California Lands Certified or Patented on Account of Railroad Grants, Years Ending June 30, 1905 - 1920.
(In acres.)

1905	426,951	1913	
1906	318,986	1914	1,040
1907	100,971	1915	313,741
1908	3,897	1916	81,633
1909	589,000	1917	35,641
1910	304,084	1918	85,846
1911	442,879	1919	4,562
1912	23,995	1920	108,576

Land Areas Patented in California, Years Ending June 30, 1914 - 1920.
(In acres.)

1914	202,362	1918	312,004
1915	641,756	1919	335,879
1916	336,656	1920	515,394
1917	311,528		

Vacant Public Lands in California—Areas Unappropriated and Unreserved, Years Ending June 30, 1900 - 1920.
(In acres.)

Year	Surveyed	Unsurveyed	Total	Year	Surveyed	Unsurveyed	Total
1900	34,423,923	8,043,589	42,467,512	1916	15,777,934	4,248,065	20,025,999
1912	17,671,839	5,343,499	23,015,338	1917	15,103,078	4,402,139	19,505,217
1913	15,633,304	5,220,333	20,853,637	1918	15,900,150	4,628,884	20,529,034
1914	16,183,344	4,719,408	20,902,752	1919	15,654,405	4,485,572	20,139,977
1915	16,244,018	4,391,905	20,635,923	1920	15,237,248	4,348,553	19,585,801

Indian Reservations, Years Ending June 30, 1890 - 1920.
Area—Unallotted.
(In acres.)

1890	494,045	1918	434,866
1900	406,396	1919	434,946
1915	430,136	1920	517,118*
1917	434,866		

*This does not include approximately 9,000 acres purchased for small bands of Indians, from appropriations made by Congress.

The largest allotments are 42,106 acres in the Round Valley reservation; 29,091 in the Hoopa Valley reservation, and 8,010 acres in the Fort Yuma reservation. The allotments on June 30, 1919, numbered 2,593, the acreage amounting to 82,172 acres allotted, 434,946 unallotted, or a total of 517,118 acres.

California Desert Land Entries—1915-1920 (Passage of Act March 3, 1877).

Year	Entries		Acres		Amount		Amount, total
	Original	Final	Original	Final	Original	Final	
1915	21,711	4,016	4,828,677	744,381	1,223,316	767,500	1,990,815
1916	22,044	4,144	4,884,585	766,142	1,237,304	789,251	2,026,794
1917	22,523	4,353	4,961,633	797,587	1,256,562	819,909	2,076,471
1918	22,690	4,467	4,985,079	813,229	1,262,423	835,566	2,097,989
1919	22,887	4,533	5,015,464	822,646	1,270,020	844,982	2,115,002
1920	23,124	4,588	5,051,718	830,203	1,279,086	852,543	2,131,629

California Coal Land Entries—1915-1920 (Passage of Act March 3, 1873).

Year	Entries	Acres	Amount	Year	Entries	Acres	Amount
1915	38	5,535	\$1,531	1918	38	5,535	\$1,531
1916	38	5,535	\$1,531	1919	38	5,535	\$1,531
1917	38	5,535	\$1,531	1920	38	5,535	\$1,531

California Timber-Culture Entries—1915-1920 (Passage of Act March 3, 1873).

Year	Entries			Area, acres			Amount			
	Original	Final	Com-mut-ed	Original	Final	Com-mut-ed	Fees (original find)	Fees	Purchase money	Total
1915	8,264	481	568	1,163,922	63,572	78,849	\$110,014	\$1,910	\$98,649	\$210,573
1916	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1917	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1918	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1919	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1920	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573

California Timber and Stone Entries—1915-1920 (Passage of Act June 3, 1878).

Year	Entries	Area, acres	Amount	Year	Entries	Area, acres	Amount
1915	20,193	2,813,308	\$7,149,377	1918	20,481	2,843,460	\$7,235,377
1916	20,316	2,826,653	7,186,766	1919	20,154	2,846,286	7,244,093
1917	20,401	2,835,701	7,212,633	1920	20,584	2,852,487	7,262,712

Land and Scrip Granted to California for Educational and Other Purposes, 1915-1920.

Year	Acres	Year	Acres
1915	6,236,773	1918	6,236,773
1916	6,236,773	1919	8,377,538
1917	6,236,773	1920	8,389,053

Purposes of Land Grant and Amount Granted California in 1920.

	Acres
Internal improvements	500,000
University	46,080
Public buildings	6,400
Agricultural and mechanical colleges	150,000
Common schools (sections 16 and 36)	5,534,293
Swamp	2,152,280
Total	8,389,053

VACANT PUBLIC LANDS.

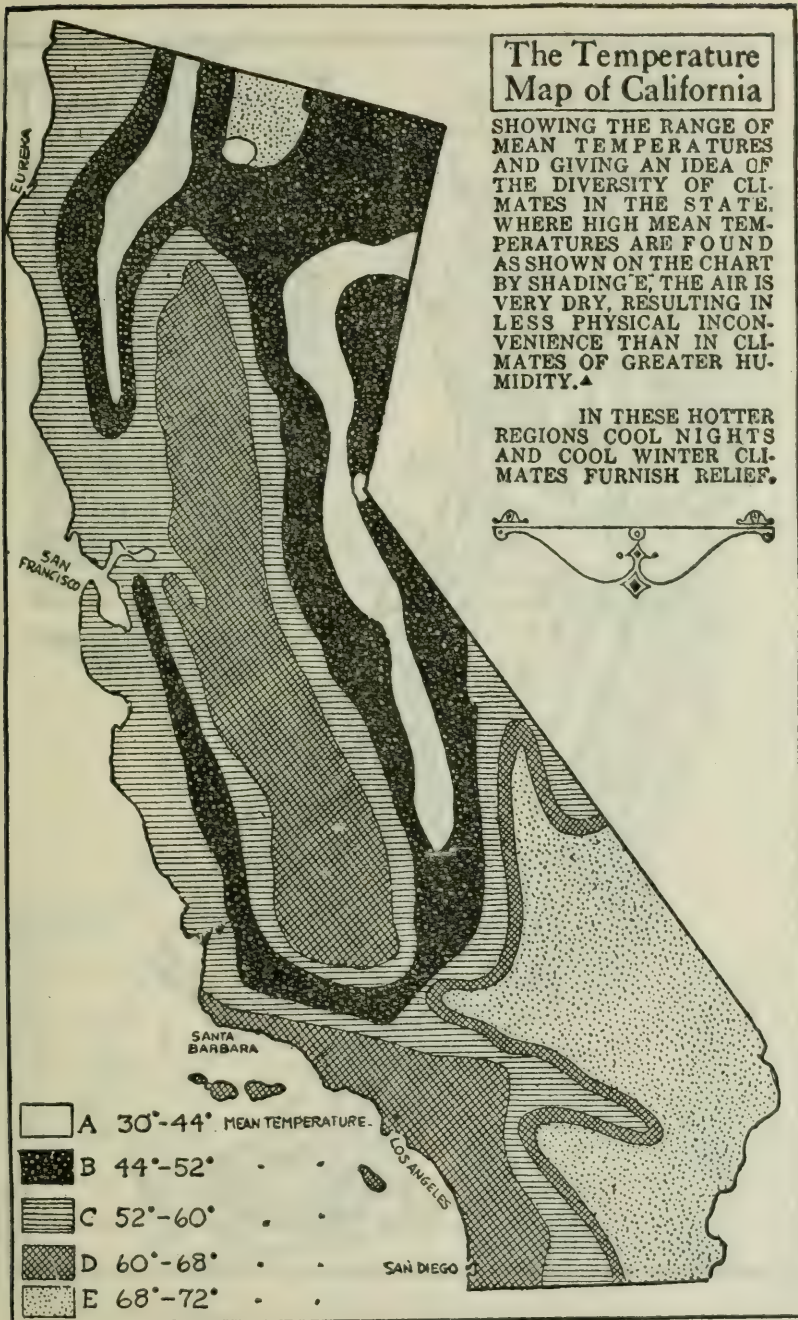
Practically all the vacant public land which is easily accessible has been already taken up, the areas now remaining being situated at a considerable distance from towns or villages, or in remote mountain valleys.

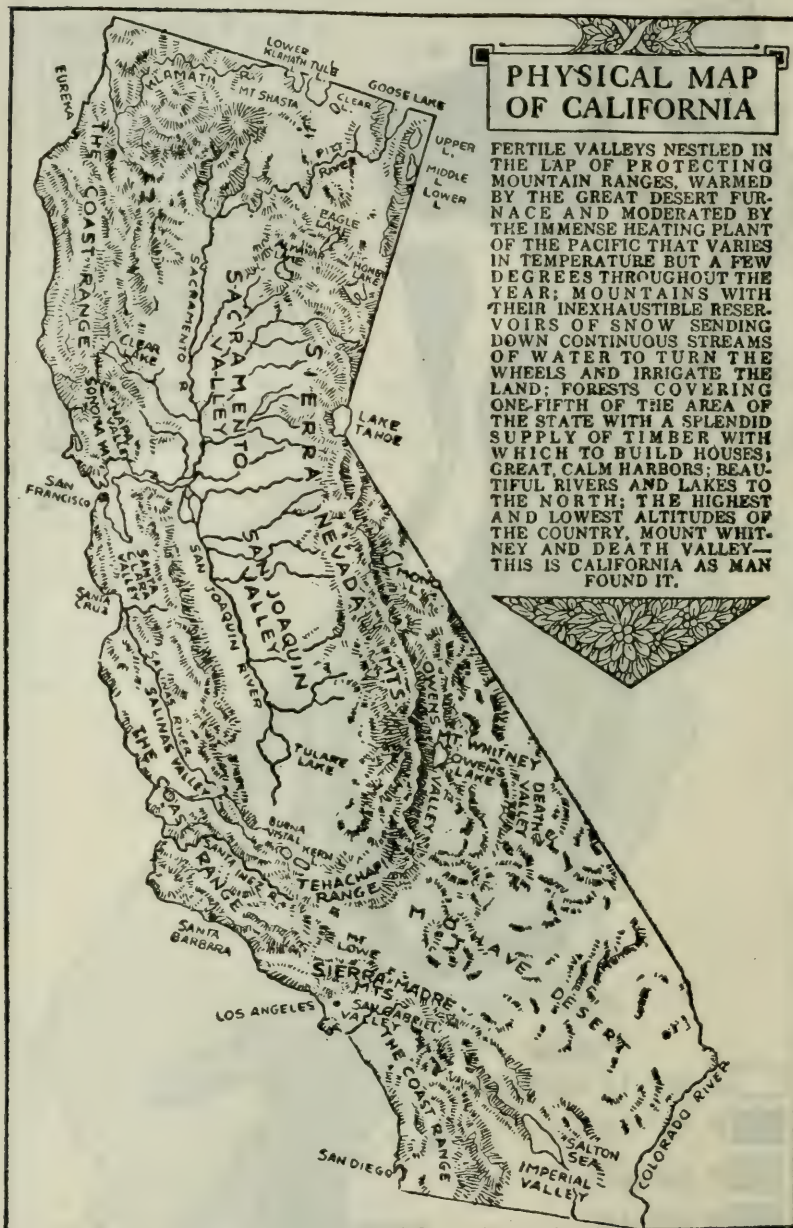
Before entry, personal inspection of the lands should be made to ascertain if they are suitable, and when the applicant is satisfied on this point, entry can be made at the local land office. Information regarding vacant land in any district can be obtained on application to the register and receiver of the proper local land office, who will give full information regarding vacant land and the steps necessary to be taken in making entry. All vacant unappropriated public lands, nonmineral and nonsaline in character, are subject to entry under the homestead laws.

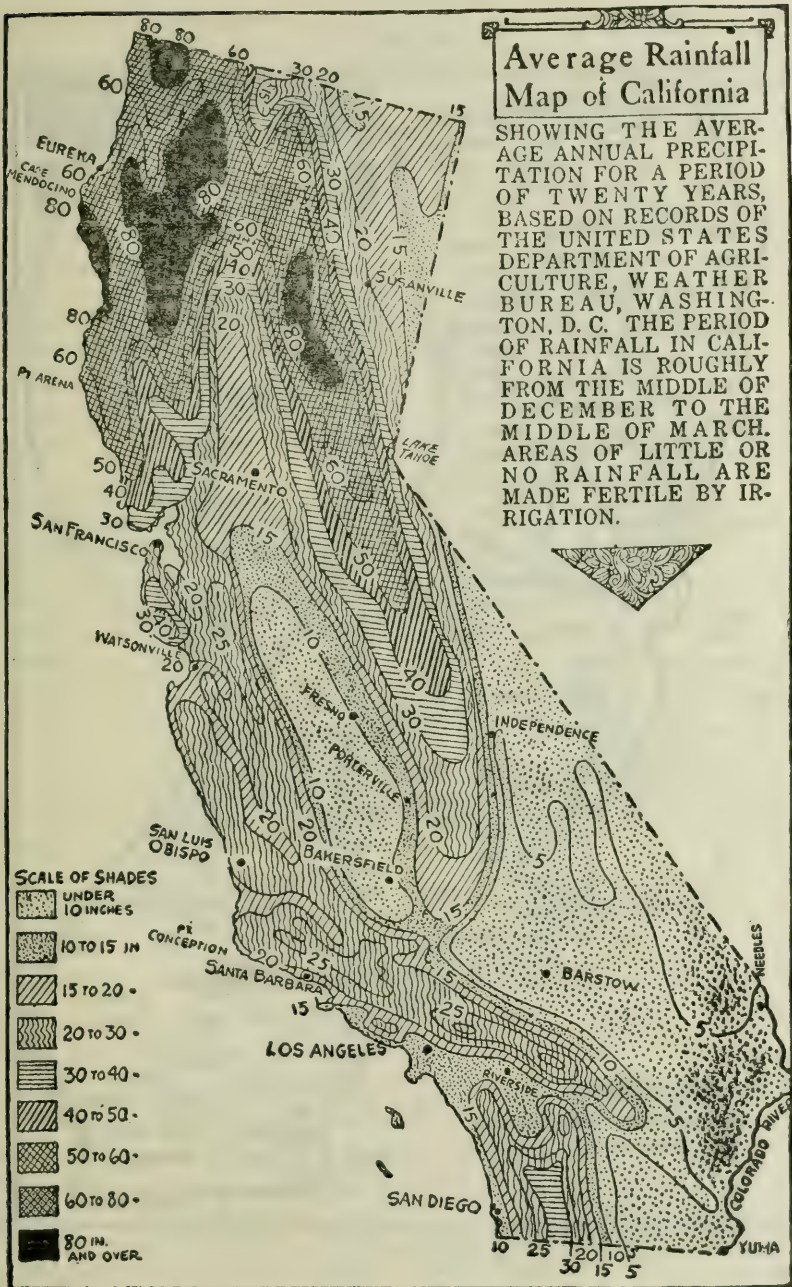
A regulation has recently been issued increasing the area of a homestead from 160 to 320 acres on land having no water supply, in Los Angeles, Imperial, San Diego and Riverside counties.

The total acreage of land unappropriated and unreserved on July 1, 1920, was 19,585,801 acres, of which 15,237,248 acres had been surveyed and 4,348,553 unsurveyed.

While the following figures may not be absolutely correct, owing to liability to error in a work of such magnitude and to the necessity of making estimates of unsurveyed lands, it is believed that they afford a close approximation to the actual areas. The statement is intended to inform correspondents and the general public as to whether there is much or little public land in the several land districts therein and in particular counties and localities.







Vacant Public Lands, by Counties, Unappropriated and Unreserved July 1, 1920.

Counties	Land district	Acreage		Total acres	Brief description of land.
		Surveyed	Un-surveyed		
Alameda -----	San Francisco.	614	1,280	1,894	Mountainous.
Alpine -----	Sacramento --	12,435	300	12,735	Mountainous.
Alpine -----	Independence --	10,581		10,581	Mountainous, grazing, mineral.
Total -----		23,016	300	23,316	
Amador -----	Sacramento --	12,223		12,223	Hilly, grazing, mineral.
Butte -----	Sacramento --	17,764	320	18,084	Hilly, grazing, mineral.
Calaveras -----	Sacramento --	39,253		39,253	Hilly, grazing, mineral.
Colusa -----	Sacramento --	22,328	1,980	24,308	Hilly, grazing.
Colusa -----	San Francisco.	11,175		11,175	Mountainous.
Total -----		33,503	1,980	35,483	
Contra Costa ---	San Francisco.	1,368		1,368	Mountainous.
Del Norte -----	Eureka -----	740		740	Sea beach, forest listings.
El Dorado -----	Sacramento --	29,401		29,401	Hilly, grazing, mineral.
Fresno -----	Sacramento --	4,470	1,380	5,850	Hilly, grazing.
Fresno -----	San Francisco.	32,166	3,882	36,028	Mountainous.
Fresno -----	Visalia -----	103,318	2,814	108,132	Mountainous, grazing.
Total -----		141,954	8,056	150,010	
Glenn -----	Sacramento --	10,982		10,982	Hilly, grazing.
Glenn -----	San Francisco.	2,400		2,400	Mountainous.
Total -----		13,382		13,382	
Humboldt -----	Eureka -----	46,320	16,851	63,171	Mountainous, grazing, timber.
Imperial -----	El Centro ---	1,059,504	354,770	1,414,274	Level, rolling mountainous, all desert.
Inyo -----	Independence --	2,693,982	1,156,258	3,850,240	Mountainous, desert, grazing, agricultural.
Kern -----	Visalia -----	97,830	23,724	124,554	Mountainous, grazing.
Kern -----	Independence --	561,109	124,769	685,869	Grazing, mineral, agricultural.
Kern -----	San Francisco.	16,578	640	17,218	Mountainous.
Kern -----	Los Angeles --	20,772	5,393	26,165	Arid, level, desert, mountainous.
Total -----		693,289	157,517	853,803	
Kings -----	San Francisco.	768		768	Mountainous.
Kings -----	Visalia -----	12,884		12,884	Mountainous, grazing.
Total -----		13,652		13,652	
Lake -----	Sacramento --	11,027		11,027	Hilly, grazing.
Lake -----	San Francisco.	131,655	8,060	139,715	Mountainous.
Total -----		142,682	8,060	150,742	
Lassen -----	Susanville ---	983,133	24,521	1,007,654	Grazing, desert, timber, mineral.
Los Angeles -----	Los Angeles --	476,750	5,916	482,666	Arid, level, desert, mountainous.
Madera -----	Sacramento --	1,451	600	2,051	Hilly, grazing, mineral.
Marin -----					
Mariposa -----	Sacramento --	38,486		38,486	Hilly, grazing, mineral.
Mendocino -----	Eureka -----	4,040		4,040	Mountainous, grazing.
Mendocino -----	San Francisco.	166,068	3,158	169,166	Mountainous.
Total -----		170,012	3,158	173,170	

Vacant Public Lands, by Counties, Unappropriated and Unreserved
July 1, 1920—Continued.

Counties	Land district	Acreage		Total acres	Brief description of land.
		Surveyed	Un-surveyed		
Merced -----	Visalia -----	4,118	-----	4,118	Mountainous, grazing.
Merced -----	Sacramento -----	982	-----	982	Hilly, grazing.
Merced -----	San Francisco -----	4,565	-----	4,565	Mountainous.
Total -----	-----	9,665	-----	9,665	-----
Modoc -----	Susanville -----	255,329	16,840	272,169	Grazing, desert, timber, mineral.
Modoc -----	Sacramento -----	793	4,342	5,135	Hilly, grazing.
Total -----	-----	256,122	21,182	277,304	-----
Mono -----	Independence -----	258,316	42,124	300,440	Mountainous, grazing and agricultural.
Monterey -----	San Francisco -----	156,643	2,560	159,203	Mountainous.
Monterey -----	Visalia -----	1,139	-----	1,139	Mountainous, grazing.
Total -----	-----	157,782	2,560	160,342	-----
Napa -----	Sacramento -----	17,07	-----	17,567	Hilly, grazing.
Napa -----	San Francisco -----	37,110	-----	37,110	Mountainous.
Total -----	-----	54,617	-----	54,617	-----
Nevada -----	Sacramento -----	38,815	-----	38,845	Hilly, grazing, mineral.
Orange -----	Los Angeles -----	19,76	1,624	21,350	Mountainous, hilly.
Placer -----	Sacramento -----	8,391	-----	8,391	Hilly, grazing, mineral.
Sacramento -----	Sacramento -----	39	-----	39	Hilly, grazing, mineral.
Plumas -----	Susanville -----	7,983	2,591	10,574	Mountainous, timber, mineral.
Riverside -----	Los Angeles -----	211,195	20,011	231,207	Mountainous, rolling, level desert.
Riverside -----	El Centro -----	900,395	778,560	1,678,955	Mountainous, rolling, level desert.
Total -----	-----	1,111,591	798,571	1,910,162	-----
San Benito -----	San Francisco -----	143,907	8,960	152,867	Mountainous.
San Benito -----	Visalia -----	4,530	-----	4,530	Mountainous, grazing.
Total -----	-----	148,437	8,960	157,397	-----
San Bernardino -----	Independence -----	2,083,884	1,213,515	3,297,399	Mountainous, mineral, desert.
San Bernardino -----	Los Angeles -----	3,302,762	308,676	3,611,438	Mountainous, rolling, level desert.
Total -----	-----	5,386,646	1,522,191	6,908,837	-----
San Diego -----	El Centro -----	317,835	83,715	401,550	Level, rolling, mountainous, all desert.
San Diego -----	Los Angeles -----	88,505	2,240	90,745	Mountainous, rolling desert.
Total -----	-----	406,340	85,955	492,295	-----
San Joaquin -----	San Francisco -----	320	-----	320	Mountainous.
San Luis Obispo -----	San Francisco -----	143,590	2,473	146,033	Mountainous.
San Francisco -----	San Francisco -----	-----	-----	-----	-----
Santa Barbara -----	Los Angeles -----	1,180	-----	1,180	Mountainous.
Santa Barbara -----	San Francisco -----	9,993	-----	9,993	Mountainous.
Total -----	-----	11,173	-----	11,173	-----

**Vacant Public Lands, by Counties, Unappropriated and Unreserved
July 1, 1920—Concluded.**

Counties	Land district	Acreage		Total acres	Brief description of land.
		Surveyed	Un-surveyed		
Santa Clara -----	San Francisco	37,160	3,660	40,820	Mountainous.
Santa Cruz -----	San Francisco	164		164	Mountainous.
Shasta -----	Sacramento	162,780	1,820	164,600	Hilly, grazing, mineral.
Sierra -----	Susanville	3,183		3,183	Mountainous, timber, mineral.
Siskiyou -----	Eureka	3,490		3,490	Forest listings, grazing, farming, mineral.
Siskiyou -----	Sacramento	72,937	32,067	105,004	Mountainous.
Total -----		76,427	32,067	108,494	
Solano -----	San Francisco	1,896		1,896	Mountainous.
Sonoma -----	San Francisco	34,111	4,640	38,751	Mountainous.
Stanislaus -----	Sacramento	1,529		1,529	Hilly, grazing, mineral.
Stanislaus -----	San Francisco	10,267	2,600	12,867	Mountainous.
Total -----		11,796	2,600	14,396	
Sutter -----	Sacramento	200		200	Hilly, grazing, mineral.
Tehama -----	Sacramento	42,389	2,000	44,389	Hilly, grazing, mineral.
Trinity -----	Eureka	18,620		18,620	Mineral, grazing, farming.
Trinity -----	Sacramento	27,061	4,700	31,761	Hilly, grazing, mineral.
Total -----		45,681	4,700	50,381	
Tulare -----	Visalia	30,587	57,598	88,185	Mountainous, grazing.
Tulare -----	Independence	52,675		52,675	Mountainous, grazing.
Total -----		83,262	57,598	140,860	
Tuolumne -----	Sacramento	15,863	1,600	17,463	Hilly, grazing, mineral.
Ventura -----	Los Angeles	34,293	9,410	43,703	Mountainous.
Ventura -----	San Francisco	740		740	Mountainous.
Total -----		35,033	9,410	44,443	
Yolo -----	Sacramento	21,232		21,232	Hilly, grazing.
Yolo -----	San Francisco	6,360	640	7,000	Mountainous.
Total -----		27,592	640	28,232	
Yuba -----	Sacramento	4,610		4,610	Hilly, grazing, mineral.
Totals -----		15,237,248	4,348,553	19,585,801	

Summary of Vacant Public Lands, by Districts, June 30, 1920.

Land districts	Area in acres		
	Surveyed	Unsurveyed	Total
El Centro -----	2,277,734	1,217,045	3,494,779
Eureka -----	73,210	16,851	90,061
Independence -----	5,690,547	2,536,657	8,197,204
Los Angeles -----	4,155,184	353,270	4,508,454
Sacramento -----	614,978	51,109	666,087
San Francisco -----	949,558	42,533	992,091
Susanville -----	1,249,631	43,952	1,293,583
Visalia -----	256,406	87,136	343,542
Totals -----	15,237,248	4,348,553	19,585,801

SALE OF SCHOOL LANDS.

Certain school lands if suitable for cultivation are subject to sale to actual settlers thereon, pursuant to the provisions of chapter 395, Statutes of California, 1915. Large areas of land are also available to lease.

Forms for application to lease state lands from the State of California can be obtained from the State Surveyor General, Sacramento, California. A filing fee of \$5 must accompany the application to lease state lands, together with a letter from the applicant stating the maximum amount per acre that the applicant is willing to pay as the annual rental for the land desired to be leased, which letter from the applicant will be submitted to the State Board of Control when the Surveyor General determines the annual rental per acre of the land and submits same to the State Board of Control for approval, in accordance with the provisions of section 2 of chapter 493, Statutes of California, 1917.

Anyone desiring to lease any of these lands can obtain free a copy of the law governing the leasing of said lands and a list of the different tracts of state land subject to lease in the county in which he is interested together with a form for application to lease, on application to Surveyor General.

All money derived from the leasing of these lands goes directly to the support of the public schools.

The state has sold all of its swamp and overflowed land except a few isolated tracts which can be found only by an extensive search of the records of the State Land Office.

For the two-year period ending August 1, 1920, 707.79 acres of school land suitable for cultivation were sold to five actual settlers at prices fixed by the State Board of Control and the Surveyor General, ranging from \$3 to \$8 per acre, as compared with the price of \$1.25 per acre received for the great majority of the school lands sold to speculators under the early methods of selling school lands.

On August 1, 1920, there were 736,057 acres of vacant school land unsold in California, 121,751 acres thereof being situated within national forests created by the federal government and being withheld from sale by the provisions of section 3408b of the Political Code. The remaining 614,306 acres are subject to sale.

Lands suitable for cultivation which are very limited in area can be sold to actual settlers at a price to be fixed by the State Board of Control and the Surveyor General. Lands suitable for cultivation are sold at public auction to the highest bidder, and the prices received at said public auction sales have been very gratifying. Out of the fifty-eight counties in the State of California, public auction sales of school lands have been held from August 22, 1919, to August 1, 1920, in twenty-five counties, at which sales 117,099.19 acres of land have been disposed of, the highest price per acre received being \$140, whereas under former laws state school lands were sold at flat rates of \$1.25 and \$2.50 per acre.

There are no vacant school lands in the following counties: Alameda, Amador, Kings, Marin, Orange, Sacramento, San Benito, San Francisco, San Joaquin, San Mateo, Sutter.

RAILROAD LAND, 1920.

The following acreage in various counties belonging to the Southern Pacific and Central Pacific railways is also for sale:

County	Acres
Butte	5,072.94
El Dorado	860.00
Fresno	904.61
Kern	121,203.39
Los Angeles	41,855.85
Nevada	2,912.11
Riverside	3,403.40
San Bernardino	101,326.97
Shasta	19,172.47
Sierra	401.27
Siskiyou	44,075.62
Stanislaus	2,129.46
Tehama	5,725.88
Tehama and Butte	1,160.01
Tulare	1,280.00
Yuba	3,760.01
Yuba and Nevada	210.00
Total	355,484.05

Homesteads, 160 to 320 Acres.

A homestead entry is limited to 160 acres. An enlarged homestead may contain 320 acres, provided the land is nonmineral, nontimbered, and nonirrigable. These terms mean land which, as a rule, lacks sufficient rainfall to produce agricultural crops without the necessity of resorting to unusual methods of cultivation, such as the system commonly known as "dry farming," and for which there is no known source of water supply from which land may be successfully irrigated at a reasonable cost.

Stock Raising Lands (640 Acres).

These lands are those the surface of which is chiefly valuable for grazing and raising forage crops, which do not contain merchantable timber, are not susceptible of irrigation from any known source of water supply, and are of such character that 640 acres are reasonably required to support a family. The classification will be made, so far as practicable, to exclude lands that are not chiefly valuable for grazing and raising forage crops, either because too valuable for such use or too poor for such use. Lands which are capable of producing valuable crops of grain or other food cereal or fruit are not subject to designation, being, if otherwise subject to entry, disposable under the 160-acre or 320-acre homestead law, according to their character. Lands of such arid or poor character that they are worthless or fit only for occasional grazing in connection with large areas of other land are not subject to designation and entry. No tract may be designated which contains a water hole or other body of water, needed or used by the public for watering purposes, nor lands included in national forests.

Any person who desires to obtain a homestead must be a citizen of the United States or have declared his intention to become such, over the age of 21 years, and not the proprietor of more than 160 acres of land in the United States.

Six months from the date of filing is allowed to establish a bona fide residence on the homestead, which from that time to the date of the

final proof must be the home of the applicant to the exclusion of a home elsewhere.

Under the new homestead law the entryman must, within six months after filing, establish actual residence on the land, build a habitable house and actually live on the land to make it a home for seven months out of each year for three years, and cultivate at least one-eighth of the land.

Residence can not be maintained by occasional visits to the land while the actual home is elsewhere. The homesteader must manifest entire good faith in occupying the land as a permanent home to the exclusion of one elsewhere.

The settler must show that he has cultivated one-sixteenth of the area of the land, beginning with the second year from date of entry, and one-eighth of the area the following year and until proof is submitted. A mere breaking of the soil will not meet the terms of the law, but such breaking and stirring of the soil must be accompanied by planting or the sowing of seed and tillage for crops other than native grasses. If his proof is satisfactory, and the government, after investigation, finds that he has complied with the law in good faith, his entry will be clear-listed, and in due time he will receive a patent for the land.

The homesteader may, before three years, by paying the purchase price of the land, at the rate of \$1.25 per acre if it is situate outside the limits of a railroad grant, and at the rate of \$2.50 per acre if it is within the granted limits of a railroad, offer what is known as commutation proof, which must show at least fourteen months of actual and substantially continuous residence, with bona fide cultivation and improvement of the land, immediately prior to his application to make such proof.

The United States Land Office fees and commissions for filing on 160 acres are \$16, if the land is outside of the limits of a railroad grant; if inside the granted limits of a railroad they would amount to \$22. The fees and commissions are computed upon the acreage of the tract entered.

The final proof commissions on 160 acres would be \$6, if the land is outside a railroad grant, and \$12 if inside the limits of a grant. Added to this are fees ranging from \$2 to \$4 based upon the number of words of testimony in the proof. There are no other fees or commissions required of a homesteader by the government.

Those who commute their homesteads must pay the purchase price of the land in addition to the above fees, except the final proof commissions, which are not required on commuted homesteads.

A township diagram, showing only entered lands in any township, can be procured by sending \$1 to the register and receiver of the land office of that district. The diagram required should be specified by township and range number.

In some counties only a few acres are reported as vacant, and in seven all the land has already been taken up. Neither the General Land Office nor the local land officers can furnish information as to the location of such tracts, but such information may be obtained from the records of the local land offices which, when not in official use, are open to inspection by prospective home seekers or their agents. There are

a number of detailed regulations issued regarding enlarged homesteads, stock-raising homesteads, soldiers' additional rights, military service by homesteaders, and leave of absence for the purpose of performing farm labor, copies of which can be obtained from the General Land Office, Washington.

The following three counties have no unappropriated or unreserved public lands: Marin, Sacramento, and San Francisco.

Dry Farming.

The United States Government is not only interested in settling its irrigated lands, but also in developing all parts of its territory, and for this reason the various bureaus of the Department of Agriculture have been studying the soils of the West and also scouring the world to find crops suited for these regions. Dry farming is meeting with a certain amount of success in various parts of the country, and the combined efforts of all of these endeavors to make fertile and productive these lands will result in an era of unprecedented prosperity for the entire West.

Reclamation Projects.

If the entry is of a farm unit under the Reclamation Act it may be as small as 10 acres, if the lands are suitable for fruit raising or similar purposes, but in most cases units are fixed at from 40 to 80 acres each.

CALIFORNIA LAND SETTLEMENT ACT.

*“The California Land Settlement Act is a homestead law modified to suit present day conditions. It lowers the wall against ownership which high land prices is raising. It helps people who aspire to be farmers, but who, under ordinary conditions, could not make the attempt. It is, as has been well stated, ‘a business venture outside the narrow realm of routine government.’ It is an innovation but not an experiment.

“The reports of the State Immigration and Housing Commission show that the American farm laborer is disappearing. He will not live in a bunk house. He will not stay on the land if he has to compete with Asiatics and he will not bring up his family where his wife and children have no social status. These things do not reflect on his industry or his character. On the contrary, they show the strength of economic democracy in the American soul.

“As the conditions of life for tenants and farm laborers have become harder, the conditions of wage earners in the city have become easier. Wages have risen, hours have become shorter. Everywhere more attention is given by the public to working conditions in city industries so naturally the American, not tied down to any occupation or mode of life, goes to cities.

“The California act changes this. It makes rural life democratic. It closes the gulf which separates different classes of rural society and makes of rural neighborhoods a real democracy. It does this by making every person, who lives in a community it creates, a land owner. The farms are small, but large enough to give employment to the owner and

*From report of State Land Settlement Board.

his family. The farm laborer is enabled to buy enough land for a garden and to keep a cow and to grow nearly everything which goes on his own table. He is loaned money to build a comfortable house. His wife and children can live under the same conditions of comfort, independence, and social recognition as the wives and children of the farm owners.

“The outstanding feature of this act is the generous credit it gives. There is a long time credit to pay for land and permanent improvements. A short time credit to help settlers buy live stock and implements. The basis of both credits is the reputation and personal worth of the borrower.

“The state begins its generosity by only requiring a cash payment of 5 per cent of the cost of the land. It will then loan settlers up to \$3,000 but it will not loan the settler all the money that is needed for development. The Board believes, and experience has shown its belief to be sound, that it can not safely advance more than 60 per cent of the cost of houses, live stock, and implements. The settler must have, therefore, enough money to pay 5 per cent of the cost of the land and 40 per cent of the cost of his improvements and equipment. Moreover, experience shows that the sooner a farm is improved and equipped, the better the settler's chances of success and that means that there must be enough cash to provide a house, a shelter for stock, and to plant and grow crops the first year. An unproductive year at the outset is a financial disaster.

“Before the lands at Durham were thrown open to settlement, the Board asked the advice of people who knew what it would cost to improve and equip a 20- and 40-acre farm, and the consensus of opinion was that it would cost between \$4,000 and \$5,000. This meant that if all of the \$3,000 which the Board could lend was used, the settler must add to that at least \$1,500 to make a safe start and \$1,500 was made the minimum capital which a farm settler must have to be accepted.

“By the time Delhi was ready for settlement, the prices of everything had nearly doubled. Wages, live stock, implements, and cost of living had all gone up and in order to protect the oversanguine and inexperienced, the Board made the minimum capital requirement at Delhi \$2,500. All who have attempted it know that these figures are below actual needs, that there must be not only good fortune, but unusual economy and industry to enable a settler with only \$2,500 to start on the road to farm ownership. Even with this amount, sickness or the loss of a crop would bring an interruption in development or a need to call for help beyond what the Land Board can with financial safety extend.

“The need for \$2,500 or more capital to make a start is apparent to anyone who will try to visualize the expenses a settler must incur. He has to make the 5 per cent payment on his land. He has to pay 40 per cent of the cost of his farm buildings. He has to have farm implements, cows, horses, chickens, and pigs, and his family has to have food and clothes while the land is being prepared for irrigation and a crop grown. If the settler does not have the money, how is he to squeeze through? The Board could not furnish it and remain a solvent business enterprise. The credit it gives is far beyond that of private colonizers or of the federal land banks. Yet, this requirement, that the

farm buyer should have a reasonable amount of money of his own, is the only feature of the Board's policy which has been criticised. Men used to the Homestead Act where land was a gift say, 'Why not take men without money?' The reason this can not be done is that the state is not *giving away either land or money*. It is simply creating conditions that will make it easier for settlers to pay for land.

"The help this act gives is generous and substantial. This is clearly shown when one contrasts the large outlay required under the usual conditions of private bargaining with the much smaller one under the act. The payments on a 40-acre farm costing \$250 an acre or \$10,000 under the two plans would be:

Outlay of Settler Under State and Private Purchase for First Two Years.

	State	Private
First payment	\$500	\$2,000
First year payment (principal and interest).....	570	2,080
Improvements (house, \$1,000).....	400	1,000
Team (\$300).....	120	300
Cows, pigs, chickens, farm implements (\$1,500).....	600	1,500
Leveling 15 acres alfalfa (\$300).....	240	600
	\$2,430	\$7,480

"The advantages of the state plan to the settler of small means do not end with the first two years. Under the state plan, his payments are amortized. The interest rate is only 5 per cent. The settlers pay only 6 per cent a year on their debt to the state. That pays it off, principal and interest, in thirty-six and one-half years. The interest rate on private loans is 7 and 8 per cent."

The Durham Settlement in Butte County.

The first tract now known as the Durham State Land Settlement of 6,415 acres was purchased in Durham, Butte County, and transferred to the state on May 7, 1918. Of this, 5,000 acres in round numbers have been subdivided. The subdivided land was cut up into 99 farms and 26 farm laborers' allotments. All of these farms have been sold. The successful result of this undertaking is well shown by the fact that few men on the Durham lands have failed in the agricultural depression. With the period of reverses in agriculture, the time when tried agriculturists have failed and when men with financial backing have quit, the State Land Settlement scheme has been given the acid test. Elwood Mead, Chairman of the State Land Settlement Board, says: "If the plan were going to fail, it would fail now. I do not mean to assert we have had no failures. Every business, in prosperous times as well as in difficult ones, has its failures. But we have had few, very few, and those who have failed have shown a reason so evident we are able to show it is not in the plan."

The Durham settlers have met their payments and an audit of the Board of Control shows that there is an ample surplus of assets over liabilities to insure the return to the state of all the money advanced with interest.

The Cooperative Stock Breeders' Association of the Durham Settlement adopted one breed of dairy cattle, one breed of beef cattle, one breed of hogs and two breeds of sheep. Nothing but pure bred sires

can be used in the settlement and these if not owned by the Association must be approved by its executive committee. All cattle are tested every six months for tuberculosis and no tubercular animals are retained in the settlement. The Durham Stock Breeders' Association now owns seven valuable registered Holstein bulls and has a cooperative chilling and separating plant for the sale of the milk of the community.

The Delhi Settlement in Merced County.

The legislature in 1919 provided \$1,000,000 to be used in establishing a colony similar to the one at Durham, where the farms are all sold.

The Land Settlement Board bought a second tract of 8,751 acres in Merced County. The first unit of this land has been cut up into 49 farms and 26 farm laborers' allotments and has been sold to actual settlers. Like Durham land, it was overlapped for.

Before the Delhi lands were thrown open to settlement, 100,000 Thompson seedless grape vines were planted on 160 acres. About 200 acres had been seeded to alfalfa and 600 to rye. A considerable area had been graded and prepared for irrigation, but not planted. One million vines are being rooted for next year's planting and 10 acres of land has been given over to a nursery for the propagation of fruit and shade trees for the settlers. One of the first acts in preparing the land for settlement was the planting of 10,000 eucalyptus trees for wind breaks. The second unit at Delhi will be improved and offered to settlers in the spring of 1921.

FARMS AND FARM LANDS.

California ranks second in land area and eighth in population among the states of continental United States. The soils vary from heavy clay like "adobe" soils to sandy and gravelly loams.

Farm land is divided into (1) improved land, (2) woodland, and (3) all other unimproved land. *Improved land* includes all land regularly tilled or mowed, land pastured and cropped in rotation, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings. *Woodland* includes all land covered with natural or planted forest trees, which produce, or later may produce, firewood or other forest products. *All other unimproved land* includes brush land, rough or stony land, swamp land, and any other land which is not improved or in forest. The census classification of farm land as "improved land," "woodland," and "other unimproved land" is one not always easy for the farmers or enumerators to make and the statistics therefore must be considered at best only a close approximation.

Summary of Population and Farms, 1850-1920.

Year	Population	Number of farms	Land in farms		Per cent of land area in farms
			All land	Improved	
1850	92,597	872	3,893,985	82,454	3.9
1860	379,994	18,716	8,730,034	2,468,034	8.8
1870	560,247	23,724	11,427,105	6,218,133	11.5
1880	861,694	35,934	16,593,742	10,669,698	16.7
1890	1,213,398	52,894	21,427,293	12,222,839	21.5
1890	1,485,053	72,542	28,828,951	11,958,837	28.9
1910	2,377,549	88,197	27,931,444	11,389,894	28.9
1920	3,426,312	117,670	29,365,667	11,878,339	29.5

Summary of Farm Values, 1850-1920.

Year	Total value	Land and buildings	Implements and machinery	Live stock
1850 -----	\$7,328,582	\$3,874,041	\$103,483	\$3,351,058
1860 -----	30,870,327	48,736,804	2,538,506	35,585,017
1870 -----	184,521,470	141,240,028	5,316,690	37,964,752
1880 -----	*311,997,443	262,051,282	8,447,744	*41,498,417
1890 -----	*777,381,767	697,116,630	14,689,710	*65,575,427
1900 -----	796,527,955	707,912,960	21,311,670	67,303,325
1910 -----	1,614,694,584	1,450,601,488	36,493,158	127,599,938
1920 -----	3,431,021,861	3,073,811,109	136,069,290	211,141,462

*Includes estimated value of range animals.

Value of Farms, 1920.

The value of all farms in the United States on January 1, 1920, (value of land and buildings) was \$67,795,965,384, as compared with \$34,801,125,697 on April 15, 1910. The increase in the value of farms during the decade was \$32,994,839,687, or 94.8 per cent. It thus appears that while there was only a slight increase in the number of farms between 1910 and 1920 and an increase of less than 10 per cent in the farm acreage, the value of farms nearly doubled.

Due allowance must be made, of course, for the fact that farm values in many localities were abnormally high at the beginning of the year 1920, and that present values might be considerably less than those reported at the time of the census.

Seven states reported values for farm land and buildings in excess of \$3,000,000,000, as follows: Iowa, \$7,601,772,290; Illinois, \$7,416,583,951; Nebraska, \$3,723,536,255; Texas, \$3,717,799,544; Minnesota, \$3,301,168,325; California, \$3,073,811,109, and Missouri, \$3,062,967,700.

Average Value Per Farm.

The average value of land and buildings per farm for the United States as a whole in 1920 was \$10,514, as compared with \$5,471 in 1910.

In five states the average value reported per farm was above \$25,000. These states were Iowa, \$35,616; South Dakota, \$33,122; Illinois, \$31,270; Nebraska, \$29,927, and California, \$26,122.

Average Value Per Acre.

The average value of land and buildings per acre of land in farms in the United States in 1920 was \$70.94, as compared with \$39.60 in 1910.

An average value of more than \$100 per acre was reported for eight states, as follows: Illinois, \$231.93; Iowa, \$227.09; Indiana, \$125.98; Ohio, \$113.18; New Jersey, \$109.67; Minnesota, \$109.23; California, \$104.67, and Connecticut, \$100.20.

Average Value of Plow Lands, Per Acre, 1916-1920.

	California	United States
Average of poor plow lands—		
1916.....	\$55 00	\$12 67
1917.....	66 00	47 86
1918.....	69 00	51 26
1919.....	70 00	60 76
1920.....	75 00	56 63
Average of good plow lands—		
1916.....	170 00	78 34
1917.....	168 00	85 48
1918.....	165 00	91 83
1919.....	175 00	113 34
1920.....	200 00	106 33
Average of all plow lands—		
1916.....	110 00	62 17
1917.....	120 00	68 38
1918.....	121 00	74 31
1919.....	130 00	90 01
1920.....	135 00	83 78

NUMBER OF FARMS, ACREAGE, AND VALUE.

Number of Farms and Farm Acreage, 1850 to 1920.

Census year	Farms		Land in farms				Per cent of land area in farms	Per cent of farm land improved
	Number	Per cent of increase	All land		Improved land			
			Acres	Per cent of increase	Acres	Per cent of increase		
1920.....	117,670	33.4	29,365,667	5.1	11,878,339	4.3	29.5	40.4
1910.....	88,197	21.6	27,931,444	-3.1	11,389,894	-4.8	28.0	40.8
1900.....	72,542	37.1	28,828,951	34.5	11,958,837	-2.2	28.9	41.5
1890.....	52,894	47.2	21,427,293	29.1	12,222,839	14.6	21.5	57.0
1880.....	35,934	51.5	16,593,742	45.2	10,699,618	71.6	16.6	64.3
1870.....	23,724	26.8	11,427,105	30.9	6,218,133	151.9	11.5	54.4
1860.....	18,716	-----	8,730,034	124.2	2,468,034	-----	8.7	28.3
1850.....	872	-----	3,893,985	-----	32,454	-----	3.9	0.8

¹A minus sign (—) denotes decrease. Per cent not shown when more than 1,000.

Value of Farm Property, 1850 to 1920.

Census year	All farm property		Land and buildings		Implements and machinery		Live stock	
	Value	Per cent of increase ¹	Value	Per cent of increase ¹	Value	Per cent of increase ¹	Value	Per cent of increase ¹
1920.....	\$3,431,021,861	112.5	\$3,073,811,109	111.9	\$136,039,290	272.9	\$221,141,462	73.3
1910.....	1,614,694,584	102.7	1,450,601,488	104.9	36,498,158	71.2	127,599,938	89.6
1900.....	796,527,955	2.5	707,912,960	1.5	21,311,670	45.1	67,303,325	2.6
1890.....	777,381,767	149.2	697,116,630	161.0	14,689,710	73.9	65,575,427	58.0
1880.....	311,997,443	69.1	262,051,282	85.5	8,447,744	58.9	41,498,417	9.3
1870 ²	184,521,470	112.4	141,240,028	189.9	5,316,690	107.8	37,964,752	6.7
1860.....	86,870,327	-----	48,726,504	-----	2,558,506	-----	35,585,017	961.9
1850.....	7,328,582	-----	3,874,011	-----	103,483	-----	3,351,058	-----

¹Per cent not shown when more than 1,000.

²Computed gold values, being 80 per cent of the currency values reported.

Average Acreage and Average Value per Farm, 1850 to 1920.

(Averages are based on "all farms" in the state.)

(Census year.)

	1920	1910	1900	1890	1880	1870 ¹	1860	1850
Average acreage per farm—								
All land	249.6	316.7	397.4	405.0	461.8	481.7	466.4	4,465.6
Improved land	100.9	129.1	164.9	231.1	296.9	262.1	131.9	37.2
Average value per farm—								
All farm property	\$29,153	\$18,308	\$10,980	\$14,697	\$8,683	\$7,778	\$4,642	\$8,404
Land and buildings	26,122	16,447	9,759	13,180	7,293	5,953	2,603	4,413
Implements and machinery	1,156	414	294	278	235	224	137	119
Live stock	1,879	1,447	928	1,240	1,155	1,600	1,901	3,843

¹Computed gold values, being 80 per cent of the currency values reported.

Average Value per Acre, 1850 to 1920.

(Averages are based on "all land in farms" in the state.)

(Census year.)

	1920	1910	1900	1890	1880	1870 ¹	1860	1850
All farm property	\$116 84	\$57 81	\$27 63	\$36 28	\$18 80	\$16 15	\$9 95	\$1 88
Land and buildings	104 67	51 93	24 56	32 53	15 79	12 36	5 58	99
Land alone	94 77	47 16	21 87					
Buildings alone	9 90	4 78	2 69					
Implements and machinery	4 63	1 31	74	69	51	47	29	03
Live stock	7 53	4 57	2 33	3 06	2 50	3 32	4 08	86

¹Computed gold values, being 80 per cent of the currency values reported.

FARMS BY SIZE.

Number of Farms, by Size, 1920 and 1910.

Size group	Number of farms		Increase ¹		Per cent of total	
	1920	1910	Number	Per cent	1920	1910
Total	117,670	88,197	29,473	33.4	100.0	100.0
Under 20 acres	34,067	22,525	11,542	51.2	29.0	25.5
Under 3 acres	2,904	1,269	1,635	128.8	2.5	1.4
3 to 9 acres	13,793	9,324	4,469	47.9	11.7	10.6
10 to 19 acres	17,370	11,932	5,438	45.6	14.8	13.5
20 to 49 acres	31,723	20,614	11,109	53.9	27.0	23.4
50 to 99 acres	15,034	10,680	4,354	40.8	12.8	12.1
100 to 174 acres	13,217	12,015	1,202	10.0	11.2	13.6
175 to 499 acres	13,671	12,551	1,120	8.9	11.6	14.2
175 to 259 acres	5,320	4,689	631	13.5	4.5	5.3
260 to 499 acres	8,351	7,862	489	6.2	7.1	8.9
500 to 999 acres	5,052	5,119	-67	-1.3	4.3	5.8
1,000 acres and over	4,906	4,693	213	4.5	4.2	5.3

¹A minus sign (—) denotes decrease.

Number of Farms and Per Cent Distribution, by Size, 1880 to 1920.

Size group	1920	1910	1900	1890	1880
Total number of farms	117,670	88,197	72,542	52,894	35,934
Under 10 acres	16,697	10,593	6,846	2,827	1,207
10 to 19 acres	17,370	11,932	8,236	4,010	1,430
20 to 49 acres	31,723	20,614	13,110	7,691	3,475
50 to 99 acres	15,034	10,680	8,067	5,796	3,969
100 to 499 acres	26,888	24,566	26,201	24,531	20,214
500 to 999 acres	5,052	5,119	5,329	4,367	3,108
1,000 acres and over	4,906	4,693	4,753	3,672	2,531
Per cent of all farms	100.0	100.0	100.0	100.0	100.0
Under 10 acres	14.2	12.0	9.4	5.3	3.4
10 to 19 acres	14.8	13.5	11.4	7.6	4.0
20 to 49 acres	27.0	23.4	18.1	14.5	9.7
50 to 99 acres	12.8	12.1	11.1	11.0	11.0
100 to 499 acres	22.8	27.9	36.1	46.4	56.3
500 to 999 acres	4.3	5.8	7.3	8.3	8.6
1,000 acres and over	4.2	5.3	6.5	6.9	7.0

Farm Acreage and Value, by Size of Farm, 1920 and 1910.

Size group (acres)	All land in farms (acres)		Improved land in farms (acres)		Value of land and buildings	
	1920	1910	1920	1910	1920	1910
Total.....	29,865,667	27,931,444	11,878,339	11,389,894	\$3,073,811,109	\$1,450,601,488
Under 20.....	296,403	200,822	280,508	189,679	321,745,428	133,881,517
20 to 49.....	981,155	625,954	861,487	558,296	543,815,809	192,799,674
50 to 99.....	1,045,972	752,951	855,192	600,140	382,383,474	149,394,265
100 to 174.....	1,841,847	1,709,459	1,152,733	972,519	347,609,049	161,032,374
175 to 499.....	4,095,679	3,816,706	2,386,735	2,226,957	520,990,661	271,773,253
500 to 999.....	3,466,412	3,535,598	1,753,337	1,846,502	290,244,019	164,156,673
1,000 and over.....	17,638,199	17,289,954	4,568,347	4,995,801	687,022,689	377,563,732

Per Cent of Farm Land Improved, and Average Values, by Size of Farm; 1920 and 1910.

Size group	Per cent of farm land improved		Average value of land and buildings			
	1920	1910	Per farm		Per acre	
			1920	1910	1920	1910
Total.....	40.4	40.8	\$26,122	\$16,447	\$104 67	\$51 93
Under 20 acres.....	94.6	94.4	9,444	5,944	1,085 50	666 67
20 to 49 acres.....	87.8	89.2	17,143	9,353	554 26	308 01
50 to 99 acres.....	81.8	79.7	25,435	13,983	365 58	196 41
100 to 174 acres.....	62.6	56.9	26,300	13,403	188 73	94 20
175 to 499 acres.....	58.3	58.3	38,109	21,654	127 20	71 21
500 to 999 acres.....	50.6	52.2	57,451	32,068	83 73	46 43
1,000 acres and over.....	26.0	28.9	135,961	80,453	37 82	21 84

FARMS BY TENURE.

Number of Farms, by Tenure, 1920 and 1910.

Tenure	Number of farms		Increase ¹		Per cent of total	
	1920	1910	Number	Per cent	1920	1910
Total.....	117,670	88,197	29,473	33.4	100.0	100.0
Owners.....	87,580	63,632	20,948	31.4	74.4	75.5
Owning entire farm.....	75,882	56,500	19,382	34.3	64.5	64.1
Hiring additional land.....	11,698	10,132	1,566	15.5	9.9	11.5
Managers.....	4,949	3,417	1,532	44.8	4.2	3.9
Tenants.....	25,141	18,148	6,993	38.5	21.4	20.6
Share tenants.....	9,643	6,135	3,508	57.2	8.2	7.0
Share-cash tenants.....	742	704	38	5.4	0.6	0.8
Cash tenants.....	14,230	9,737	4,493	46.1	12.1	11.0
Unspecified.....	526	1,572	-1,046	-69.5	0.4	1.8

¹A minus sign (—) denotes decrease.

Number of Farms and Per Cent Distribution, by Tenure, 1880 to 1920.

Tenure	1920	1910	1900	1890	1880
Total number of farms.....	117,670	88,197	72,542	52,894	35,934
Farms operated by owners.....	87,580	63,632	52,529	143,489	128,810
Owning entire farm.....	75,882	56,500	44,318	2	2
Hiring additional land.....	11,698	10,132	8,211	2	2
Farms operated by managers.....	4,949	3,417	3,253	3	3
Farms operated by tenants.....	25,141	18,148	16,760	9,405	7,124
Share tenants.....	9,613	6,135	7,686	4,831	3,915
Share-cash tenants.....	742	704			
Cash tenants.....	14,230	9,737			
Unspecified.....	526	1,572	9,074	4,574	3,209
Per cent of all farms.....	100.0	100.0	100.0	100.0	100.0
Operated by owners.....	74.4	75.5	72.4	182.2	180.2
Owning entire farm.....	64.5	64.1	61.1	2	2
Hiring additional land.....	9.9	11.5	11.3	2	2
Operated by managers.....	4.2	3.9	4.5	3	3
Operated by tenants.....	21.4	20.6	23.1	17.8	19.8
Share and share-cash.....	8.8	7.8	10.6	9.1	10.9
Cash and unspecified.....	12.5	12.8	12.5	8.6	8.9

¹Includes farms operated by managers.

²Not reported separately.

³Included with farms operated by owners.

Farm Acreage and Value, by Tenure, 1920 and 1910.

Tenure	All lands in farms (acres)		Improved land in farms (acres)		Value of land and buildings	
	1920	1910	1920	1910	1920	1910
Total	29,365,667	27,931,444	11,878,339	11,389,894	\$3,073,811,109	\$1,450,601,488
Owners	17,196,215	15,125,339	6,819,212	6,464,472	1,900,924,411	882,447,830
Managers	5,485,447	6,604,972	1,587,518	1,728,625	442,032,436	229,544,415
Tenants	6,684,005	6,201,133	3,471,609	3,196,797	730,854,262	338,609,243

Per Cent Distribution of Farms and of Farm Acreage and Value, by Tenure, 1920 and 1910.

Tenure	Number of farms		All land in farms		Improved land in farms		Value of land and buildings	
	1920	1910	1920	1910	1920	1910	1920	1910
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Owners	74.4	75.5	58.6	54.2	57.4	56.8	61.8	61.8
Managers	4.2	3.9	13.7	23.6	13.4	15.2	14.4	15.8
Tenants	21.4	20.6	22.8	22.2	29.2	28.1	23.8	23.3

Average Acreage, Per Cent of Farm Land Improved, and Average Values, by Tenure, 1920 and 1910.

Tenure	Average acreage per farm				Per cent of farm land improved		Average value of land and buildings			
	All land		Improved land				Per farm		Per acre	
	1920	1910	1920	1910			1920	1910	1920	1910
Total	249.6	316.7	100.9	129.1	40.4	40.8	\$26,122	\$16,447	\$104 67	\$51 93
Owners	196.3	227.0	77.9	97.0	39.7	42.7	21,705	13,244	110 54	58 34
Managers	1,108.4	1,933.0	320.8	505.9	28.9	26.2	89,318	67,177	80 58	34 75
Tenants	265.9	341.7	138.1	176.1	51.9	51.6	29,070	18,658	109 34	54 60

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	Del Norte	El Dorado
<i>All Farms.</i>										
Number of farms, 1920.....	117,670	2,778	21	479	2,219	696	816	1,675	130	729
1910.....	88,197	2,422	42	537	1,500	682	607	1,465	114	716
1900.....	72,542	2,787	37	560	1,179	575	582	1,511	131	759
All farmers classified by sex, 1920:										
Male, number.....	111,896	2,582	18	451	2,093	540	780	1,597	125	696
Female, number.....	5,774	196	3	28	126	66	33	78	5	33
Color and nativity of all farmers, 1920:										
Native white, number.....	76,995	1,158	14	301	1,763	463	663	906	80	571
Foreign-born white, number.....	34,189	1,440	5	117	417	141	130	673	41	147
Negro and other nonwhite.....	6,486	180	2	1	39	2	23	96	9	11
All farms classified by size, 1920:										
Under 3 acres, number.....	2,904	298	1	1	24	12	3	29	2	2
3 to 9 acres, number.....	13,703	779	18	18	97	12	38	179	3	32
10 to 19 acres, number.....	17,370	472	11	11	377	11	52	226	4	36
20 to 49 acres, number.....	31,723	382	1	40	977	39	128	306	11	70
50 to 99 acres, number.....	15,634	221	2	50	276	50	88	182	16	98
100 to 174 acres, number.....	13,217	212	5	102	256	146	111	222	30	175
175 to 359 acres, number.....	3,320	113	1	58	111	50	49	137	20	72
360 to 699 acres, number.....	8,351	163	6	101	176	137	140	205	23	111
700 to 999 acres, number.....	5,052	85	5	52	98	80	101	129	12	63
1,000 acres and over, number.....	4,906	62	1	46	89	81	106	60	9	50
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres.....	99,617,280	468,480	496,640	384,640	1,086,720	687,280	728,600	456,960	655,360	1,111,680
Land in farms, 1920, acres.....	29,365,067	359,742	10,042	313,106	464,625	366,195	438,417	375,065	43,830	240,285
1910, acres.....	27,031,447	311,227	32,004	291,730	490,777	271,401	522,376	406,433	35,947	210,881
1900, acres.....	28,828,951	398,289	15,681	214,024	677,080	212,830	550,002	406,563	33,115	209,320
Improved land in farms, 1920, acres.....	11,878,339	185,324	4,306	59,986	253,745	58,957	302,439	238,369	13,252	43,413
1910, acres.....	11,889,894	177,314	7,579	46,969	247,097	59,104	336,509	262,152	12,489	41,682
1900, acres.....	11,958,837	226,118	4,391	46,938	302,029	41,402	358,227	262,617	9,787	45,481
Woodland in farms, 1920, acres.....	11,859,887	226,118	1,030	48,938	70,815	170,685	30,132	31,245	19,297	72,023
Other unimproved land in farms, 1920, acres.....	4,252,287	21,290	4,766	124,822	140,965	136,553	105,856	105,431	11,371	124,829
Per cent of land area in farms, 1920.....	29.5	76.8	2.0	81.1	42.8	55.7	60.1	82.1	6.7	18.1
Per cent of land area in farms, 1910.....	40.4	51.5	42.9	19.2	54.6	16.1	69.0	83.6	30.2	18.1
Per cent of land area in farms, 1900.....	249.6	139.5	478.2	651.6	299.4	694.3	537.3	293.9	387.2	399.6
Average acreage per farm, 1920.....	100.9	66.7	205.0	125.2	114.4	97.3	370.6	142.3	101.9	59.6
Average improved acreage per farm, 1920.....										
8,452,392										
2,775,368										
2,590,174										
2,330,259										
2,343,991										
1,646,240										
1,241,991										
749,745										
566,120										
<i>Value of Farm Property.</i>										
All farm property, 1920, dollars.....	3,431,021,861	57,341,179	584,524	7,859,755	53,399,133	8,964,708	41,101,299	47,080,387	8,452,392	8,098,401
1910, dollars.....	1,614,694,584	36,840,669	811,442	4,820,809	24,088,440	2,973,400	19,609,208	21,812,192	3,712,222	2,775,368
1900, dollars.....	796,627,955	34,619,536	324,441	3,318,850	15,535,404	2,356,650	13,054,488	18,874,387	1,021,040	2,590,174
Land in farms, 1920, dollars.....	2,788,054,977	43,864,634	416,595	5,638,308	42,421,970	5,124,462	33,903,799	38,373,973	2,392,503	2,343,991
1910, dollars.....	1,317,193,145	29,537,208	530,968	3,259,895	19,404,863	2,763,363	16,066,035	26,860,160	1,358,300	2,343,991
1900, dollars.....	680,444,840	28,759,500	168,100	2,185,150	12,469,530	1,363,510	10,880,580	15,553,110	687,880	1,646,240
Farm buildings, 1920, dollars.....	990,790,132	17,133,683	32,275	1,606,352	10,490,352	964,210	2,834,503	4,406,950	314,647	1,241,991
1910, dollars.....	133,400,040	4,403,355	88,475	589,925	2,281,132	694,000	1,294,780	2,493,375	171,380	749,745
1900, dollars.....	77,468,000	3,485,310	45,400	495,630	1,434,870	427,190	838,420	1,675,790	121,840	566,120

Implements and machinery, 1920, dollars.....	193,363	1,783,859	2,039,783	311,975	2,668,795	237,458	10,685	2,004,942	196,069,200	193,363	387,000
1910, dollars.....	48,265	680,520	419,557	138,905	1,833,905	87,580	18	1,836	87,580	48,265	162,185
Live stock on farms, 1920, dollars.....	85,180	404,590	417,690	89,080	4,237,920	21,311,670	10,810	780,040	86,493,158	85,180	116,320
1910, dollars.....	416,859	3,365,605	3,233,193	1,592,181	1,275,876	221,141,462	4,337,920	96,089	221,141,462	416,859	1,163,160
1900, dollars.....	192,277	2,052,187	1,911,838	794,301	1,688,125	127,599,838	2,022,045	161,594	127,599,838	192,277	519,497
Average values, 1920:	176,240	1,240,897	913,923	425,929	1,200,614	67,303,325	1,692,593	70,151	67,303,325	176,240	361,894
All property per farm, dollars.....	96,557	28,615	50,369	14,793	24,045	29,158	29,641	27,884	29,158	96,557	11,013
Land and buildings per farm, dollars.....	22,363	23,341	45,022	11,691	21,367	26,122	18,358	22,394	26,122	22,363	3,878
Land alone per acre, dollars.....	59.15	102.31	77.33	16.72	91.30	34.77	121.93	41.48	34.77	59.15	21.77

Farms Operated by Owners.

Number of farms, 1920.....	622	1,049	555	526	1,833	380	18	1,836	87,580	622	622
1910.....	79	890	449	556	1,230	437	32	1,690	63,632	79	642
1900.....	92	867	372	492	901	476	34	1,792	52,529	92	672
Per cent of all farms, 1920.....	62.3	62.6	62.3	62.3	62.3	79.3	85.7	67.9	74.4	62.3	62.3
Land in farms, 1920, acres.....	201,674	170,230	226,362	321,167	311,890	225,380	9,202	192,257	17,196,215	201,674	201,674
Improved land in farms, 1920, acres.....	7,498	100,825	161,973	51,183	156,137	31,309	4,094	95,642	6,819,212	7,498	35,527
Value of land and buildings, 1920, dollars.....	1,693,300	20,209,772	22,027,592	6,108,712	30,383,772	4,564,751	432,800	29,374,777	1,900,924,411	1,693,300	5,548,785
Degree of ownership, 1920:	564	818	420	391	1,588	316	17	1,583	75,832	564	564
Farmers owning entire farm, number.....	13	231	135	135	245	64	1	303	11,698	13	58
Farmers hiring additional land, number.....	54	610	472	398	1,479	262	11	787	60,264	54	481
Color and nativity of owners, 1920:	22	426	82	126	343	88	5	1,074	26,073	22	135
Native white owners, number.....	5	13	1	2	11	2	2	25	1,243	5	6
Foreign-born white owners, number.....	18	18	1	1	11	1	1	2	1,243	18	18
Negro and other nonwhite owners, number.....	15	76	19	23	99	13	2	71	4,949	15	15

Farms Operated by Managers.

Number of farms, 1920.....	15	76	19	23	99	13	3	821	25,141	15	15
1910.....	6	73	17	7	53	11	2	86	3,417	6	6
1900.....	6	62	17	0	58	11	2	90	3,253	6	6
Land in farms, 1920, acres.....	8,224	49,146	64,749	19,182	50,622	64,821	14.3	23,493	5,485,447	8,224	8,224
Improved land in farms, 1920, acres.....	1,860	27,025	36,520	1,959	41,315	21,456	5	10,058	1,887,518	1,860	1,860
Value of land and buildings, 1920, dollars.....	219,800	4,965,175	2,954,748	465,005	6,977,000	1,034,500	36,000	3,241,950	442,032,436	219,800	219,800

Farms Operated by Tenants.

Number of farms, 1920.....	92	550	242	57	287	86	3	821	25,141	92	92
1910.....	68	502	201	69	217	89	8	646	18,148	68	68
1900.....	81	582	203	74	220	73	1	896	16,760	81	81
Per cent of all farms, 1920.....	12.6	32.8	29.7	9.4	12.9	18.0	14.3	29.6	21.4	12.6	12.6
Land in farms, 1920, acres.....	30,367	155,689	146,706	25,876	101,813	129,955	840	144,062	6,684,005	30,367	30,367
Improved land in farms, 1920, acres.....	6,026	110,519	104,236	5,825	56,293	7,221	212	79,624	3,471,609	6,026	6,026
Value of land and buildings, 1920, dollars.....	703,563	17,605,976	11,755,913	546,925	10,631,570	747,170	36,000	18,381,590	780,854,262	703,563	703,563
Form or tenancy, 1920:	2	203	129	13	132	18	3	271	9,643	2	2
Share-cash tenants, number.....	70	312	88	36	131	68	3	458	14,230	70	70
Cash tenants, number.....	4	4	7	7	17	1	1	43	526	4	4
Unspecified, number.....	17	80	21	12	65	17	1	526	526	17	17
Color and nativity of tenants, 1920:	17	244	175	45	204	59	3	927	12,818	17	17
Native white tenants, number.....	9	226	46	12	58	26	2	340	7,929	9	9
Foreign-born white tenants, number.....	8	80	21	12	25	1	1	154	5,094	8	8
Negro and other nonwhite tenants, number.....	9	118	129	33	146	33	1	387	4,789	9	9

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900—Continued.

	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen	Los Angeles
<i>All Farms.</i>										
Number of farms, 1920	8,917	1,830	1,756	2,848	521	2,020	2,171	771	606	12,444
1910	6,245	1,534	1,534	1,822	433	1,167	1,837	663	565	7,919
1900	3,280	529	1,000	424	424	1,098	932	723	562	6,977
All farmers classified by sex, 1920:										
Male, number	8,621	1,208	1,681	2,790	486	1,944	2,086	786	584	11,739
Female, number	296	62	75	53	35	76	85	35	22	705
Color and nativity of all farmers, 1920:										
Native white, number	4,488	982	970	1,856	405	1,459	1,361	689	515	8,436
Foreign-born white, number	3,801	331	738	500	91	498	709	128	76	2,441
Negro and other nonwhite, number	628	7	48	387	25	63	101	4	15	1,567
All farms classified by size, 1920:										
Under 3 acres, number	14	6	31	9	9	8	10	3	6	1,205
3 to 9 acres, number	228	41	111	117	25	76	89	36	14	3,398
10 to 19 acres, number	587	127	175	158	40	149	198	61	7	2,902
20 to 49 acres, number	5,137	411	358	726	84	641	827	164	33	2,437
50 to 99 acres, number	1,302	180	284	761	86	309	431	107	31	964
100 to 174 acres, number	586	63	288	625	140	358	293	138	134	705
175 to 259 acres, number	155	65	129	180	37	68	85	59	58	279
260 to 499 acres, number	216	117	153	197	59	177	124	102	151	325
500 to 999 acres, number	124	104	97	61	27	108	49	55	90	182
1,000 acres and over, number	158	116	150	9	19	128	65	46	82	97
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres	3,808,000	855,680	2,288,000	2,616,960	6,394,240	5,121,020	741,760	792,320	2,899,840	2,633,000
Land in farms, 1920, acres	1,319,631	524,407	711,174	247,485	140,029	1,397,048	505,553	241,899	741,220	881,333
1910, acres	1,106,616	491,193	649,536	223,652	110,142	1,403,350	373,823	217,464	296,728	757,928
1900, acres	1,284,736	577,368	646,911	176,069	141,659	1,371,168	387,905	212,176	381,100	895,663
Improved land in farms, 1920, acres	672,391	336,482	389,094	310,708	39,094	399,982	259,682	45,355	140,887	488,096
1910, acres	580,205	309,765	169,248	176,069	38,698	315,387	196,569	42,768	122,087	418,998
1900, acres	786,337	358,751	77,238	176,069	43,740	324,031	292,148	41,414	133,266	518,744
Woodland in farms, 1920, acres	539,484	151,464	393,253	1,365	1,365	1,060,236	5,870	54,781	233,724	32,070
Other unimproved land in farms, 1920, acres	34.7	61.3	31.3	13.3	2.2	29.2	68.2	30.5	25.6	33.5
Per cent of land area in farms, 1920, acres	51.0	64.2	13.7	89.4	28.5	26.1	68.2	18.7	19.0	54.8
Per cent of farm land improved, 1920	148.0	397.3	408.4	122.2	268.8	741.1	232.9	313.7	1,293.1	79.9
Average acreage per farm, 1920	75.4	254.9	55.8	109.3	76.6	193.5	119.6	58.8	232.5	38.8
Average improved acreage per farm, 1920										
303,094,622	45,474,611	40,672,483	69,171,545	14,945,798	76,915,616	67,930,505	12,764,520	20,394,238	396,596,914	
92,583,058	16,581,419	21,239,881	23,646,067	7,112,908	30,403,013	33,312,292	6,271,615	9,376,800	199,993,200	
42,899,479	10,289,300	13,241,799	54,969,817	2,571,629	14,246,195	5,921,907	8,495,090	5,365,615	74,817,646	
269,496,470	35,157,244	28,693,348	19,832,660	10,691,080	61,688,648	58,192,752	9,912,390	13,808,598	840,689,213	
75,133,654	13,495,290	16,373,939	19,832,660	5,210,589	23,062,292	26,097,591	1,762,480	6,331,832	180,354,798	
84,261,530	8,473,820	9,634,850	3,118,447	1,584,750	10,464,510	4,429,410	2,419,280	2,949,510	64,188,290	
19,364,721	3,781,788	4,079,890	3,118,447	1,295,175	3,470,748	4,143,200	1,265,680	1,544,209	83,999,450	
8,861,289	1,110,215	2,034,885	764,665	598,749	1,524,120	2,146,975	782,735	1,066,273	11,786,273	
3,092,140	719,510	1,282,920	317,060	664,120	664,120	811,920	654,180	708,400	6,702,170	
<i>Value of Farm Property.</i>										
All farm property, 1920, dollars	303,094,622	45,474,611	40,672,483	69,171,545	14,945,798	76,915,616	67,930,505	12,764,520	20,394,238	396,596,914
1910, dollars	92,583,058	16,581,419	21,239,881	23,646,067	7,112,908	30,403,013	33,312,292	6,271,615	9,376,800	199,993,200
1900, dollars	42,899,479	10,289,300	13,241,799	54,969,817	2,571,629	14,246,195	5,921,907	8,495,090	5,365,615	74,817,646
Land in farms, 1920, dollars	269,496,470	35,157,244	28,693,348	19,832,660	10,691,080	61,688,648	58,192,752	9,912,390	13,808,598	840,689,213
1910, dollars	75,133,654	13,495,290	16,373,939	19,832,660	5,210,589	23,062,292	26,097,591	1,762,480	6,331,832	180,354,798
1900, dollars	84,261,530	8,473,820	9,634,850	3,118,447	1,584,750	10,464,510	4,429,410	2,419,280	2,949,510	64,188,290
Farm buildings, 1920, dollars	19,364,721	3,781,788	4,079,890	3,118,447	1,295,175	3,470,748	4,143,200	1,265,680	1,544,209	83,999,450
1910, dollars	8,861,289	1,110,215	2,034,885	764,665	598,749	1,524,120	2,146,975	782,735	1,066,273	11,786,273
1900, dollars	3,092,140	719,510	1,282,920	317,060	664,120	664,120	811,920	708,400	6,702,170	

Implements and machinery, 1920, dollars.....	12,116,265	2,534,632	1,550,802	2,950,548	492,558	2,050,973	2,945,635	588,190	884,741	10,782,774
1910, dollars.....	3,228,706	390,333	444,280	459,535	189,810	614,028	654,971	207,211	289,287	2,462,387
1900, dollars.....	1,593,890	296,620	311,020	8,102,733	2,596,985	347,640	348,330	111,420	265,220	1,433,050
Live stock on farms, 1920, dollars.....	11,117,166	4,000,977	6,396,937	6,396,937	6,396,937	6,396,937	4,618,882	898,320	4,163,760	11,138,477
1910, dollars.....	7,356,409	1,655,651	2,123,049	2,589,207	1,153,767	4,576,644	4,503,755	489,180	1,990,230	5,382,742
1900, dollars.....	3,941,919	806,340	2,123,049	2,589,207	574,259	2,829,825	1,341,247	440,210	1,452,875	2,492,666
All property per farm, dollars.....	33,691	34,450	23,162	24,330	28,687	38,077	31,276	16,556	33,657	31,871
Land and buildings per farm, dollars.....	31,385	29,499	18,612	20,443	22,757	32,257	27,792	14,698	25,326	30,109
Land alone per acre, dollars.....	197.42	67.94	39.88	158.28	75.85	41.21	111.15	40.98	18.62	386.12
<i>Farms Operated by Owners.</i>										
Number of farms, 1920.....	7,921	1,044	1,102	1,848	419	1,566	1,558	684	499	8,578
1910.....	5,227	512	891	824	361	846	1,391	464	414	5,999
1900.....	2,469	300	1,006	47.2	352	826	694	578	453	4,855
Per cent of all farms, 1920.....	51.8	79.1	62.8	90.4	80.4	71.8	71.8	82.2	82.3	68.9
Land in farms, 1920, acres.....	686,722	310,174	392,472	158,182	86,548	631,461	289,109	172,790	440,365	582,003
Improved land in farms, 1920, acres.....	396,980	189,884	46,642	135,923	31,165	136,837	133,898	33,898	100,659	295,552
Value of land and buildings, 1920, dollars.....	186,714,404	25,431,222	13,861,922	25,596,103	8,696,055	27,526,301	32,739,081	8,512,160	10,060,757	225,340,315
Degree of ownership, 1920:										
Farmers owning entire farm, number.....	6,824	791	969	1,172	391	1,376	1,366	566	424	7,598
Farmers hiring additional land, number.....	467	253	133	171	28	190	192	68	75	980
Color and nativity of owners, 1920:										
Native and white owners, number.....	3,725	778	647	1,096	319	1,189	1,057	513	418	6,736
Foreign-born white owners, number.....	3,417	966	410	1,899	79	352	481	117	66	1,773
Negro and other nonwhite owners, number.....	149	45	45	68	21	25	20	4	15	69
<i>Farms Operated by Managers.</i>										
Number of farms, 1920.....	288	45	71	97	20	87	78	18	26	692
1910.....	279	16	46	77	4	58	56	12	17	352
1900.....	97	19	56	77	0	34	44	12	30	892
Land in farms, 1920, acres.....	331,482	79,816	168,660	35,682	30,290	639,628	104,416	5,430	258,283	153,917
Improved land in farms, 1920, acres.....	159,221	46,567	6,080	31,856	2,364	197,474	64,435	886	22,176	59,749
Value of land and buildings, 1920, dollars.....	42,458,061	4,056,380	3,951,869	6,045,920	1,884,280	28,625,020	13,340,760	307,500	3,996,350	59,040,462
<i>Farms Operated by Tenants.</i>										
Number of farms, 1920.....	1,338	231	583	1,403	82	367	540	124	81	3,174
1910.....	739	135	497	421	73	263	380	107	71	1,968
1900.....	783	150	438	63	63	238	234	72	72	1,360
Per cent of all farms, 1920.....	15.0	17.5	33.2	49.3	15.7	18.2	24.9	16.1	13.4	25.5
Land in farms, 1920, acres.....	301,327	134,417	198,042	153,371	13,191	225,956	112,028	63,680	42,372	195,813
Improved land in farms, 1920, acres.....	126,890	100,031	45,392	142,829	5,875	56,621	61,697	10,562	18,052	42,372
Value of land and buildings, 1920, dollars.....	50,690,726	9,451,400	15,168,953	26,476,211	1,275,950	9,010,075	14,256,147	2,458,350	1,290,630	90,296,836
Form of tenancy, 1920:										
Share tenants, number.....	996	102	22	403	20	153	218	40	38	533
Share-cash tenants, number.....	9	26	9	27	6	16	16	6	64	64
Cash tenants, number.....	333	89	550	928	43	208	306	62	41	2,547
Unspecified, number.....		14	9	45	19	16	16	16	2	30
Color and nativity of tenants, 1920:										
Native white tenants, number.....	577	168	298	787	68	195	247	115	76	1,133
Foreign-born white tenants, number.....	324	312	312	298	10	135	215	9	5	1,560
Negro and other nonwhite tenants, number.....	437	6	3	318	4	37	78	78	5	1,481

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900—Continued.

	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa	Nevada
<i>All Farms.</i>										
Number of farms, 1920.....	1,402	718	367	1,759	2,846	743	74	1,712	1,428	481
..... 1910.....	573	498	330	1,356	1,856	736	91	1,638	1,537	544
..... 1900.....	523	462	381	1,452	989	638	112	1,850	1,336	522
All farmers classified by sex, 1920:										
Male, number.....	1,347	682	341	1,683	2,769	715	62	1,656	1,318	455
Female, number.....	55	36	25	76	77	28	12	56	110	26
Color and nativity of all farmers, 1920:										
Native white, number.....	969	313	313	1,244	1,425	634	46	1,029	875	361
Foreign-born white, number.....	379	419	51	480	1,367	85	19	595	548	116
Negro and other nonwhite, number.....	54	3	3	35	64	24	9	88	5	4
All farms classified by size, 1920:										
Under 3 acres, number.....	12	27	.....	2	9	1	1	8	7	8
3 to 9 acres, number.....	36	104	3	70	109	1	.....	118	27	27
10 to 19 acres, number.....	65	115	4	111	222	7	1	89	254	40
20 to 49 acres, number.....	473	70	12	276	1,225	22	4	204	384	60
50 to 99 acres, number.....	204	36	21	211	577	55	8	234	187	69
100 to 174 acres, number.....	224	43	89	362	272	179	24	278	171	80
175 to 259 acres, number.....	40	39	26	149	100	56	7	142	70	57
260 to 499 acres, number.....	150	76	103	253	92	191	12	246	105	68
500 to 999 acres, number.....	80	109	52	134	104	125	8	204	67	40
1,000 acres and over, number.....	118	162	57	191	136	99	9	250	65	32
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres.....	1,351,680	338,570	936,320	2,284,960	1,276,800	2,446,720	1,939,900	2,121,200	501,190	623,360
Land in farms, 1920, acres.....	536,726	293,148	235,849	623,087	1,122,550	595,757	42,034	1,104,048	293,925	198,441
..... 1910.....	690,683	383,442	208,059	791,225	1,162,187	410,134	115,673	1,147,416	360,580	176,338
..... 1900.....	481,659	329,374	169,156	742,324	1,702,967	298,755	186,065	1,067,052	319,327	120,743
Improved land in farms, 1920, acres.....	262,971	87,846	49,587	101,220	506,582	168,251	8,740	338,320	116,735	26,195
..... 1910.....	391,086	93,115	37,017	82,578	697,742	161,784	43,382	371,509	101,114	24,542
..... 1900.....	277,721	47,533	14,063	73,907	613,376	122,647	66,238	373,005	111,966	24,898
Woodland in farms, 1920, acres.....	86,639	58,876	64,208	291,196	38,873	120,819	735	201,891	40,321	59,969
Other unimproved land in farms, 1920, acres.....	187,116	143,426	121,964	560,571	577,095	296,087	32,550	503,887	136,881	112,876
Per cent of land area in farms, 1920.....	39.7	85.7	25.2	40.8	87.9	24.4	2.2	51.8	58.7	31.8
Per cent of land area in farms, 1910.....	49.0	30.3	21.0	11.0	45.1	28.2	20.8	38.1	39.7	13.2
Average acreage per farm, 1920.....	382.8	404.1	642.6	524.8	394.4	803.2	568.0	644.9	205.8	412.6
Average improved acreage per farm, 1920.....	187.6	122.3	135.1	57.5	118.0	226.4	118.1	232.7	51.7	54.5
<i>Value of Farm Property.</i>										
All farm property, 1920, dollars.....	39,485,188	19,954,684	5,107,025	30,267,265	102,044,796	22,000,931	2,596,663	61,869,333	29,478,221	5,125,345
..... 1910, dollars.....	14,984,395	12,426,158	2,829,251	14,659,467	49,520,913	11,376,263	2,847,797	35,021,920	18,082,006	3,022,685
..... 1900, dollars.....	5,916,894	10,895,511	1,328,151	8,587,516	22,636,859	5,663,827	1,175,743	19,409,742	12,337,046	1,947,540
Land in farms, 1920, dollars.....	32,464,406	13,079,670	3,596,817	21,972,951	77,682,800	15,601,701	1,800,885	49,108,783	21,435,821	3,338,537
..... 1910, dollars.....	12,263,688	9,384,625	1,317,100	10,774,439	40,047,324	7,379,085	1,587,513	27,885,000	13,986,656	1,817,417
..... 1900, dollars.....	4,588,770	8,330,450	752,960	5,840,250	18,449,650	2,825,360	519,040	15,632,700	8,925,780	1,116,960
Farm buildings, 1920, dollars.....	2,396,091	2,532,960	448,390	3,741,630	9,632,643	1,463,254	159,695	4,022,555	4,747,570	515,288
..... 1910, dollars.....	771,959	1,156,830	276,180	1,816,135	2,338,587	1,004,180	154,700	2,178,798	3,365,470	664,400
..... 1900, dollars.....	433,050	914,020	207,640	1,081,090	984,040	521,900	87,380	1,353,700	2,181,590	447,940

Implements and machinery, 1920, dollars.....	1,693,450	1,027,633	188,302	1,246,956	3,550,015	727,218	75,275	2,886,120	1,469,321	226,102
1910, dollars.....	441,455	343,482	79,403	375,049	804,625	365,550	45,345	811,886	500,921	132,857
1900, dollars.....	214,100	207,110	59,960	219,680	501,480	174,200	26,340	562,400	337,960	102,910
Live stock on farms, 1920, dollars.....	2,969,241	3,314,421	875,516	3,305,738	11,234,421	4,275,758	560,808	5,881,575	1,825,569	745,358
1910, dollars.....	1,507,707	1,541,221	656,552	1,693,844	6,330,377	2,627,448	559,939	4,146,316	1,128,969	406,011
1900, dollars.....	680,974	1,414,331	308,461	1,446,546	2,701,689	1,842,367	542,983	1,620,942	871,696	280,080
Average values, 1920:										
All property per farm, dollars.....	28,163	27,792	13,916	17,207	35,856	29,623	35,090	36,156	20,643	10,656
Land and buildings per farm, dollars.....	24,815	21,745	11,022	14,619	30,677	22,890	26,494	31,035	18,336	8,638
Land alone per acre, dollars.....	60.49	45.08	15.25	23.80	69.20	26.14	42.84	44.48	72.33	16.82
<i>Farms Operated by Owners.</i>										
Number of farms, 1920.....	1,108	373	324	1,400	2,108	604	68	1,066	1,138	399
1910.....	419	198	232	1,089	1,405	594	75	1,063	1,166	476
1900.....	357	162	337	1,173	668	592	98	1,199	869	435
Per cent of all farms, 1920.....	70.0	51.9	88.3	70.6	74.1	81.3	91.9	63.4	79.7	83.0
Land in farms, 1920, acres.....	285,733	78,313	207,172	601,988	527,124	423,962	40,911	637,456	164,492	163,450
Improved land in farms, 1920, acres.....	126,800	33,967	45,237	112,238	264,096	197,957	8,330	293,417	73,410	20,919
Value of land and buildings, 1920, dollars.....	17,729,993	5,200,886	3,620,667	15,326,507	42,588,172	11,613,464	1,903,680	25,802,936	17,956,378	3,214,270
Degree of ownership, 1920:										
Farmers owning entire farm, number.....	1,014	339	262	1,245	1,034	526	66	839	1,074	319
Farmers hiring additional land, number.....	94	34	62	155	414	78	2	247	64	80
Color and nativity of owners, 1920:										
Native white owners, number.....	749	175	276	974	1,087	514	40	708	676	297
Foreign-born white owners, number.....	317	197	46	396	975	66	19	378	400	99
Negro and other nonwhite owners, number.....	42	1	2	30	46	24	9	8	2	8
<i>Farms Operated by Managers.</i>										
Number of farms, 1920.....	71	35	5	62	61	30	2	47	77	23
1910.....	23	11	4	47	58	27	3	61	74	13
1900.....	18	13	2	39	25	20	4	51	112	9
Land in farms, 1920, acres.....	95,397	18,975	982	145,835	853,439	63,025	400	186,671	54,037	9,474
Improved land in farms, 1920, acres.....	23,347	8,492	233	6,937	102,497	17,010	80	61,492	13,756	1,886
Value of land and buildings, 1920, dollars.....	6,145,629	1,517,110	19,500	2,658,104	23,310,783	1,784,686	16,400	8,650,712	4,239,648	594,790
<i>Farms Operated by Tenants.</i>										
Number of farms, 1920.....	223	310	38	297	677	109	4	570	213	59
1910.....	131	291	34	240	333	113	13	534	297	55
1900.....	148	287	42	240	306	116	10	600	325	78
Per cent of all farms, 1920.....	15.9	43.2	10.4	16.9	23.8	14.7	5.4	33.8	14.9	12.3
Land in farms, 1920, acres.....	155,536	192,060	27,745	175,264	241,987	104,770	723	229,921	75,396	25,522
Improved land in farms, 1920, acres.....	112,824	45,357	4,057	23,025	139,989	23,254	340	133,411	29,597	3,391
Value of land and buildings, 1920, dollars.....	10,914,875	8,894,634	405,040	4,529,570	21,406,485	3,543,785	40,500	18,577,690	3,988,365	434,735
Form of tenancy, 1920:										
Share tenants, number.....	117	9	14	72	255	57	6	254	76	6
Share-cash tenants, number.....	105	300	24	214	398	51	4	294	131	53
Cash tenants, number.....	1	1	6	6	12	12	1	5	5	1
Unspecified, number.....	1	1	1	1	1	1	1	1	1	1
Color and nativity of tenants, 1920:										
Native white tenants, number.....	167	96	33	220	298	93	4	287	146	45
Foreign-born white tenants, number.....	47	212	4	75	362	16	1	205	65	13
Negro and other nonwhite tenants, number.....	9	2	1	2	17	87	2	87	2	1

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900—Continued.

	Orange	Placer	Plumas	Riverside	Sacra- mento	San Benito	San Ber- nardino	San Diego	San Francisco	San Joaquin
<i>All Farms.</i>										
Number of farms, 1920.....	4,188	1,280	150	3,949	2,975	945	4,023	3,200	74	4,500
1910.....	3,165	1,062	221	2,688	1,691	921	2,949	2,298	157	3,286
1900.....	2,388	1,076	267	2,340	1,392	907	2,850	2,698	394	1,966
All farmers classified by sex, 1920:										
Male, number.....	3,944	1,200	149	3,711	2,856	893	3,798	3,083	73	4,344
Female, number.....	244	80	1	238	119	52	315	167	1	156
Color and nativity of all farmers, 1920:										
Native white, number.....	3,228	719	104	3,173	1,579	657	3,218	2,315	15	2,696
Foreign-born white, number.....	791	298	42	681	810	256	772	635	56	1,601
Negro, and other nonwhite, number.....	169	265	4	95	586	82	33	280	4	303
All farms classified by size, 1920:										
Under 3 acres, number.....	199	12	-----	85	36	7	111	161	87	19
3 to 9 acres, number.....	1,034	41	-----	605	370	65	920	956	20	383
10 to 19 acres, number.....	1,222	140	1	821	514	128	1,092	553	3	749
20 to 49 acres, number.....	1,078	423	9	975	773	179	904	573	7	1,401
50 to 99 acres, number.....	310	267	8	463	408	102	343	286	5	654
100 to 174 acres, number.....	161	180	26	430	338	95	329	381	1	422
175 to 259 acres, number.....	83	62	12	159	157	40	80	190	-----	235
260 to 499 acres, number.....	88	78	28	173	173	105	160	267	1	384
500 to 999 acres, number.....	60	39	32	122	122	105	44	150	-----	181
1,000 acres and over, number.....	33	38	32	114	86	119	40	123	-----	122
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres.....	508,800	993,040	1,059,520	4,622,720	629,120	890,880	12,912,000	2,701,440	26,880	926,720
Land in farms, 1920, acres.....	325,703	233,153	101,653	676,293	555,503	539,378	415,758	925,192	1,295	706,300
1910.....	371,692	248,080	134,259	520,806	473,044	544,301	208,396	834,426	8,291	763,040
1900.....	599,436	440,371	184,449	457,097	668,436	512,719	219,132	809,419	8,219	711,065
Improved land in farms, 1920, acres.....	290,945	138,455	34,223	348,538	399,024	122,606	175,272	262,646	840	599,403
1910.....	189,463	98,008	54,281	278,151	275,682	186,573	136,625	234,045	1,562	611,762
1900.....	236,847	121,063	57,351	216,083	327,159	168,698	96,920	229,791	3,899	652,923
Woodland in farms, 1920, acres.....	2,453	48,071	14,864	26,027	63,155	13,577	35,843	60,399	7	18,471
Other unimproved land in farms, 1920, acres.....	122,305	48,627	52,666	301,728	98,324	403,195	294,626	602,226	448	88,434
1910.....	64.0	25.8	6.0	14.6	88.3	69.5	3.2	84.2	4.8	78.2
1900.....	61.7	58.5	33.7	51.5	71.8	29.7	49.2	28.4	64.9	84.9
Per cent of land area in farms, 1920.....	77.8	189.2	677.7	171.3	186.7	570.8	103.3	289.1	17.5	167.0
Average acreage per farm, 1920.....	48.0	106.6	228.2	88.3	134.1	129.7	43.6	82.1	11.4	133.2
1910.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1900.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<i>Value of Farm Property.</i>										
All farm property, 1920, dollars.....	176,683,249	22,718,017	4,317,073	95,456,776	87,983,650	32,852,189	99,728,993	64,081,885	1,619,862	140,702,764
1910, dollars.....	64,357,862	10,234,101	3,362,955	46,203,795	36,694,665	14,963,867	68,499,103	31,124,814	2,630,498	67,296,629
1900, dollars.....	22,346,995	6,547,761	2,239,876	21,644,031	19,336,628	9,117,058	24,456,402	18,346,677	2,407,893	31,218,424
Land in farms, 1920, dollars.....	156,960,321	17,817,701	2,641,161	80,337,250	72,412,416	25,244,043	83,064,894	49,996,330	1,427,946	115,785,908
1910, dollars.....	55,982,755	7,747,744	2,201,654	39,363,652	30,425,404	11,274,156	60,681,348	23,994,732	2,097,111	55,909,884
1900, dollars.....	18,533,640	4,839,730	1,211,530	18,488,110	15,189,870	7,057,190	21,000,370	14,133,990	1,855,080	26,769,660
Farm buildings, 1920, dollars.....	11,370,220	2,576,337	686,925	7,974,641	7,425,807	3,654,300	10,168,443	6,923,517	128,125	11,731,875
1910, dollars.....	4,690,795	1,369,840	532,156	3,666,669	3,205,416	1,336,855	5,238,858	3,337,382	328,789	5,676,665
1900, dollars.....	2,177,040	993,620	387,010	1,999,850	2,159,630	852,340	2,573,120	2,170,190	228,100	2,297,130

Implements and machinery, 1920, dollars.....	5,288,628	1,044,849	287,985	3,653,194	3,719,948	1,184,012	3,407,689	2,512,000	37,685	5,655,919
1910, dollars.....	1,146,222	320,083	123,300	1,112,189	766,883	391,088	1,077,851	861,591	68,270	1,541,068
1900, dollars.....	456,500	222,060	97,240	3,488,691	528,780	272,060	3,088,627	583,989	71,200	807,410
Live stock on farms, 1920, dollars.....	3,044,080	1,279,130	751,402	3,488,691	4,369,279	2,764,564	3,088,627	4,661,088	26,107	7,829,162
1910, dollars.....	2,896,080	766,434	545,845	2,061,265	2,277,479	1,963,196	1,601,046	3,001,169	138,228	3,960,026
1900, dollars.....	1,179,415	487,351	544,096	759,791	1,448,346	985,498	687,052	1,508,517	253,563	2,224,294
All property per farm, dollars.....	42,183	17,748	28,782	24,172	29,574	31,764	24,790	20,026	21,800	31,267
Land and buildings per farm, dollars.....	40,194	15,933	22,185	22,363	26,865	30,586	23,175	17,787	21,028	28,337
Land alone per acre, dollars.....	481.91	76.42	25.98	118.79	130.35	46.81	199.80	54.04	1,102.66	163.93

<i>Farms Operated by Owners.</i>										
Number of farms, 1920.....	3,457	819	109	3,141	1,840	714	3,340	2,419	45	3,290
1910.....	2,531	748	183	2,291	1,011	663	2,532	1,845	82	2,870
1900.....	1,871	807	220	1,747	889	696	1,867	2,281	181	1,197
Per cent of all farms, 1920.....	82.5	64.0	72.7	79.5	61.8	75.6	83.0	75.6	60.8	73.1
Land in farms, 1920, acres.....	153,859	162,321	64,117	346,829	387,984	206,889	989,190	560,475	215	407,040
Improved land in farms, 1920, acres.....	105,640	87,844	22,754	210,019	234,884	73,060	127,017	170,140	215	331,153
Value of land and buildings, 1920, dollars.....	123,272,983	11,838,746	2,152,686	55,197,198	89,789,200	17,388,533	69,223,383	38,903,412	563,270	69,487,378
Degree of ownership, 1920:										
Farmers owning entire farm, number.....	3,095	688	96	2,653	1,443	635	3,118	1,914	40	2,723
Farmers hiring additional land, number.....	362	131	13	488	397	79	222	505	5	567
Farmers hiring additional land, number.....	2,748	541	70	2,558	1,191	511	2,670	1,816	10	2,019
Native white owners, number.....	698	241	37	524	573	200	650	499	33	1,259
Foreign-born white owners, number.....	11	37	2	59	76	3	20	104	2	12
Negro and other nonwhite owners, number.....										
<i>Farms Operated by Managers.</i>										
Number of farms, 1920.....	235	37	9	214	86	49	379	135	1	127
1910.....	128	23	10	104	58	35	234	93	6	117
1900.....	80	23	7	318	46	22	576	157	8	58
Land in farms, 1920, acres.....	88,416	6,837	14,095	152,233	49,687	140,011	70,963	183,282	4	44,447
Improved land in farms, 1920, acres.....	20,294	2,813	3,985	43,965	47,188	12,988	26,339	23,435	4	40,948
Value of land and buildings, 1920, dollars.....	21,285,648	995,100	389,900	17,368,363	12,543,496	5,640,280	15,837,544	7,247,243	3,000	12,413,125
<i>Farms Operated by Tenants.</i>										
Number of farms, 1920.....	496	424	32	594	1,049	182	304	646	28	1,083
1910.....	566	391	28	298	532	238	183	360	69	799
1900.....	437	246	40	275	467	189	207	310	185	711
Per cent of all farms, 1920.....	11.8	33.1	21.3	15.0	35.3	19.3	7.6	30.2	37.8	24.1
Land in farms, 1920, acres.....	83,428	64,295	23,441	177,131	147,562	102,478	55,585	181,465	1,076	254,621
Improved land in farms, 1920, acres.....	75,011	45,798	7,584	94,524	117,002	36,583	21,916	69,071	621	227,362
Value of land and buildings, 1920, dollars.....	23,771,910	7,580,192	885,100	15,746,330	27,611,727	5,915,860	8,172,210	10,768,192	999,800	45,617,180
Form of tenancy, 1920:										
Share tenants, number.....	245	227	4	318	418	84	130	248	1	522
Share-cash tenants, number.....	17	10	19	17	7	7	7	31	49	49
Cash tenants, number.....	192	179	27	212	612	91	162	367	27	512
Unspecified, number.....	43	8	1	47			5			
Color and nativity of tenants, 1920:										
Native white tenants, number.....	279	150	25	449	325	112	292	391	4	481
Foreign-born white tenants, number.....	61	50	5	110	220	45	60	114	23	320
Negro and other nonwhite tenants, number.....	156	224	85	35	504	25	12	141	2	282

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900—Continued.

	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano	Sonoma
<i>All Farms.</i>										
Number of farms, 1920.....	1,803	624	1,485	5,016	1,759	949	77	1,652	1,358	5,739
Male, number.....	1,714	695	1,355	4,751	1,466	1,010	110	1,114	1,143	4,772
1900.....	1,813	551	1,449	3,995	1,274	1,221	141	981	1,151	3,676
All farmers classified by sex, 1920:										
Male, number.....	1,724	611	1,430	4,653	1,631	900	70	1,010	1,273	5,343
Female, number.....	69	13	55	363	128	49	7	42	85	396
Color and nativity of all farmers, 1920:										
Native white, number.....	1,153	209	856	2,748	1,032	767	49	848	763	3,326
Foreign-born white, number.....	602	359	566	2,066	629	156	28	186	462	2,395
Negro and other nonwhite, number.....	48	56	64	202	98	26	---	18	133	48
All farms classified by size, 1920:										
Under 3 acres, number.....	10	49	112	141	182	16	---	3	7	113
3 to 9 acres, number.....	68	94	210	875	398	1	---	22	90	1,331
10 to 19 acres, number.....	100	65	101	1,392	241	4	---	92	118	1,163
20 to 49 acres, number.....	214	105	199	1,449	403	103	---	112	212	1,252
50 to 99 acres, number.....	186	66	206	353	312	90	---	114	212	698
100 to 174 acres, number.....	255	175	257	273	227	175	---	218	199	477
175 to 299 acres, number.....	153	42	157	107	55	91	---	79	99	231
300 to 499 acres, number.....	317	52	201	128	47	188	---	217	160	293
500 to 999 acres, number.....	257	48	101	58	13	89	---	147	99	176
1,000 acres and over, number.....	243	25	131	60	20	112	---	118	106	125
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres.....	2,133,760	286,080	1,753,600	849,920	278,400	2,469,120	590,720	4,003,840	526,080	1,012,480
Land in farms, 1920, acres.....	1,377,536	117,109	897,781	576,812	144,751	505,235	60,667	307,396	408,288	748,147
1900, acres.....	1,588,660	160,655	1,120,475	734,819	157,308	389,218	84,220	455,876	474,896	744,044
1900, acres.....	1,034,480	492,611	922,611	160,686	160,438	347,120	71,009	482,859	480,551	785,004
Improved land in farms, 1920, acres.....	402,289	77,736	210,353	206,890	67,833	103,470	21,697	166,621	299,354	251,730
1900, acres.....	326,928	100,800	215,552	237,170	66,875	96,217	30,794	186,147	310,452	248,271
1900, acres.....	912,356	72,629	202,982	290,385	62,849	86,540	26,687	181,029	344,658	223,374
Woodland in farms, 1920, acres.....	77,281	10,291	88,244	70,668	46,618	276,284	14,152	71,912	17,142	204,763
1900, acres.....	868,603	29,082	571,184	269,284	30,295	185,481	24,908	298,863	91,882	291,654
Other unimproved land in farms, 1920, acres.....	64.6	40.9	34.6	67.9	32.0	22.9	10.3	13.4	77.6	73.9
1900, acres.....	39.2	66.4	24.2	35.9	46.9	18.3	35.6	31.0	73.3	33.6
Per cent of land area in farms, 1920.....	764.0	187.7	585.7	115.0	52.3	595.6	787.9	510.8	300.7	130.4
Average per cent improved, 1920.....	223.1	124.6	141.7	41.2	38.6	109.0	280.6	168.4	220.4	43.9
Average improved acreage per farm, 1920.....										
1920, dollars.....	61,515,149	18,676,195	69,254,833	149,875,095	27,109,492	16,695,556	2,172,015	20,315,672	50,358,638	112,294,273
1910, dollars.....	32,426,353	20,875,585	43,544,076	67,187,549	17,653,136	7,847,229	1,620,749	14,270,302	28,727,683	56,351,049
1900, dollars.....	14,685,757	10,354,856	18,271,863	50,724,703	11,448,150	4,420,423	995,395	7,704,769	20,780,434	33,071,707
Land in farms, 1920, dollars.....	48,924,414	15,213,830	56,766,718	123,587,923	20,235,412	11,054,935	1,197,650	18,557,450	39,080,249	81,480,294
1910, dollars.....	24,745,375	17,448,280	35,556,593	82,832,003	14,103,415	5,403,979	962,579	10,352,935	23,025,081	41,512,706
1900, dollars.....	11,133,180	8,201,140	14,819,440	42,270,340	9,094,140	2,980,290	564,990	5,084,110	16,900,310	25,286,750
Farm buildings, 1920, dollars.....	3,765,162	1,528,130	4,928,733	15,332,080	4,319,968	1,562,655	2,067,395	2,067,395	4,351,826	11,240,643
1910, dollars.....	2,136,447	2,006,705	3,004,679	9,125,640	2,999,890	851,750	282,135	1,411,810	2,278,540	8,768,787
1900, dollars.....	1,272,820	1,333,300	1,375,230	5,332,710	1,452,920	588,590	179,770	1,056,390	1,995,970	4,046,580

Value of Farm Property.

Implements and machinery, 1920, dollars	2,443,250	711,413	8,038,508	6,061,049	1,242,341	683,619	111,960	912,515	2,586,688	4,668,489
1910, dollars	742,498	898,327	804,264	1,942,889	461,107	289,511	65,524	420,745	767,136	1,326,882
1900, dollars	479,840	173,600	965,770	4,894,580	246,930	37,450	37,450	284,520	649,240	847,240
Live stock on farms, 1920, dollars	6,382,832	1,229,772	4,520,874	4,804,083	1,311,741	2,794,437	608,555	3,788,312	3,774,925	8,364,947
1910, dollars	4,802,033	1,017,273	4,178,540	3,236,987	788,424	1,303,889	380,575	2,684,812	2,656,626	3,752,724
1900, dollars	1,749,917	646,726	1,681,863	1,834,093	649,700	737,749	218,155	1,279,749	1,391,884	2,291,137
Average values, 1920:	34,118	29,930	46,686	29,879	15,412	16,961	19,311	37,109	37,109	19,567
All property per farm, dollars	29,225	26,830	41,546	27,686	13,960	13,296	18,822	14,843	32,424	17,193
Land and buildings per farm, dollars	35.52	139.91	65.27	214.23	139.79	19.56	19.73	25.23	37.10	108.94

Farms Operated by Owners.

Number of farms, 1920	1,165	213	791	4,164	1,303	789	69	870	887	4,659
1910	1,056	302	764	3,622	1,088	839	93	948	773	3,771
1900	1,167	296	654	2,997	865	1,004	133	816	709	2,629
Per cent of all farms, 1920	(4.6)	34.1	53.3	83.0	74.1	83.1	89.6	65.3	81.2	81.2
Land in farms, 1920, acres	508,768	26,728	294,077	327,635	84,973	412,270	52,737	388,395	255,111	442,804
Improved land in farms, 1920, acres	172,430	18,648	78,677	140,443	38,504	66,008	19,845	118,151	185,474	160,465
Value of land and buildings, 1920, dollars	21,804,829	5,133,115	27,620,255	103,462,389	15,189,135	8,458,295	1,305,640	11,876,385	26,078,180	69,648,112
Degree of ownership, 1920:	684	162	603	3,777	1,185	688	59	754	699	4,342
Farmers owning entire farm, number	241	51	188	387	118	101	10	116	188	317
Farmers hiring additional land, number	779	104	531	2,337	824	628	43	697	554	2,670
Color and nativity of owners, 1920:	386	101	257	1,787	466	137	26	156	322	1,973
Native white owners, number	8	8	3	40	14	24	---	17	11	16
Foreign-born white owners, number	---	---	---	---	---	---	---	---	---	---
Negro and other nonwhite owners, number	---	---	---	---	---	---	---	---	---	---

Farms Operated by Managers.

Number of farms, 1920	59	16	81	197	61	31	---	40	53	143
1910	42	47	87	232	49	17	---	37	48	113
1900	49	16	66	295	44	18	---	17	71	147
Land in farms, 1920, acres	487,502	7,932	311,986	185,125	18,750	91,269	---	76,552	33,076	110,594
Improved land in farms, 1920, acres	58,153	2,953	28,914	22,510	5,503	24,234	---	19,063	19,778	28,895
Value of land and buildings, 1920, dollars	10,721,830	1,452,000	11,269,090	14,876,466	2,611,590	2,757,500	---	1,483,700	3,720,255	9,498,128

Farms Operated by Tenants.

Number of farms, 1920	570	395	613	635	395	129	8	142	418	937
1910	616	316	504	877	329	154	12	129	822	888
1900	397	239	429	703	365	199	6	98	371	900
Per cent of all farms, 1920	32.1	63.3	41.3	13.1	22.3	13.6	10.4	13.5	30.8	16.3
Land in farms, 1920, acres	381,266	82,449	263,718	114,052	41,028	61,696	7,930	78,449	120,101	194,809
Improved land in farms, 1920, acres	171,681	56,132	102,762	43,987	23,831	13,228	1,762	99,407	94,012	62,430
Value of land and buildings, 1920, dollars	20,162,917	10,150,895	22,806,116	20,581,158	6,751,685	1,401,795	146,000	2,255,760	14,233,640	19,524,697
Form of tenancy, 1920:	270	54	298	258	106	29	---	58	169	233
Share tenants, number	18	1	82	18	8	2	---	9	9	12
Share-cash tenants, number	290	340	233	374	278	98	8	69	240	603
Cash tenants, number	1	---	---	5	3	---	---	---	---	---
Unspecified number	---	---	---	---	---	---	---	---	---	---
Color and nativity of tenants, 1920:	323	100	266	273	168	112	6	117	172	548
Native white tenants, number	248	247	296	236	145	15	2	25	127	357
Foreign-born white tenants, number	---	---	---	---	---	---	---	---	---	---
Negro and other nonwhite tenants, number	48	48	59	156	82	2	---	119	119	32

California Farms and Farm Property by Counties, Census of 1920, With Selected Items for 1910 and 1900—Concluded.

	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba	Indian res- ervation
<i>All Farms.</i>										
Number of farms, 1920.....	4,566	1,437	1,414	377	6,372	363	1,543	1,613	487	-----
1910.....	2,687	878	1,006	308	4,021	386	1,293	1,255	486	-----
1900.....	961	728	1,055	272	2,212	457	1,269	1,214	483	287
All farmers classified by sex, 1920:										
Male, number.....	4,417	1,367	1,356	358	6,148	335	1,480	1,558	466	-----
Female, number.....	149	70	58	19	224	28	53	55	21	-----
Color and nativity of all farmers, 1920:										
Native white, number.....	2,815	1,121	1,151	305	4,759	313	1,293	1,149	382	-----
Foreign-born white, number.....	1,677	299	243	55	1,369	48	293	314	91	-----
Negro and other nonwhite, number.....	74	47	20	17	204	2	27	150	14	-----
All farms classified by size, 1920:										
Under 3 acres, number.....	25	-----	4	3	17	1	9	10	2	-----
3 to 9 acres, number.....	329	58	62	14	255	8	109	61	12	-----
10 to 19 acres, number.....	656	224	180	15	695	13	152	176	35	-----
20 to 49 acres, number.....	2,663	390	328	47	2,541	28	285	411	84	-----
50 to 99 acres, number.....	674	212	161	43	1,183	36	224	224	64	-----
100 to 174 acres, number.....	337	904	172	131	724	78	284	257	84	-----
175 to 299 acres, number.....	98	96	67	27	232	42	151	110	31	-----
300 to 499 acres, number.....	118	131	149	61	352	74	191	158	67	-----
500 to 999 acres, number.....	127	69	109	25	43	64	64	198	58	-----
1,000 acres and over, number.....	139	53	182	11	191	40	63	80	50	-----
<i>Land and Farm Area.</i>										
Approximate land area, 1920, acres.....	928,000	380,120	1,872,000	1,981,440	3,107,840	1,411,600	1,180,120	648,000	404,480	-----
Land in farms, 1920, acres.....	748,678	288,940	1,124,502	1,302,990	2,084,234	220,750	384,895	398,165	228,797	-----
1910, acres.....	649,392	385,462	915,227	913,310	1,045,231	193,072	550,199	463,383	319,328	-----
1900, acres.....	830,692	293,287	950,763	76,038	1,059,727	204,758	552,359	552,065	212,321	17,124
Improved land in farms, 1920, acres.....	477,871	232,070	222,722	15,078	544,598	35,380	109,924	300,094	98,997	-----
1910, acres.....	512,189	199,510	186,642	13,300	507,024	36,407	213,898	317,268	94,250	-----
1900, acres.....	622,700	206,877	299,693	14,144	546,289	36,401	174,419	351,213	154,013	5,244
Woodland in farms, 1920, acres.....	98,320	9,397	334,240	40,246	186,846	73,117	15,049	29,805	65,881	-----
Other unimproved land in farms, 1920, acres.....	172,487	47,503	597,500	74,960	352,790	112,233	179,892	68,296	63,919	-----
Per cent of land area in farms, 1920.....	80.7	74.3	60.1	6.6	34.9	15.7	32.4	61.4	56.6	-----
Per cent of land area in farms, 1910.....	63.8	80.3	20.7	11.6	50.2	16.0	49.3	75.4	43.3	-----
Per cent of farm land unimproved, 1920.....	164.0	201.1	795.3	345.6	170.2	698.1	249.4	246.8	469.8	-----
Average acreage per farm, 1920.....	104.7	161.5	164.6	40.0	85.5	97.5	123.1	186.0	263.3	-----
<i>Value of Farm Property.</i>										
All farm property, 1920, dollars.....	110,595,497	51,378,460	34,990,408	2,991,851	198,084,821	5,015,180	98,182,900	66,246,770	14,274,307	-----
1910, dollars.....	43,787,887	19,115,993	16,821,178	1,391,469	76,539,642	2,942,322	46,262,645	31,798,095	6,096,211	-----
1900, dollars.....	17,031,960	9,162,731	16,030,104	1,040,819	20,287,801	3,231,145	21,433,487	19,989,751	4,703,613	409,361
Land in farms, 1920, dollars.....	85,690,234	41,443,246	25,476,897	1,633,087	167,123,963	3,520,760	86,393,272	54,145,140	10,926,093	-----
1910, dollars.....	35,824,243	14,869,242	12,932,446	900,855	64,456,454	1,779,470	41,826,120	25,084,710	4,911,611	-----
1900, dollars.....	13,674,850	6,978,320	11,720,120	585,450	15,898,600	1,284,500	18,549,290	15,906,280	3,375,150	218,920
Farm buildings, 1920, dollars.....	10,065,305	4,023,340	2,900,099	474,275	13,422,065	624,870	5,850,929	5,089,115	1,116,177	-----
1910, dollars.....	3,320,475	2,032,535	1,234,375	274,290	4,195,452	451,955	2,365,140	2,799,277	688,565	-----
1900, dollars.....	1,237,900	987,700	2,091,860	171,550	1,376,960	387,850	1,491,250	1,935,690	637,130	78,590

Implements and machinery, 1920, dollars.....	3,424,801	1,544,013	155,505	8,651,262	192,908	4,473,843	2,712,207	697,989
1910, dollars.....	820,079	494,832	89,119	1,805,419	114,880	1,112,812	795,162	171,735
1900, dollars.....	537,280	400,020	51,850	713,450	102,070	482,270	510,430	151,050
Live stock on farms, 1920, dollars.....	9,140,757	5,039,399	728,984	9,787,581	961,252	2,494,916	4,309,308	1,534,948
1910, dollars.....	4,323,690	2,159,447	347,285	4,683,217	596,097	2,688,573	2,515,947	894,300
1900, dollars.....	1,581,950	1,778,104	254,639	2,296,791	346,956	910,677	1,637,451	593,983
Average values, 1920:								
All property per farm, dollars.....	24,222	35,754	7,936	31,228	13,816	63,631	41,072	29,311
Land and buildings per farm, dollars.....	21,079	31,640	5,590	28,334	10,638	59,115	36,719	24,727
Land alone per acre, dollars.....	114.31	143.43	12.53	154.14	14.66	221.80	135.99	47.75
<i>Farms Operated by Owners.</i>								
Number of farms, 1920.....	3,486	1,104	1,186	4,949	318	1,078	1,033	363
1910.....	2,200	674	810	3,307	342	885	887	332
1900.....	611	513	803	1,620	400	889	850	374
Per cent of all farms, 1920.....	76.3	76.8	83.9	77.7	87.6	69.9	67.8	74.5
Land in farms, 1920, acres.....	515,095	195,067	87,616	801,564	195,473	252,888	226,737	156,394
Improved land in farms, 1920, acres.....	312,621	143,619	156,641	301,049	32,045	119,025	172,607	61,789
Value of land and buildings, 1920, dollars.....	65,377,063	30,153,076	19,273,962	124,950,681	3,182,194	61,844,600	35,378,450	7,746,565
Degree of ownership, 1920:								
Farmers owning entire farm, number.....	2,880	853	918	4,390	267	878	867	307
Farmers hiring additional land, number.....	606	246	268	569	51	200	226	56
Color and nativity of owners, 1920:								
Native white owners, number.....	2,195	896	964	3,818	275	856	858	293
Foreign-born white owners, number.....	1,278	209	218	1,041	41	219	223	67
Negro and other nonwhite owners, number.....	12	2	4	90	2	8	12	3
<i>Farms Operated by Managers.</i>								
Number of farms, 1920.....	72	47	37	488	12	106	48	15
1910.....	46	18	32	218	10	52	43	8
1900.....	31	4	31	74	17	49	55	14
Land in farms, 1920, acres.....	32,964	12,100	128,766	107,560	3,870	44,577	48,141	13,136
Improved land in farms, 1920, acres.....	19,600	11,798	33,996	37,601	987	16,217	25,463	10,369
Value of land and buildings, 1920, dollars.....	4,305,400	2,862,450	3,928,572	299,500	186,780	11,376,341	6,171,260	1,199,025
<i>Farms Operated by Tenants.</i>								
Number of farms, 1920.....	1,008	286	191	935	33	359	472	109
1910.....	441	181	164	498	34	346	395	96
1900.....	309	211	221	518	40	331	309	95
Per cent of all farms, 1920.....	22.1	19.9	13.5	14.7	9.1	23.3	29.3	22.4
Land in farms, 1920, acres.....	200,649	81,783	177,518	175,110	21,587	87,400	123,287	59,267
Improved land in farms, 1920, acres.....	146,180	70,632	42,175	115,988	2,888	54,682	102,024	26,839
Value of land and buildings, 1920, dollars.....	26,563,076	12,451,060	5,174,862	28,283,712	492,646	17,998,200	17,677,545	3,066,080
Form of tenancy, 1920:								
Share tenants, number.....	487	167	57	537	9	281	210	44
Share-cash tenants, number.....	26	7	7	25	9	20	5	5
Cash tenants, number.....	495	77	107	373	24	59	229	50
Unspecified, number.....	15	15	20	4	10	10	13	10
Color and nativity of tenants, 1920:								
Native white tenants, number.....	562	186	155	568	28	296	250	74
Foreign-born white tenants, number.....	385	157	20	277	5	69	87	24
Negro and other nonwhite tenants, number.....	61	43	16	100	1	24	135	11

TORRENS LAND ACT.

The Torrens law was first adopted in this state in 1897, California being the first state in the Union to pass a land registration act.

The law was designed to simplify the transfer of real estate and to give the property owners a quick and inexpensive means of transfer after the land has once been bought under the system. The act adopted in 1897 was unsatisfactory, only a few titles being taken out thereunder; the act of 1914 being intended to remedy the defects in the old law.

The initial proceedings to registration are similar to an ordinary suit to quiet title. After a decree of court is obtained a certificate is issued by the registrar of deeds, which certificate is conclusive evidence that the party named thereupon is the owner of the property subject only to such liens or objections as may appear on the certificate. Subsequent transfers are made by deed or by assignment of the certificate, after which the registrar of titles issues a new certificate to the new owner.

Torrens titles are protected by state insurance. When the land is first brought under the act the owner pays into the assurance fund one-tenth of one per cent of the assessed value of the land, including permanent improvements thereon as the same were valued for county taxation the last time said land and permanent improvements or either thereof were assessed. All subsequent purchasers are insured without further cost.

Title to property under the Torrens Act can not be questioned after it has once passed into the hands of an innocent third party for value, but a party sustaining injury through the workings of the act can recover the value of the property from the assurance fund in the hands of the State Treasurer. On December 31, 1920, the assurance fund contained \$17,877.58. On the same date eleven counties had adopted this system of registration: Humboldt, Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Francisco, Santa Cruz and Tulare counties.

PART II.

POPULATION OF CALIFORNIA.

Population; Density of Population; California Cities; Farm Population; Indians of California; Japanese Statistics; Marriage, Births, and Deaths; Number of Schools, Teachers, and Pupils, by Counties.

The first settlement in California was made by the Spaniards in 1769, when the Franciscan Fathers founded a mission at San Diego. In 1776 the Mission Dolores was established where San Francisco now stands. California was under Spanish rule until 1822, when, at the termination of the Mexican revolution, it declared its allegiance to Mexico. For several years prior to 1846 large numbers of immigrants from the United States had been arriving in California, and in June of that year a revolt against Mexico was begun by the American settlers. In July and August the American flag was raised at Monterey, San Francisco, Sonoma, Sacramento, San Jose, San Diego, Santa Barbara, Los Angeles, and other places.

On February 2, 1848, the treaty of Guadalupe Hidalgo was signed. By this treaty the war with Mexico was terminated and California ceded to the United States.

Had the discovery of gold, which occurred January 24, been known at that time, the terms of the treaty would have undoubtedly been very different.

From 1846 to 1849 California was under military and provisional rule by the United States. In October, 1849, a state constitution was adopted at Monterey, and on September 9, 1850, California became a state of the Union.

Year	Population	Increase over preceding census		Per cent of increase for the United States
		Number	Per cent	
1850 ¹	92,597			
1860	*379,994	287,397	310.4	35.6
1870	*560,247	180,253	47.4	22.6
1880	864,694	304,447	54.3	30.1
1890	*1,213,398	348,704	40.3	25.5
1900	1,485,053	271,655	22.4	20.7
1910	2,377,549	892,496	60.1	21.0
1920	3,426,312	1,049,312	44.1	14.9

¹Includes population of Indian reservations: 5268 (1890); 1688 (1870); 1803 (1860).

*Returns for 1850 incomplete, those for Contra Costa and Santa Clara Counties having been lost and those for San Francisco having been destroyed by fire.

During each decade since 1850 the population of California has increased more rapidly than that of continental United States. The population of the state in 1920 was more than thirty-seven times as large as in 1850, while the population of the continental United States was a little less than four times that in 1850.

Rank in Population of the Fifty States and Territories.

California ranked twenty-eighth in 1850, twenty-sixth in 1860, twenty-fourth in 1870 and 1880, twenty-second in 1890, twenty-first in 1900, twelfth in 1910 and eighth in 1920.

The Density of Population Per Square Mile, 1850-1920.

1850 -----	0.6	1890 -----	7.8
1860 -----	2.4	1900 -----	9.5
1870 -----	3.6	1910 -----	15.3
1880 -----	5.5	1920 -----	22.0

The density of population in California is low, the average number of persons to the square mile in 1920 being 22.0. The average number per square mile for continental United States in 1910 was 30.9. This compares with 508.8 in Rhode Island, 418.8 in Massachusetts, 337.7 in New Jersey, 191.2 in New York, 342.4 in the United Kingdom, and 213.3 in India. The Australian commonwealth has only 1.39 to the square mile, New Zealand 7.8, and Canada 1.4; 589 in Belgium, 436 in Holland, 188 in France, and 270 in Germany.

CALIFORNIA CITIES.

California has 185 cities, of which Los Angeles, with a population of 576,673, is the largest. San Francisco, with 506,676, and Oakland, with 216,261, are the only other cities having more than 100,000 inhabitants. The following summary shows, for each city having 25,000 or more inhabitants in 1920, the population at each census for which figures are available, together with the number and per cent of increase during the preceding decade:

Population of Principal Cities From Earliest Census to 1920.

City and census year	Population	Increase over preceding census		City and census year	Population	Increase over preceding census	
		Number	Per cent			Number	Per cent
Alameda:				Pasadena:			
1920.....	28,906	5,423	23.2	1920.....	45,354	15,063	49.7
1910.....	23,383	6,919	42.0	1910.....	30,291	21,174	232.2
1900.....	16,464	5,299	47.5	1900.....	9,117	4,235	86.7
1890.....	11,165	5,457	95.6	1890.....	4,882		
1880.....	5,708	4,151	266.6	Sacramento:			
1870.....	1,557	1,097	238.5	1920.....	65,908	21,212	47.5
1860.....	460			1910.....	44,696	15,414	52.6
Berkeley:				1900.....	29,282	2,896	11.0
1920.....	56,036	15,602	38.6	1890.....	26,386	4,966	23.2
1910.....	40,434	27,220	206.0	1880.....	21,420	5,137	31.5
1900.....	13,214	8,113	159.0	1870.....	16,283	2,498	18.1
1890.....	5,101			1860.....	13,785	6,965	102.1
Fresno:				1850.....	6,820		
1920.....	45,086	20,194	81.1	San Diego:			
1920.....	24,892	12,422	99.6	1920.....	74,683	35,105	68.7
1900.....	12,470	1,652	15.4	1910.....	39,578	21,878	123.6
1890.....	10,818	9,706	872.3	1900.....	17,700	1,541	9.5
1880.....	1,112			1890.....	16,159	13,522	512.8
Long Beach:				1880.....	2,637	337	14.7
1920.....	55,593	37,784	212.2	1870.....	2,300	1,569	214.6
1910.....	17,809	15,557	690.8	1860.....	731		
1900.....	2,252	1,658	299.3	San Francisco:¹			
1890.....	564			1920.....	506,676	89,764	21.5
Los Angeles:				1910.....	416,912	74,130	21.6
1920.....	576,673	257,475	80.7	1900.....	312,782	43,785	14.6
1910.....	319,198	216,719	211.5	1890.....	298,997	65,038	27.8
1900.....	102,479	52,084	103.4	1880.....	233,959	84,486	56.5
1890.....	50,395	39,212	350.6	1870.....	149,473	92,671	163.1
1880.....	11,183	5,455	95.2	1860.....	56,802		
1870.....	5,728	1,343	30.6	San Jose:			
1860.....	4,385	2,775	172.4	1920.....	39,642	10,696	37.0
1850.....	1,610			1910.....	28,946	7,446	31.6
Oakland:				1900.....	21,500	3,440	19.0
1920.....	216,261	63,087	44.0	1890.....	18,060	5,493	43.7
1910.....	150,174	83,214	124.3	1880.....	12,567	3,478	38.3
1900.....	66,960	18,278	37.5	1870.....	9,089		
1890.....	48,682	14,127	40.9	Stockton:			
1880.....	34,555	24,055	229.1	1920.....	40,296	17,043	73.3
1870.....	10,500	8,957	580.5	1910.....	23,253	5,747	32.8
1860.....	1,543			1900.....	17,506	3,082	21.4
				1890.....	14,424	4,142	40.3
				1880.....	10,282	216	2.1
				1870.....	10,066	6,387	173.6
				1860.....	3,679		

¹Returns for San Francisco for 1850 destroyed by fire; population in 1852, according to state census of that year, 34,776.

The following table gives the population of incorporated cities in California, showing the population for the past three censuses:

POPULATION OF INCORPORATED PLACES: 1920, 1910, AND 1900.

(The absence of population figures for 1910 or 1900 indicates that the place was incorporated at some date between the censuses, unless otherwise explained by footnote.)

City or town	County	1920	1910	1900	City or town	County	1920	1910	1900
Alameda city	Alameda	28,806	23,383	16,464	Eisnore city	Riverside	633	488	279
Albany city	Alameda	2,462	808	---	Emeryville town	Alameda	2,890	1,016	1,016
Alhambra city	Los Angeles	9,096	5,021	---	Escondido city	San Diego	1,789	1,334	755
Alturas town	Modoc	979	916	---	Etna town	Siskiyou	425	618	600
Alvijo town	Santa Clara	517	402	---	Eureka city	Humboldt	12,923	11,845	7,327
Amador city	Amador	377	---	---	Exeter city	Tulare	1,852	---	---
Anahelm city	Orange	5,526	2,628	1,456	Fairfield town	Solano	1,008	884	---
Angels city, Angels Camp P.O.	Calaveras	941	---	---	Ferndale town	Humboldt	919	905	846
Antioch town	Contra Costa	1,936	1,124	674	Fillmore city	Ventura	1,597	---	---
Arcadia city	Los Angeles	2,239	696	---	Firebaugh city	Fresno	(¹)	---	---
Arcata town	Humboldt	1,486	1,121	952	Fort Bragg city	Mendocino	2,616	2,408	1,590
Arroyo Grande city	San Luis Obispo	760	---	---	Fort Jones town	Siskiyou	331	316	356
Auburn city	Placer	2,289	2,376	2,050	Fortuna town	Humboldt	996	883	---
Avalon city	Los Angeles	586	---	---	Fowler town	Fresno	1,528	675	---
Azusa city	Los Angeles	2,460	1,477	883	Fresno city ²	Fresno	45,066	24,892	12,470
Bakersfield city	Kern	18,638	12,727	4,836	Fullerton city	Orange	4,415	1,725	---
Banning city	Riverside	1,810	---	---	Gilroy city	Santa Clara	2,862	2,437	1,820
Beaumont city	Riverside	887	---	---	Glendale city	Los Angeles	13,536	2,746	---
Belvedere town	Marin	616	481	434	Glendora city	Los Angeles	2,028	---	---
Benida city	Solano	2,693	2,360	2,751	Grass Valley city	Nevada	4,006	4,620	4,719
Berkeley city	Alameda	56,036	40,434	13,214	Gridley city	Butte	1,636	987	---
Beverly Hills city	Los Angeles	674	---	---	Gustine city	Merced	716	---	---
Biggs city	Butte	683	403	---	Hanford city	Kings	5,888	4,829	2,929
Bishop city	Inyo	1,304	1,190	---	Hayward town	Alameda	3,487	2,746	1,965
Blue Lake town	Humboldt	441	507	---	Healdsburg city	Sonoma	2,412	2,011	1,869
Blythe city	Riverside	1,622	---	---	Hemet city	Riverside	1,480	892	---
Brawley city	Imperial	6,389	881	---	Hercules town	Contra Costa	373	279	---
Brea city	Orange	1,037	---	---	Hermosa Beach city	Los Angeles	2,327	679	---
Burbank city	Los Angeles	2,913	---	---	Hillsborough town	San Mateo	931	---	---
Burlingame town	San Mateo	4,107	1,565	---	Hollister city	San Benito	2,781	2,308	1,315

Calixico city	Imperial	707	6,223	Holtville city	Imperial	1,347	729
Calpatria city	Imperial	751	785	Hornitos town	Mariposa	100	160
Calistoga town	Napa	60	850	Huntington Beach city	Orange	1,687	815
Carmel-by-the-Sea city	Monterey	707	638	Huntington Park city	Los Angeles	4,533	1,269
Ceres city	Stanislaus	687	637	Imperial city	Imperial	1,885	1,257
Chico city	Butte	3,750	9,337	Ingewood city	Los Angeles	3,286	1,586
Chino city	San Bernardino	1,444	2,132	Jackson city	Amador	1,601	2,035
Chula Vista city	San Diego	1,114	1,718	Kennett city	Shasta	464	---
Claremont city	Los Angeles	823	1,728	King City	Monterey	1,048	---
Cloverdale town	Sonoma	4,109	718	Kingsburg city	Fresno	1,316	634
Clovis city	Fresno	621	1,157	La Mesa city	San Diego	1,004	---
Coalinga city	Fresno	686	2,934	La Verne city ²	Los Angeles	1,698	954
Colfax city	Flacor	922	373	Lakeport town	Lake	1,024	726
Colton city	San Bernardino	1,582	3,980	Larkspur town	Marin	612	594
Colusa town	Colusa	1,441	1,846	Lemoore city	Kings	1,355	1,000
Compton city	Los Angeles	708	1,478	Lincoln town	Placer	1,325	1,402
Concord town	Contra Costa	686	912	Lindsay city	Tulare	2,576	1,814
Coran town	Shasta	972	32	Livermore town	A'medeo	1,916	2,030
Corcoran city	Kings	1,440	1,101	Lodi city	San Joaquin	4,850	2,697
Corning city	Tehama	4,129	1,440	Lompoc city	Santa Barbara	1,876	1,482
Corona city	Riverside	1,477	4,129	Long Beach city	Los Angeles	55,598	17,809
Coronado city	San Diego	3,510	3,289	Los Angeles city	Los Angeles	576,673	319,198
Corte Madera town	Marin	485	607	Los Banos town	Mere d	1,276	745
Covina city	Los Angeles	1,652	1,999	Los Gatos town	Santa Clara	2,317	2,322
Crescent City	Del Norte	1,114	955	Loyalton town	Sierra	442	983
Culver city	Los Angeles	503	503	McKittrick city	Kern	207	---
Daly City	San Mateo	3,779	3,779	Madera city	Madera	3,444	2,404
Davis city	Yolo	869	869	Manhattan Beach city	Los Angeles	857	---
Delano city	Kern	805	805	Maneca city	San Joaquin	1,286	---
Dinuba city	Tulare	3,400	3,400	Maricopa city	Kern	1,121	---
Dixon town	Solano	827	926	Martinez town	Contra Costa	3,858	2,115
Dorris town	Siskiyou	214	424	Marysville city	Yuba	5,461	5,430
Dunsmuir town	Siskiyou	1,719	2,528	Mayfield town	Santa Clara	1,127	1,041
Eagle Rock city	Los Angeles	2,256	2,256	Merced city	Merced	3,974	1,969
East San Diego city	San Diego	4,148	4,148	Mill Valley town	Marin	2,554	2,551
El Cajon city	San Diego	469	469	Modesto city	Stanislaus	9,241	4,034
El Centro city	Imperial	1,610	5,464	Monrovia city	Los Angeles	5,480	3,576
El Cerrito town	Contra Costa	1,505	1,505	Montague town	Siskiyou	453	274
El Monte city	Los Angeles	1,283	1,283	Monterey city	Monterey	5,479	4,923
El Segundo city	Los Angeles	1,563	1,563	Monterey Park city	Los Angeles	4,108	---

²Name changed from Lordsburg.

¹Not returned separately.

POPULATION OF INCORPORATED PLACES: 1920, 1910, AND 1900.

(The absence of population figures for 1910 or 1900 indicates that the place was incorporated at some date between the censuses, unless otherwise explained by footnote.)

City or town	County	1920	1910	1900	City or town	County	1920	1910	1900
Morgan Hill town	Santa Clara	646	607		San Jose city	Santa Clara	39,642	28,946	21,500
Mountain View town	Santa Clara	1,888	1,461		San Juan town	San Benito	501	326	449
Napa city	Napa	6,757	5,791	4,036	San Leandro city	Alameda	5,703	3,471	2,253
National City	San Diego	3,116	1,733	1,086	San Luis Obispo city	San Luis Obispo	5,816	5,157	3,921
Needles city	San Bernardino	2,807			San Marino city	Los Angeles	584		
Nevada City	Nevada	1,782	2,689	3,250	San Mateo city	San Mateo	5,979	4,384	1,832
Newman town	Stanislaus	1,251	882		San Rafael city	Marin	5,512	5,934	3,879
Newport Beach city	Orange	894	445		Sanger city	Fresno	2,578		
Oakdale city	Stanislaus	1,745	1,093		Santa Ana city	Orange	15,429	8,429	4,983
Oakland city	Alameda	216,361	150,174	65,960	Santa Barbara city	Santa Barbara	19,441	11,659	6,587
Oceanside city	San Diego	1,161	673	330	Santa Clara town	Santa Clara	5,220	4,348	3,650
Ontario city	San Bernardino	7,280	4,274	722	Santa Cruz city	Santa Cruz	10,917	11,146	5,659
Orange city	Orange	4,884	2,920	1,216	Santa Maria city	Santa Barbara	3,943	2,900	
Orland town	Glenn	1,582	836		Santa Monica city	Los Angeles	15,252	7,847	3,057
Oroville city	Butte	3,340	3,859		Santa Paula city	Ventura	3,907	2,216	
Oxnard city	Ventura	4,417	2,555		Santa Rosa city	Sonoma	8,758	7,817	6,673
Pacific Grove city	Monterey	2,974	2,384	1,411	Sausalito town	Marin	2,790	2,383	1,628
Palo Alto city	Santa Clara	5,900	4,486	1,668	Seal Beach city	Orange	639		
Pasadena city	Los Angeles	45,354	30,391	9,117	Sebastopol town	Sonoma	1,493	1,233	
Paso Robles city	San Luis Obispo	1,919	1,441	1,224	Sejna city	Fresno	3,158	1,750	1,083
Patterson city	Stanislaus	694			Sierra Madre city	Los Angeles	2,026	1,303	
Perris city	Riverside	494			Siskiyou	Siskiyou	542	626	
Petaluma city	Sonoma	6,236	5,880	3,871	Sonoma town	Sonoma	801	929	682
Piedmont city	Alameda	4,282	1,719		Sonoma city	Tuolumne	1,684	1,922	
Phole town	Contra Costa	967	708		South Pasadena city	Los Angeles	7,652	4,649	1,001
Pittsburg town ³	Contra Costa	4,715	2,372		South San Francisco city				
Placerville city	El Dorado	1,650	1,914	1,748	Stanton city	San Mateo	4,411	1,989	
Pleasanton town	Alameda	991	1,254	1,100	Stockton city	Orange	695		
Plymouth city	Amador	657			Suisun City town	San Joaquin	40,296	25,253	17,506
Point Arena city	Mendocino	394	497		Sunnyvale town	Santa Clara	1,675	641	625
Pomona city	Los Angeles	13,505	10,207	5,526	Susanville city ¹	Lassen	918	688	
Porterville city	Tulare	4,697	2,666		Sutter Creek city	Amador	920		
Potter Valley town	Mendocino	512	576	563	Taft city	Kern	8,317		
Red Bluff city	Tehama	3,104	3,580	2,750	Tehachapi city	Kern	459	385	
Redding city	Shasta	2,962	3,572	2,946	Tehama town	Tehama	196	221	

Redlands city	9,571	10,449	4,797	Tracy city	San Joaquin	2,450	2,758	2,216
Redondo Beach city	4,913	2,935	855	Tulare city	Tulare	3,539	1,573	2,216
Redwood city	4,020	2,442	1,653	Turlock city	Stanislaus	3,394	2,305	1,850
Reedley city	2,447			Ukiah city	Mendocino	2,912	2,384	1,850
Rialto city	961			Upland city	San Bernardino			
Richmond city	16,843	6,802		Vacaville town	Solano	1,254	1,177	1,290
Rio Vista town	1,104	884	682	Vallejo city	Solano	21,107	11,340	7,965
Riverside city	19,341	15,912	7,973	Venice city ²	Los Angeles	10,885	3,119	
Rocklin town	643	1,026	1,050	Ventura city	Ventura	4,342	2,945	2,470
Roseville city	4,477	2,608		Vernon city	Los Angeles	1,005	772	
Ross town	727	556		Visalia city	Tulare	5,753	4,550	3,055
Sacramento city	65,908	44,696	29,282	Walnut Creek town	Contra Costa	588		
St. Helena town	1,346	1,693	1,582	Watsonville city	Santa Cruz	5,013	4,446	3,528
Salinas city	4,308	3,735	3,304	Watts city	Los Angeles	4,529	1,922	
San Anselmo town	2,475	1,531		Wheatland town	Yuba	435	481	492
San Bernardino city	18,721	12,779	6,150	Whittier city	Los Angeles	7,997	4,550	1,590
San Bruno city	1,562			Willits town	Mendocino	1,468	1,153	791
San Diego city	74,683	39,578	17,700	Willows town	Glenn	2,190	1,139	893
San Fernando city	3,204			Winters town	Yolo	903	910	785
San Francisco city	506,676	416,912	342,782	Woodland city	Yolo	4,147	3,187	2,686
San Gabriel city	2,640			Yreka town	Siskiyou	1,277	1,134	1,254
San Jacinto city	945	898	583	Yuba City town	Sutter	1,708	1,160	

¹Incorporated as a city since 1910.

²Name changed from Ocean Park.
³Name changed from Black Diamond since 1910.

The following table gives the urban and rural population of the counties for the last three censuses with the per cent of increase or decrease during that period:

Urban and Rural Population of Counties: 1920, 1910, and 1900.

[A minus sign (-) denotes decrease.]

County	Population				Per cent urban in total population		Per cent of increase in—				Rural population per square mile, 1920			
	1920		1910		1920		Urban population		Rural population					
	Urban	Rural	Urban	Rural	1920	1900	1910 to 1920	1900 to 1910	1910 to 1920	1910 to 1910				
California	2,331,729	1,095,132	1,449,739	907,810	777,600	707,354	68.0	61.8	52.4	58.6	89.0	20.6	28.3	7.0
Alameda	314,575	29,602	222,821	23,310	96,688	83,559	91.4	90.5	74.2	41.2	130.6	27.0	-30.5	40.4
Alameda butte	12,670	17,931	7,609	19,912	14,477	42,222	42.2	27.9	15.4	66.6	188.2	-11.9	30.5	10.2
Contra Costa	25,011	28,573	6,802	21,872	18,046	47,221	21.5	21.5	15.4	273.7	114.5	14.5	37.8	39.9
Fresno	53,756	75,023	21,001	46,563	19,470	25,392	41.7	38.5	32.9	84.8	133.3	61.1	83.4	12.6
Humboldt	12,923	24,470	11,845	22,012	7,327	19,777	34.5	85.0	27.0	9.1	61.7	11.3	11.3	6.9
Imperial	21,076	26,377	13,801	24,881	4,836	11,644	33.3	33.7	29.3	72.5	163.2	31.6	94.1	6.5
Kern	21,935	32,888	16,143	41,429	2,929	6,942	26.7	29.8	20.7	21.9	64.9	41.6	64.2	13.9
Kings	5,888	16,143	4,829	11,401	2,929	6,942	26.7	29.8	20.7	21.9	64.9	41.6	64.2	13.9
Los Angeles	790,029	143,826	411,948	92,183	120,179	50,119	81.4	81.7	70.6	91.9	212.8	58.2	83.9	35.4
Madera	3,444	8,739	8,308	8,308	6,364	28.2	28.2	33.8	24.7	27.9	118.7	-0.9	31.5	4.1
Marin	10,856	16,496	8,455	16,029	3,879	20,465	10.8	33.8	24.7	27.9	118.7	-0.9	40.6	31.2
Mariposa	2,616	21,940	23,329	23,329	20,465	9,215	16.2	20.5	20.5	28.1	162.1	71.1	30.7	10.3
Mendocino	3,974	20,605	3,102	12,646	12,646	9,215	16.2	20.5	20.5	28.1	162.1	71.1	30.7	10.3
Merced	12,761	15,219	8,659	15,487	3,304	16,076	45.6	35.9	17.0	47.4	162.1	-1.7	-3.7	4.6
Monterey	6,757	13,321	5,791	14,009	4,036	12,415	29.2	29.2	24.5	16.7	43.5	-0.6	12.8	17.8
Napa	4,006	6,844	7,969	7,716	7,969	9,820	36.9	48.2	44.8	-44.4	-0.5	-11.6	-21.1	7.0
Nevada	30,310	31,065	13,977	20,479	4,933	14,763	49.4	40.6	27.0	116.9	183.3	51.8	38.6	30.1
Orange	4,477	14,107	2,608	15,029	7,973	15,786	21.1	14.3	44.5	71.7	135.2	68.3	67.0	3.7
Pacer	23,470	26,827	18,759	15,944	29,282	16,633	79.4	65.9	63.8	47.5	52.6	8.7	31.9	25.6
Riverside	65,968	25,121	44,656	23,110	29,282	16,633	79.4	65.9	63.8	47.5	52.6	8.7	31.9	25.6
Sacramento	2,781	6,214	8,011	8,011	10,947	16,633	30.9	30.9	30.2	44.8	187.6	10.3	46.5	4.5
San Benito	45,573	27,828	31,482	30,578	10,947	16,633	62.1	61.2	50.2	44.8	187.6	10.3	46.5	4.5
San Bernardino	85,236	27,012	30,578	22,087	17,390	17,390	75.9	61.2	39.4	115.4	123.6	22.3	27.0	1.4
San Diego	506,676	216,912	46,912	22,087	342,782	100,000	100.0	100.0	100.0	21.5	91.6	22.3	27.0	6.4
San Francisco	84,750	25,950	21,781	17,506	17,506	17,046	54.5	51.2	40.4	71.0	48.2	40.3	38.1	24.0
San Joaquin	5,805	15,908	5,157	14,926	3,021	13,016	26.9	26.9	18.2	14.3	70.7	12.5	4.5	4.8
San Luis Obispo	22,206	14,485	4,384	22,201	3,021	13,016	26.9	26.9	18.2	14.3	70.7	12.5	4.5	4.8
San Mateo	23,384	17,713	16,659	16,070	6,587	12,947	60.6	16.5	34.8	100.6	77.0	10.2	30.2	6.5
Santa Barbara	53,624	47,032	37,529	45,759	25,130	35,066	43.2	43.2	41.8	41.8	50.2	2.8	30.5	35.4
Santa Clara	15,930	10,339	15,392	10,348	9,187	13,325	60.6	59.6	42.7	2.2	61.7	-2.0	-14.4	23.8

Shasta	2,962	10,399	3,572	15,348	2,946	14,372	22.2	18.9	17.0	-17.1	21.2	-32.2	6.8	2.7
Siskiyou	2,528	16,017	11,340	18,801	10,716	16,962	13.6	41.1	44.4	109.9	5.8	-14.8	10.8	21.6
Solano	28,800	16,802	13,697	16,219	10,716	13,427	58.6	28.3	27.4	9.4	29.9	3.6	20.8	90.4
Sonoma	14,984	37,196	13,697	34,697	10,544	27,936	28.8	17.9	21.2	213.2	6.9	67.3	24.2	23.5
Stanislaus	12,635	30,922	4,684	18,488	2,750	9,550	29.0	31.0	25.0	-12.1	28.4	24.2	93.6	21.3
Tehama	3,104	9,778	3,530	7,871	2,750	8,246	24.1	28.2	16.8	93.6	224.3	55.9	-4.5	3.3
Tulare	19,865	39,666	10,004	25,486	3,065	15,290	32.8	30.0	30.1	131.4	24.5	24.5	66.4	8.2
Ventura	12,796	15,998	5,590	12,847	2,886	14,367	44.3	22.9	21.2	30.1	10.4	20.7	-10.6	8.6
Yolo	4,117	12,938	3,187	10,789	2,886	10,732	24.2	51.1	40.6	0.6	55.3	6.5	-10.0	7.8
Yuba	5,461	4,914	5,430	4,632	8,497	5,123	52.6	51.1	40.6	0.6	55.3	6.5	-10.0	7.8
All other counties ¹	102,545	101,835	103,710	103,710	103,710	103,710	52.6	51.1	40.6	0.6	55.3	6.5	-10.0	7.8

¹Comprises all counties in which there were no incorporated places having 2,500 inhabitants or more in 1920. These counties are Alpine, Amador, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Inyo, Lake, Lassen, Mariposa, Modoc, Mono, Plumas, Sierra, Sutter, Trinity, and Tuolumne.

URBAN AND RURAL POPULATION.

The Census Bureau defines urban population as that residing in cities and other incorporated places having 2,500 inhabitants or more, and rural population as that residing outside such incorporated places.

The following summary presents, for the last three censuses, figures showing the urban and rural population of the state distributed among places grouped according to specified limits of population. The classification for each census is based upon the population of the various places as shown by the returns of that census. Consequently the territory comprised within any one class of cities or that designated as urban or as rural does not remain fixed, because any given place may, through the growth or the decline of its population, pass from one class to another at successive censuses. The proportion of the population of California living in places of 2,500 or more increased from 52.4 per cent in 1900 to 61.8 per cent in 1910 and to 68 per cent in 1920.

Urban and Rural Population: 1920, 1910, and 1900.

Class of places	1920		1910		1900		Per cent of total population		
	Number of places	Population	Number of places	Population	Number of places	Population	1920	1910	1900
							100.0	100.0	100.0
Total population	107	3,426,861		2,377,549		1,485,053	100.0	100.0	100.0
Urban territory									
Cities and towns of—									
100,000 inhabitants or more	3	2,331,729	70	1,469,739	40	777,699	68.0	61.8	52.4
50,000 to 100,000 inhabitants	4	1,259,610	3	886,284	2	445,281	37.9	37.3	30.0
25,000 to 50,000 inhabitants	5	252,220			1	66,960	7.4		4.5
10,000 to 25,000 inhabitants	13	199,184	5	183,945	1	29,282	5.8	7.7	2.0
5,000 to 10,000 inhabitants	26	205,094	13	196,701	6	98,854	6.0	8.3	6.7
2,500 to 5,000 inhabitants	56	171,802	10	64,108	9	62,977	5.0	2.7	4.2
Rural territory									
Cities and towns of less than 2,500 inhabitants	117	1,095,132		907,810		707,354	32.0	38.2	47.6
Other rural territory									
		173,677	128	163,032	76	90,748	5.1	6.4	6.1
		921,455		754,758		616,606	26.9	31.7	41.5

¹Includes one city not returned separately.

COLOR OR RACE, NATIVITY, PARENTAGE AND SEX, FOR THE STATE AND URBAN AND RURAL POPULATION: 1920, 1910, AND 1900.

Class of population	Number			Per cent of total			1920		1910		1900		Males to 100 females ¹		
	1920	1910	1900	1920	1910	1900	Male	Female	Male	Female	Male	Female	1920	1910	1900
The State															
Total population	3,426,831	2,877,549	1,485,053	100.0	100.0	100.0	1,813,531	1,613,270	1,322,978	1,054,571	820,531	664,522	119.4	126.5	123.5
White	3,264,711	2,259,672	1,402,727	95.3	93.0	94.5	1,710,223	1,554,488	1,232,910	1,026,682	755,147	617,580	119.0	126.1	116.6
Negro	88,763	11,615	11,045	0.9	0.7	0.7	19,857	18,926	11,363	10,342	5,766	5,279	104.8	109.3	109.2
Indian	17,360	16,371	15,377	0.5	0.5	1.0	9,085	8,279	3,503	3,245	1,723	1,654	169.8	164.3	100.9
Chinese	28,812	36,248	45,753	0.7	1.0	3.1	24,230	4,582	35,063	3,245	45,297	3,456	528.8	1,017.0	1,223.9
Japanese	41,932	41,350	16,151	2.1	1.7	0.7	45,414	26,538	3,116	6,240	9,368	553	171.1	492.8	1,735.6
All other	25,263	2,257		0.2	0.1		4,822	461	2,210	47					
Native white, total	2,885,049	1,742,422	1,066,222	75.4	73.3	73.1	1,308,373	1,274,676	907,573	884,849	563,335	522,887	102.6	108.7	107.7
Native parentage	1,677,365	1,106,333	644,428	49.0	46.5	43.4	861,106	817,759	585,675	520,875	340,617	303,811	105.2	112.4	112.1
Foreign parentage	573,927	282,380	164,700	16.7	17.0	19.0	285,650	288,277	265,249	198,095	142,831	133,999	99.1	103.6	102.0
Mixed parentage	331,167	232,252	158,664	9.7	9.8	10.7	116,616	108,640	110,616	115,879	79,887	73,077	93.4	100.7	101.0
Foreign-born white	681,662	517,250	316,505	19.9	21.8	21.3	401,850	276,812	325,417	191,833	191,812	124,693	143.6	169.6	153.8
Urban population															
Total	2,331,729	1,430,739	777,690	100.0	100.0	100.0	1,190,872	1,116,837	781,542	688,237	401,325	373,374	104.4	113.6	108.3
White	2,233,567	1,417,251	741,722	96.0	95.7	95.4	1,132,139	1,106,428	731,747	672,504	375,743	365,979	102.3	109.3	102.7
Negro	35,888	15,339	8,075	1.5	1.3	1.0	16,982	16,906	9,285	9,114	4,919	4,056	101.4	101.9	99.1
Indian, Chinese, Japanese, and all other	59,274	44,089	27,902	2.5	3.0	3.6	41,751	17,523	37,470	6,310	21,533	3,339	238.3	553.1	735.6
Native white, total	1,765,091	1,075,415	574,934	75.7	73.2	71.4	865,223	800,768	570,923	525,923	272,633	262,806	91.3	100.7	93.2
Native parentage	1,122,915	672,650	292,490	48.2	44.4	37.6	537,353	561,572	333,133	310,223	145,984	146,540	98.5	104.3	99.6
Foreign parentage	407,509	271,919	162,494	17.5	18.5	33.8	196,863	210,706	188,263	188,263	120,404	135,390	98.4	96.5	92.5
Mixed parentage	235,517	151,237	87,904	10.1	10.3	10.3	112,667	123,400	78,043	78,191	48,581	48,581	99.7	98.4	92.5
Foreign-born white	472,578	334,835	188,738	29.3	22.6	24.0	295,916	210,690	195,355	136,581	103,665	83,083	128.7	143.0	124.8
Rural population															
Total	1,095,112	917,810	707,351	100.0	100.0	100.0	622,717	472,413	491,476	366,334	416,200	281,148	131.8	147.8	143.0
White	1,026,144	822,421	611,005	98.7	98.9	98.4	578,084	448,000	494,243	354,178	379,040	291,601	129.0	140.7	134.7
Negro	4,875	3,246	2,470	0.4	0.4	0.4	2,855	2,020	2,018	1,228	1,747	1,223	141.3	161.3	142.8
Indian, Chinese, Japanese, and all other	61,113	43,879	27,876	5.9	5.7	6.1	41,780	22,333	41,215	10,928	35,655	8,324	187.1	377.2	421.1
Native white, total	817,068	637,007	531,238	74.6	73.5	75.1	442,150	374,908	398,081	298,923	291,247	239,491	117.9	123.1	121.4
Native parentage	553,630	455,874	351,438	50.7	50.0	49.8	302,843	252,137	272,392	201,352	194,633	157,305	120.1	120.1	123.7
Foreign parentage	161,418	81,282	47,800	15.2	14.5	14.5	88,547	77,571	71,955	59,899	59,899	47,800	114.5	120.4	116.8
Mixed parentage	95,610	131,845	179,300	8.7	9.0	9.0	50,469	45,150	43,643	37,685	95,914	82,683	111.8	115.7	116.8
Foreign-born white	209,086	189,414	129,767	19.1	20.4	18.3	135,434	73,192	131,012	55,252	88,157	41,610	185.8	235.6	211.9

¹Ratio not shown where number of females is less than 100.

²Comprises 2,574 Filipinos, 1,223 Hindus, 772 Koreans, 70 Hawaiians, 6 Malays, 6 Siamese, and 1 Maori.

FARMS BY SEX, RACE AND NATIVITY OF FARMER.

Number, Acreage and Value of Farms, Classified by Sex and Tenure of Farmer: 1920.

Sex and tenure	Number of farms	All land in farms (acres)	Improved land in farms (acres)	Value of land and buildings	Average per farm		
					All land (acres)	Im-proved land (acres)	Value of land and build-ings
Total -----	111,670	29,365,637	11,878,339	\$3,073,811,109	249.6	100.9	\$26,122
Male -----	111,896	28,530,876	11,716,326	2,962,951,781	255.0	102.9	26,480
Female -----	5,774	834,761	362,013	110,859,328	144.6	62.7	19,200
Owners -----	87,580	17,196,215	6,819,212	1,900,924,411	196.3	77.9	21,705
Male -----	82,174	16,447,379	6,491,955	1,798,501,928	200.2	79.0	21,837
Female -----	5,406	748,836	327,257	102,422,483	138.5	60.5	18,946
Managers -----	4,919	5,485,447	1,587,518	442,032,436	1,108.4	320.8	89,318
Male -----	4,897	5,471,314	1,582,594	439,766,236	1,117.3	323.2	89,762
Female -----	52	14,133	4,924	2,466,200	271.8	94.7	47,427
Tenants -----	25,141	6,684,005	3,471,699	730,854,262	265.9	138.1	29,070
Male -----	24,825	6,612,183	3,441,777	724,883,617	263.4	138.6	21,240
Female -----	316	71,822	29,922	5,970,645	227.3	94.4	18,894

Number, Acreage, and Value of Farms, Classified by Nativity of White Farmers and by Race of Colored Farmers: 1920 and 1910.

Color and nativity or race	Number of farms		Land in farms, 1920 (acres)		Value of land and buildings, 1920
	1920	1910	Total	Improved	
All farmers -----	117,670	88,197	29,365,667	11,878,339	\$3,073,811,100
White farmers -----	111,181	85,119	28,844,688	11,477,495	2,913,026,553
Native ¹ -----	76,995	58,926	22,113,345	8,602,600	2,132,816,570
Foreign-born -----	34,189	26,193	6,725,341	2,874,895	780,209,683
Country of birth:					
Austria -----	828	530	88,939	51,116	14,072,562
Canada -----	2,461	2,124	463,254	206,109	61,487,898
Denmark -----	1,917	1,619	256,334	165,194	42,130,505
England -----	2,148	2,335	375,828	129,358	46,013,282
France -----	974	859	572,723	116,888	30,289,030
Germany -----	4,199	4,669	900,612	400,185	88,316,716
Holland -----	328	115	33,680	23,997	6,627,290
Ireland -----	1,157	1,555	457,601	141,586	33,128,942
Italy -----	4,453	2,457	620,263	312,802	86,885,753
Norway -----	474	340	62,779	44,477	7,491,350
Poland -----	385	22	40,834	24,919	8,736,945
Portugal -----	3,440	(²)	437,933	251,778	67,765,276
Russia -----	1,166	494	56,668	43,367	20,604,125
Scotland -----	587	627	292,941	64,293	21,607,635
Sweden -----	2,245	1,647	156,412	108,019	36,519,170
Switzerland -----	1,988	1,715	602,244	248,385	52,114,239
Other countries -----	5,419	5,055	1,283,206	533,420	156,419,535
Colored farmers -----	6,489	3,078	520,981	400,844	160,784,856
Negro -----	290	159	33,797	14,991	3,625,525
Indian -----	578	591	75,334	17,147	2,607,448
Japanese -----	5,152	1,816	341,276	323,200	137,347,110
Chinese -----	466	512	50,472	45,506	17,204,773

¹Includes farmers with country of birth not reported, as follows: For 1920, 1,721; for 1910, 180.²Included with "other countries."

Number of Farmers, Classified by Tenure, Color, and Nativity: 1920 and 1910.

Tenure	All farmers		Native white ¹		Foreign-born white		Colored	
	1920	1910	1920	1910	1920	1910	1920	1910
Total -----	117,670	88,197	76,995	58,926	34,189	26,193	6,485	3,078
Owners -----	87,589	66,632	60,284	45,789	26,073	19,914	1,213	983
Managers -----	4,949	3,417	3,913	2,611	887	714	149	62
Tenants -----	25,141	18,148	12,818	10,565	7,229	5,565	5,094	2,078

¹Includes farmers with country of birth not reported.

THE INDIANS OF CALIFORNIA.

The Indians were prominent in early California history, but their progress towards their present insignificance began far back in the Spanish period. It proceeded much more rapidly after the restraining influence of the Missions was removed, leaving them free to revert to savagery; and the downward progress of the race was fearfully accelerated during the mining period, when they were ambushed, deprived, and in large numbers killed. There have been no Indian wars in California's annals, but many butcheries.

They are of at least fourteen different linguistic stocks. The government, in dealing with the California tribes, did not follow the policy pursued with the wild Indians of the plains, and no treaties were made with them and no remuneration paid for lands acquired by white settlers.

The prejudice against the Indians is being dispelled, for the reason that those who have been obliged to depend upon them to do farm work in many localities have discovered that the Indians as laborers are dependable, reliant, efficient.

The problem of labor in California being one of increasing importance, owing to the development of various activities and industries, it is true that the Indians will be called upon more and more for industrial service, until this demand becomes permanent.

With this point in view, it must be gratifying to everyone to know that the government maintains a large number of fine schools in the state for educating and training young Indians, and in several schools for giving them instruction along specific vocational lines. The younger Indians who are attending school realize that the old order of things is passing, and that the Indians will in a few years become an important part of a great state.

Large numbers are located on twenty-six reservations, namely: Hoopa Valley, Round Valley, Tule River, Yuma, and twenty-two Mission reservations.

Most of the Mission Indians are located on small reservations scattered over 10 of the 58 counties of the state, viz.: Amador, Humboldt, Inyo, Mendocino, Modoc, Plumas, Riverside, San Diego, Santa Barbara, and Tulare. Among them are found representatives of a number of different tribes.

Round Valley reservation, embracing an area of 59 square miles, is situated in Mendocino County, and the remnants of nine small tribes are located here, who might well be classed as civilized. Tule River

reservation in Tulare County contains 76 square miles, and contains the remainder of the once powerful Tule tribe. The Yuma reservation contains an area of 71 $\frac{3}{4}$ square miles, the Indians living on this section being the most primitive of the California tribes in manners and customs.

The largest allotments are 42,106 acres in the Round Valley reservation; 29,091 in the Hoopa Valley reservation, and 8,010 acres in the Fort Yuma reservation. The allotments on June 30, 1918, numbered 2,593, the acreage amounting to 82,172 acres allotted, 434,946 unallotted, or a total of 517,118 acres.

The principal industries other than farming and stock raising engaged in by Indians are basket making, blanket weaving, bead work, pottery and wood cutting. The value of crops raised in 1919 was \$558,838, stock sold \$72,182, native industries—weaving, basketry—\$147,318, and wages earned \$511,664. The total value of individual and tribal property, including lands and timber, in 1919 amounted to \$11,982,306, all items showing a large increase over the year 1918.

Indian Population, Years Ending June 30, 1890-1920.

1890	12,108	1917	15,362
1900	11,431	1918	15,725
1915	15,034	1920	16,241

JAPANESE STATISTICS.

In March, 1912, the Japanese owned 331 farms in California containing 12,726 acres, the assessed value of the land being \$478,990, the improvements \$130,615, or a total of \$609,605.

The most recent investigations show that the Japanese own 526 farms in California, consisting of 30,305 acres.

In 1909 the Japanese occupied a total of 83,253 acres, producing crops valued at \$6,235,856. In 1919 the Japanese occupied 427,029 acres, producing crops valued at \$67,145,730; an increase of 412.9 per cent in acreage occupied, and 976.8 per cent increase in value of crops produced.

Chinese and Japanese Population of California January 1, 1920.*

Explanation	Chinese	Japanese	Total
(1) Population April 15, 1910.....	36,248	41,356	77,604
(2) Immigrants admitted from April 15, 1910, to December 31, 1919	11,914	32,196	44,110
(3) Emigrants departed from April 15, 1910, to December 31, 1919	48,162	73,552	121,714
(4) Immigration from Hawaii from July 1, 1910, to June 30, 1919	11,125	7,110	18,235
(5) Registered births from April 15, 1910, to December 31, 1919..	37,037	66,442	103,479
(6) Reported deaths from April 15, 1910, to December 31, 1919..	108	506	614
	37,145	66,948	104,093
	3,741	27,828	31,569
	40,886	94,776	135,632
	7,615	7,497	15,112
Population as of December 31, 1919.....	33,271	87,279	120,550

*Figures do not take into consideration possible increase in population by smuggling or illegal entry, nor do they include the large number of arrivals from Hawaii of Japanese who acquired American citizenship by birth on the Islands or as residents when Hawaii was annexed by United States. These latter come into California as American citizens, moving from one part of United States to another, without being listed on immigration records.

(1) Determined by United States Census enumeration as of April 15, 1910. See Bulletin No. 127 of the Permanent Census Bureau, pages 7 and 25.

(2) Determined for the period from July 1, 1910, to June 30, 1919, from the annual reports of the Commissioner-General of Immigration and strictly confined to "immigrant" (as distinguished from "non-immigrant") aliens admitted, who indicated California as their intended future residence.

For the period from April 15 to June 30, 1910, an approximation was made based upon that season's proportionate share of total arrivals for the year reported, and applied to "immigrants" intending to reside in California as reported for the fiscal year ended June 30, 1910.

For the period from July 1 to December 31, 1919, "immigrant" arrivals admitted at the port of San Francisco are used in the absence of other available data.

(3) Determined for the period from July 1, 1910, to June 30, 1919, from the Annual Reports of the Commissioner-General of Immigration and strictly confined to "emigrant" (as distinguished from "non-emigrant") aliens departed, who gave California as their last permanent residence.

For the period from April 15 to June 30, 1910, and from July 1 to December 31, 1919, respectively, the methods described under Note 2 were employed in the determination of the number of emigrants for those periods.

(4) Determined for the period indicated from the Annual Reports of the Commissioner-General of Immigration for 1914 to 1919. For the period from July 1, 1910, to June 30, 1914, the proportion of arrivals destined to California from July 1, 1907, to June 30, 1914, was applied.

(5) Determined from the official records of the State Board of Health. To exclude period from January 1 to April 15, 1910, 7/24 of the total reported for the calendar year 1910 was subtracted. Figures for 1919 are subject to negligible changes.

(6) Same as Note 5.

Marriages, Births, and Deaths in California, 1917-1920.

(From State Board of Health.)

County	Marriages			Births			Deaths		
	1918	1919	1920	1918	1919	1920	1918	1919	1920
Alameda	3,007	3,799	4,334	5,719	5,800	6,422	5,291	4,412	4,397
Alpine	1	1	1		2	1	3	5	4
Amador	17	41	45	100	95	80	148	115	90
Butte	186	272	280	492	490	595	522	350	393
Calaveras	25	24	24	90	66	62	88	82	89
Colusa	32	50	56	140	156	178	140	97	83
Contra Costa	258	384	384	884	888	1,128	806	521	493
Del Norte	54	35	35	52	31	43	19	31	41
El Dorado	32	34	37	96	104	105	122	108	104
Fresno	909	1,337	1,687	2,655	2,705	3,218	1,745	1,471	1,595
Glenn	63	47	88	186	165	257	134	91	81
Humboldt	269	341	437	622	556	630	466	440	423
Imperial	289	416	462	697	804	1,022	608	516	505
Inyo	53	58	60	38	91	108	56	24	64
Kern	412	535	804	1,101	1,005	1,244	985	656	599
Kings	174	214	245	483	445	555	319	225	273
Lake	25	23	29	65	87	82	83	78	69
Lassen	53	82	75	122	113	141	107	74	79
Los Angeles	7,063	9,299	11,123	13,521	13,985	18,009	14,314	12,097	13,461
Madera	113	141	171	214	226	280	112	104	141
Marin	553	589	652	271	269	306	295	276	302
Mariposa	8	5	8	28	37	27	44	28	29
Mendocino	143	160	203	356	359	389	484	353	350
Merced	127	182	261	391	414	492	239	213	204
Modoc	42	62	55	82	72	108	46	58	48
Mono		2		2		2	2		
Monterey	241	256	502	485	453	587	400	326	352
Napa	286	295	303	234	276	309	708	600	549
Nevada	43	88	86	170	142	191	215	201	151
Orange	1,258	1,511	1,975	1,189	1,142	1,507	918	706	842
Placer	674	106	118	321	347	417	287	255	299
Plumas	21	21	26	65	66	67	116	68	68
Riverside	526	758	1,093	694	777	1,019	730	629	622
Sacramento	1,215	1,551	1,737	1,752	1,854	2,193	1,972	1,052	1,310
San Benito	84	81	107	189	181	172	152	109	109
San Bernardino	734	996	1,198	1,217	1,349	1,575	1,613	1,070	1,306
San Diego	2,008	1,526	1,985	1,905	1,814	2,153	2,384	1,526	1,749
San Francisco	6,240	6,863	7,498	8,441	8,433	9,035	10,067	7,980	7,258
San Joaquin	819	1,029	1,211	1,554	1,453	1,764	1,912	1,394	1,480
San Luis Obispo	188	241	312	388	364	467	299	287	259
San Mateo	661	456	611	580	501	614	752	451	453
Santa Barbara	355	426	518	774	788	871	540	505	476
Santa Clara	1,174	1,370	1,654	1,831	1,762	2,024	2,030	1,612	1,688
Santa Cruz	285	343	363	458	361	494	438	369	402
Shasta	106	139	162	255	217	221	423	227	162
Sierra	1	7	6	30	22	23	33	57	23
Siskiyou	187	186	277	357	301	413	346	217	212
Solano	273	294	349	545	584	635	618	427	482
Sonoma	421	509	629	715	803	845	845	981	759
Stanislaus	276	418	518	788	856	995	502	455	509
Sutter	28	38	46	141	126	140	98	82	77
Tehama	92	118	142	217	234	241	192	172	169
Trinity	11	8	10	32	19	30	40	29	22
Tulare	315	455	604	1,093	1,087	1,342	600	542	500
Tuolumne	47	50	46	87	125	418	169	105	123
Ventura	212	332	388	579	556	677	518	381	343
Yolo	106	125	180	308	292	372	263	208	196
Yuba	112	116	151	211	190	200	246	163	128
Totals	32,487	38,830	45,564	55,922	56,521	67,198	57,683	45,991	47,124

CALIFORNIA PUBLIC SCHOOLS.

“The total amount of money expended for all purposes in the elementary schools in 1920 was \$30,516,052.22, a gain of \$9,850,913.16 or 47.5 per cent in 1920 over the year 1918, while the total amount expended in the secondary schools during the same period was \$15,762,361.47, an increase of \$4,330,033.12 or 37.8 per cent.

“The total cost of maintenance in the same period was \$24,051,765.37, an increase of \$6,564,885.50 or 37.6 per cent in the elementary schools and \$13,393,511.23 in the secondary schools, an increase of \$4,015,086.57 or 23 per cent.

“A comparison of teachers' salaries during the same period reveals an expenditure of \$18,560,883.66 in 1920, an increase of \$5,076,437.89 or 37.6 per cent over 1918 in the elementary schools and \$9,365,688.34 in 1920, an increase of \$2,568,959.18 or 37.8 per cent in the secondary schools.

“The growth in attendance and enrollment is as follows:

“Elementary school enrollment in 1920 was 500,644, an increase of 52,159 or 11.6 per cent over 1918.

“Secondary school enrollment in 1920 was 162,832, an increase of 35,917 or 28.3 per cent over 1918.

“Elementary school average daily attendance in 1920 was 387,899, an increase of 37,331 or 10.6 per cent over 1918.

“Secondary school average daily attendance in 1920 was 77,594, an increase of 12,836 or 19.8 per cent over 1918.

“The number of teachers employed in the elementary schools in 1920 was 12,565, which exceeds the number employed in 1918 by 985 or 7.4 per cent, while those employed in the secondary schools in 1920 was 5,794, which is 983 or 20.4 per cent greater than the number employed in 1918.”*

*From report of Superintendent of Public Instruction.

Number of Schools, Teachers, and Pupils, by Counties.

(Superintendent of Public Instruction.)

Counties	Number of teachers, 1920			Number of pupils enrolled, 1920		
	Kinder- garten	Elemen- tary	High	Kinder- garten	Elemen- tary	High
Alameda	82	1,419	741	5,072	47,427	23,701
Alpine		3			43	
Amador		59	15		1,247	215
Butte	2	166	48	58	4,790	1,009
Calaveras		56	10		1,117	115
Colusa	1	57	26	39	1,355	269
Contra Costa	10	280	73	661	9,011	2,103
Del Norte		21	6		536	65
El Dorado	1	60	7	29	1,003	197
Fresno	10	687	274	638	23,271	6,822
Glenn		79	23		2,061	470
Humboldt	4	224	54	208	5,850	1,074
Imperial	8	211	83	373	7,860	2,402
Inyo		41	18		1,065	239
Kern	16	330	81	738	9,249	2,031
Kings		122	34		5,259	81
Lake		42	17		873	198
Lassen	2	59	11	97	1,284	185
Los Angeles	396	3,641	1,735	13,773	136,278	55,004
Madera	1	92	23	70	2,339	350
Marin	5	119	44	227	3,580	701
Mariposa		31	3		424	23
Mendocino		162	44		4,038	723
Merced	2	149	42	85	4,429	779
Modoc	1	54	19	31	966	216
Mono		9			121	
Monterey		154	53		4,275	1,110
Napa	1	89	27	39	2,561	426
Nevada		68	18		1,628	351
Orange	25	324	147	746	10,374	2,637
Placer		98	32		2,937	609
Plumas		38	4		838	55
Riverside	11	255	130	500	8,254	2,188
Sacramento	24	434	125	1,050	13,472	4,086
San Benito		50	10		1,386	237
San Bernardino	17	359	179	764	11,423	4,430
San Diego	38	479	238	1,548	14,734	8,669
San Francisco	31	1,579	318	2,186	55,284	9,975
San Joaquin	3	352	90	314	12,137	4,180
San Luis Obispo	2	152	38	104	3,798	696
San Mateo	10	183	47	594	6,124	1,215
Santa Barbara	11	190	62	509	5,595	1,021
Santa Clara	17	422	210	991	15,175	6,970
Santa Cruz	3	138	46	411	3,928	1,306
Shasta		122	23		2,501	408
Sierra		17	5		259	40
Siskiyou	1	136	28	30	3,408	656
Solano	4	135	53	171	4,298	1,657
Sonoma		290	111		8,727	2,306
Stanislaus	3	231	91	203	8,029	1,860
Sutter		62	8		1,433	128
Tehama	2	95	30	71	2,040	487
Trinity		27	5		396	87
Tulare	5	322	106	221	10,493	2,053
Tuolumne	1	52	15	17	1,259	212
Ventura	4	162	56	256	5,121	1,233
Yolo	1	86	25	75	2,419	444
Yuba	1	65	33	45	1,455	621
Totals	756	15,319	5,794	32,944	500,357	162,650

PART III.

DOMESTIC ANIMALS.

Horses; Mules; Stallion Registration; Cattle; Sheep and Goats; Swine; Recognized Breeds of Domestic Animals; Wool and Mohair; Live Stock on Farms.

HORSES.*

American light horses have long been world-famous in several highly specialized lines—for example, the trotting and saddle breeds.

The United States Department of Agriculture has recognized the need of developing a type of the native light horse suitable for general utility work on farm or ranch. Such a type would also supply desirable horses for the army.

With this end in view, cooperative experimental breeding work has been carried on for many years.

The ideals sought in this new type are a uniform combination of size, substance, soundness, endurance, and a sufficiency of speed.

Although the automobile, motor truck, and tractor undoubtedly will displace some horses, nevertheless the active sizable, utility horse will be an increasingly important factor in American husbandry, especially in those sections where the heavy-draft breeds are not the most economical type to use.

Development of American Light Horses.

The development of a breed of horses for utility purposes from native bloodlines is a problem which has engaged the attention of the United States Department of Agriculture since 1904, when the cooperative horse-breeding experiment was inaugurated with the Colorado Experiment Station at Fort Collins, Colorado. Until this work was begun no definite effort had been made by the government, state experiment stations or individual breeders to incorporate in a specific breed the splendid qualities of the native light horse, which included uniformity of type, size, and action, that was so frequently found in individual specimens. Many such horses were produced, it is true, but the production of such truly great animals as Nala, Lord Brilliant, Carmon, Glorious Red Cloud, Eckersall, Glorious Bonnie, Lady de Jarnette, Tattersall, and numerous other outstanding specimens, was really by chance.

America has been notable for the production of light horses of exceptional merit, and the history of the American turf and show ring glistens with the dazzling performances of the product of the American breeder. Three distinct breeds have been evolved through selection and adaptation to American ideals, namely, the Morgan, the Standardbred, and the American Saddle Horse. In the development of these breeds, however, the work of the breeder has become more and more highly specialized, and the splendid type found in some individual specimens was in danger of being sacrificed for the specialty striven for by the

*For list of Breeders' Associations, see Appendix C.

breeder. For example, the breeder of trotting horses depended on the production of speed in his progeny in order to meet the market demands and to compete favorably with other breeders. Consequently, speed in driving horses became the predominant consideration, and this situation is probably more notable today than it was 15 years ago, as the use of the automobile has practically nullified the demand for driving horses for pleasure.

The light, inefficient horse is undoubtedly destined to be discarded as a factor in American husbandry, and the indiscriminate breeding of small, unsound, scrubby animals will continue to be highly unprofitable if persisted in. It is this class of horses that constitutes the drug on the horse market today, and the production of such horses should be discouraged.

The automobile has practically displaced the light driving horse for pleasure purposes and in a large measure for business purposes. The type of horse which will be most seriously affected by tractor power on the farm remains to be fully determined, but it seems reasonable to believe that the greatest use of the tractor will be on large, level farms for heavy work, especially at peak periods. The function of the tractor will be to supplement and not displace the horse power on the average farm. For the average farm or ranch, especially in rolling and hilly sections, the active utility horse should become a more and more important factor as an economical power unit, and the advantages of this type are no doubt apparent to the average horseman and farmer.

The profitable light horse of the future, aside from those bred for special purposes, such as for speed and the saddle, will be the efficient horse that will successfully meet the demands of utility on the average farm or ranch, especially in those sections where the draft horse is not the most economical type to use.

Type of Horses Needed.

†“According to advance reports of the 1920 census, we have a little over 25,300,000 horses and mules in the country, of which number approximately two and one-third million are employed in cities, towns and villages, or other non-agricultural work, and over 23,000,000 horses and mules on farms; a total decrease of approximately 2,000,000 since the 1910 census.

“In every community there is a serious shortage of good young horses and mules. Sound farm practice requires that enough be raised to supply farm needs. This year the rate of increase in our chief horse producing states is less than half what it should be to furnish replacements for farm purposes alone. It is therefore but common prudence for farmers possessing good mares to breed them this season to sires calculated to produce good work horse or mules.

“It is important, also, that animals raised be of such type as to make them long-lived and possessed of great endurance, for city users of horses are cold-blooded buyers, who measure horses and mules by the work they can do and the length of time they will last.

†From Leaflet No. 27, Horse Association of America, Chicago.

Draft Horses.

“The drafter leads in marketability, sales price, and—scarcity. To market men, the ideal type of drafter stands around 16.2 to 17 hands in height, deep bodied, with depth of chest equal to one-half his height, strong-backed, powerfully muscled over the loin, round-ribbed, and well let down in the hind quarters both inside and out. He has fair slope in shoulders, sloping pasterns, legs properly set on, good-sized hoofs, large enough at the hoof head to obviate likelihood of unsoundness, with hoof-walls of dense texture, showing capacity for long wear on city streets.

“The minimum limit for drafters is conceded to be a height of 16 hands and a weight of 1600 pounds, but horses approaching 16.3 or 17 hands, and so proportioned as to weigh around 1900 pounds in working flesh, are readily sold at good profit to the producer, and at any season of the year.

“Good quality and straight action are desired in all horses.

Wagon Horses.

“The wagon horse is simply an undersized drafter. Weighing from 1400 to 1600 pounds, and from 15 to 16 hands in height, they are drafters in everything but size. As a rule they have a little more action and can move a little faster than draft horses without injury to themselves. The best market for these is in the spring and fall—during the in-between months the demand is low.

“Cartage companies have need of a good many such horses, for in their pick up and delivery work about large cities, they start off with an empty wagon and gradually build up to three or four tons, or starting out loaded, dwindle down to nothing. The best service, therefore, comes from strong, heavy horses, capable of lively action when the load is light.

Express Horses.

“The next class, expressers, represents an important division for which there is very steady demand. The market peak is reached in the spring. The ideal express horse is what we term a ‘general purpose horse’—weighing from 1300 to 1500 pounds, 16 hands in height, short backs, good middles, sure-footed, active, with feet and bone to withstand city streets.

“Express horses, as a general rule, result from a combination of draft blood with that of racing or trotting strains. They come through the grading up of light stocks by the use of heavier sires, generally carry three-quarters of draft blood, while the dash of trotting blood gives them greater activity and more trotting ability than the straight drafter possesses.

“The greatest single user of express horses is the American Railway Express Company, who, at the time of their last report in July, 1920, were using 19,534 horses and 17,373 wagons and sleighs. It is worthy of note that this company is increasing, instead of decreasing, its horse-drawn equipment.

Farm Chunks.

"Farm chunks include horses ranging from 1,200 to 1,500 pounds that are not good enough to go as expressers or wagon horses, because of some lack in conformation, quality or action. They are a good, serviceable class of horses for hard, steady work on farms. Those running from 1200 to 1400 pounds are generally bought for farm work in Michigan, Pennsylvania, New York, and other eastern states where fields are small, the soil light, and farm implements are not so heavy as those used on the central and western farms.

"Many farm chunks weighing from 1,400 to 1,600 pounds are used on central west farms by farmers who make it a practice to buy mature horses for farm work. They are not good horses for a man to buy with a view to re-sale, for, if mature when purchased, they depreciate after that time, and are more limited in market-ability than other types. Farm chunks are most saleable as four-year-olds in March and April, although in June and July they find a secondary demand for use in the harvest fields of Kansas, Oklahoma and Texas.

Southerners.

"Southerners really include nearly all horses under 1,200 pounds, with the very rare exception of an animal good enough for cavalry or saddle use. The class gets its name from the fact that their only outlet of consequence in recent years has been to southern farms for cheap power. They are also used to some extent for the propagation of mules. Such horses usually come from western ranges beginning in June, after they have had a chance to strengthen up on spring pasturage, and they sell from then until November.

Sires.

"In selecting a stallion to breed mares to, the breeder should pick out one that comes as near to the ideal type of high-class draft gelding as he can find. Be sure he is good in his underpinning and sound, with the size and weight to get real draft colts. If there is not such a stallion in your community, combine with your neighbors to bring one in.

"Then, when you get a good colt, grow him out intelligently. See that he learns to eat grain before weaned, give him plenty of pasture and good roughage, and enough grain during the first winter to permit the colt to grow out to the size, bone and strength which is its inheritance from the draft stock it represents. In other words, feed for early maturity.

"Well grown draft colts can be broken and put into light work at three years of age without hurting them in the least. On every farm there is more or less work to be done where such colts can be used, and if these colts and the mares with foals at side are given the lighter jobs and are allowed to lay off whenever any teams are not being used, such colts earn their keep from the time they are three years of age, and continue to increase in size, strength and value until they are six or seven years of age. They then sell readily as mature drafters at a price including good profit."

HORSE BREEDS.

The Arabian.—The oldest breed of horses generally recognized at the present time and the fountainhead of all our other light breeds was developed in the desert country of Arabia, from which it derives its name.

Thoroughbred.—The name "Thoroughbred" is applied properly only to the breed of running race horses produced originally in England. Three Arabian stallions are credited with having laid the foundation for this breed, their names being Byerly Turk, The Darley Arabian, and Godolphin Arabian, and they produced the three famous racing families, Herod, Eclipse, and Matchem, respectively.

Standardbred.—The Standardbred is an American breed developed primarily for extreme speed at the trot and pace. The imported Thoroughbred stallions Messenger and Bellfounder founded this breed by leaving descendants that showed speed at the trot. The ancestry of the pacer is not different from that of the trotter, but today some families produce a much larger proportion of pacers than others, while many individuals show speed at both gaits. Both trotters and pacers are registered in the same studbook.

The early residents of Kentucky, Tennessee, Virginia, and West Virginia found horses with easy gaits to be the most desirable to ride over plantations, semimountainous grazing farms, and on long journeys. In the preference for such gaits they laid the foundation for and promoted the pioneer development of the American Saddle Horse. Sections of Missouri also soon took up the breeding of easy-gaited saddle horses, and today this state ranks next to the mother state (Kentucky) in the production of high-class individuals.

Thoroughbred, Morgan and Canadian blood form the basis for this breed.

Morgan.—The Morgans have sometimes been considered a family of the Standardbred, but as these horses have been bred more for their utility qualities than for speed, and as their characteristics are well established and perpetuated with marked regularity, it is proper to consider them as a distinct breed. The early development of the Morgans took place in the New England states, thus giving this country the credit of founding three light breeds.

Hackney.—The first driving horses used in England of which much is known were the Norfolk trotters, they being the result largely of breeding Norfolk mares to Thoroughbred stallions, thus giving the foundation for the Hackney breed.

French Coach.—The term French Coach is used in this country to designate horses produced in France largely by government aid and with the special object of obtaining animals especially well suited for military purposes. Such horses are not known as French Coach in their native country, but are termed Demi-Sang (half-breed). In this country the term half-breed is applied to horses of half or more Thoroughbred blood.

German Coach.—Germany, with the object of producing a large, strong, and active horse that would be especially well adapted to carrying the German soldier and his heavy equipment and to hauling

artillery, established the breed of horses known in this country as the German Coach. In Germany there are several distinct breeds of such horses, each of which is registered in a separate studbook.

Cleveland Bay.—Although little is definitely known concerning the foundation of the Cleveland Bay breed, it is generally conceded that Thoroughbred blood played an important part in giving the Cleveland Bay many of its desirable characteristics. The early development of horses of this type, which were selected for bay color with practically no white, took place largely on the pastured Cleveland hills of Yorkshire County, England, the color sought and the locality being responsible for the breed name. In England the Yorkshire Coach is considered a separate breed from the Cleveland Bay, but in this country they are registered in the same studbook.

RECOGNIZED FOREIGN BREEDS.

The following breeds of horses have been certified to the Secretary of the Treasury as recognized breeds and books of records across seas:

Name of breed	Book of record	By whom published
Belgian Draft	Studbook des Chevaux de Trait Belges	Societe le Cheval de Trait Belge, Chevalier G. Hyn-derrick, secretary, 20 Rue Royale, Brussels, Belgium.
Clydesdale	Clydesdale Studbook	Clydesdale Horse Society of the United Kingdom of Great Britain and Ireland, Archibald McNeilage, secretary, 93 Hope street, Glasgow, Scotland.
French Draft	Studbook des Chevaux de Trait Francais	Societe des Agriculteurs de France, J. C. Villevas, secretary, 8 Rue d'Athenes, Paris, France.
Hackney	Hackney Studbook	Hackney Horse Society, Frank F. Euren, secretary, 12 Hanover Square, London, W., England.
Percheron	Studbook Percheron de France	La Societe Hippique Percheronne de France, E. Lemarle, secretary, Nogent-le-Rotrou, France.
Shetland Pony	Shetland Pony Studbook	Shetland Pony Studbook Society, R. W. Walker, secretary, 3 Golden Square, Aberdeen, Scotland.
Shire	Shire Horse Society Studbook	Shire Horse Society, J. Sloughgrove, secretary, 12 Hanover Square, London, W., England.
Suffolk	Suffolk Studbook	Suffolk Horse Society, Fred Smith, secretary, Rendle-hem, Woodbridge, Suffolk, England.
Thoroughbred	*Australian Studbook Provided that no animal or animals registered in the Australian Studbook shall be certified as purebred unless such animal or animals trace, in all crosses, to animals registered in the General Studbook of England.	Australian Jockey Club and Victoria Racing Club, A. P. Wilson, keeper, 6 Bligh street, Sidney, New South Wales.
Welsh Pony and Cob	Welsh Pony and Cob Studbook	Weatherby & Sons, 6 Old Burlington street, London, W., England. The Welsh Pony and Cob Society, John R. Bahe, secretary, Knighton, Radnorshire, Wales.

*Provided that no animal or animals registered in the Australian or in the French thoroughbred studbooks shall be certified as pure bred unless such animal or animals trace in all crosses to animals which are proved to the satisfaction of the department to be of the thoroughbred breed.

Recognized Breeds and Books of Record in Canada.

The Canadian National Records are recognized for the following breeds, provided that no animal or animals registered in the Canadian National Records shall be certified by the Secretary of Agriculture as pure bred unless such animal or animals trace, in all crosses, to animals which are proved to the satisfaction of the department to be of the same

breed and to have been imported from the country in which the breed originated:

Belgian Draft.	Standardbred.
Clydesdale.	Suffolk.
Hackney.	Thoroughbred.
Shire.	Welsh Pony and Cob.

Certificated Horses Imported, 1914-1919.

The following table shows the number of certificated horses imported for breeding purposes during the calendar years ending December 31, 1914-1919, for which certificates of pure breeding have been issued by the Bureau of Animal Industry of the United States Department of Agriculture. Owing to the war the numbers show a considerable decrease compared with 1914:

Breeds	1914			1915			1916		
	Stallions	Mares	Total	Stallions	Mares	Total	Stallions	Mares	Total
Belgian draft	234	157	391	4	4	4	1		1
Clydesdals	17	34	51	20	21	41	13	19	32
Hackney	4	20	24	4	19	23	7	36	43
Percheron	343	181	524	9		9	89	5	94
Shetland pony	2	22	24						
Shire	54	14	68	30	14	44	20	16	36
Standard bred				8	4	12	4	5	9
Suffolk	11	19	30	1	1	4	4	12	16
Thoroughbred	37	13	50	86	86	172	280	235	515
Welsh pony	11	49	60	1		1	1		1
Totals	715	511	1,226	162	145	306	419	328	747

Breeds	1917			1918			1919		
	Stallions	Mares	Total	Stallions	Mares	Total	Stallions	Mares	Total
Arabian				3	13	16			
Belgian draft									
Clydesdale	7	15	22	6	18	24	6	6	12
Hackney	6	25	31				2	10	12
Percheron	62		62	19	4	23			
Shetland pony									
Shire		12	12	3	5	8		2	2
Standard bred	1	2	3				2	2	4
Suffolk	1		1						
Thoroughbred	193	283	476	58	58	116	16	41	57
Welsh pony		4	4						
Totals	270	341	611	89	98	187	26	61	87

No horses of the Arabian, Belgian, Percheron, Shetland Pony, Suffolk, or Welsh Pony breeds were imported during 1919 for which certificates of pure breeding were issued.

Horses and Mules: Estimated Number and Value on Farms in United States and California, December 31, 1917-1920.

	Number December 31 (000 omitted)				Value per head December 31					Total value December 31 (000 omitted)								
	Per cent	1920			1917	All ages					1920	1919	1918	1917				
		Total	1920			1919	1918	1917	1920	1919					1918	1917		
			Under 1 year	1 year and under 2 years													2 years and over	
Horses:																		
United States	97.1	21,183	20,785	21,482	21,555	\$83.01	\$52.33	\$80.00	\$82.45	\$94.42	\$98.45	\$104.24	\$1,054,163	\$1,062,563	\$2,114,897	\$2,216,070		
California	95.0	380	400	455	498	38.00	62.00	103.00	94.00	94.00	91.00	98.00	35,720	37,630	39,585	45,861		
Mules:																		
United States	90.2	4,959	5,041	4,654	4,873	47.42	72.55	126.22	115.72	147.07	135.83	128.81	578,473	741,400	672,022	627,079		
California	93.0	57	59	63	65	49.66	81.00	135.00	125.00	122.00	125.00	115.00	7,125	7,198	7,875	7,690		

*Compared with December 31, 1919.

MULES.

In mules, the same thing is true as in horse raising—the best pays best. While, of course, the best mules, the prize winners and best sellers, are bred from big draft mares, it is also true that a common 1,000-1,300-pound mare, bred to a big jack, will produce an excellent mule.

Sugar Mule.

The sugar mule should be about 16 hands high and weigh from 1,000 to 1,300 pounds, and always a mare mule. It must have substance, but not too rugged or drafty, good length of neck, but not too breedy; must be active and show extreme quality. This type sells highest, and is much sought after.

Draft Mule.

The draft mule is the heavy-boned, rugged, weighty kind, used for heavy hauling, logging, railroad, levee, and nearly all contract work. This type finds a ready outlet at very satisfactory prices during the fall and spring months.

Cotton Mule.

The cotton mule is the smaller type sugar mule. These are used in the south for farming. The ideal cotton mule should stand from 14.2 to 15.2 hands, have some weight and substance, and mares are much preferred. To bring the best price, they should be well broken and in good flesh and hair. This is a very staple mule on the market, the greatest demand being in the fall.

Mine Mule.

The mine mule is any size mule of the draft type. A very desirable size is from 14 to 15 hands in height, with plenty of weight and extreme bone, and rugged in every particular. As these mules are used for underground work in mines, they should be broken and gentle.

Mules have the distinct advantage of being saleable as weanlings to the mule assemblers, or at practically any age or time thereafter. It is this perpetual marketability and the hardiness of the animal itself which makes mule raising a sure investment with quick returns.

Stallion Registration in California.

While the number of registered stallions and jacks in California has greatly decreased in the past few years, it is not to be looked upon as an unfavorable condition, due to the fact that the horse and mule market has been unsettled over the entire country. The use of farm automobiles, tractors and trucks has had considerable effect on the decreasing demand for farm stock. However, there seems to be a new demand for the return of the farm horse. The tractor has not proved itself entirely superior to the horse under all conditions, and in some cases results show the horse to be the cheaper source of motive power, especially on small ranches. By comparing the registration of previous years it is found that the mongrel and grades have greatly decreased, indicating that the stock raiser is beginning to realize that the better grade of horse brings the best price in the market.

Stallions and Jacks Registered in 1920.

On July 31, 1920, there were 370 registered stallions in California, compared with 435 in 1919 and 590 in 1918; of these 133 were Percheron, 17 Standard, and 36 Belgian. Jacks numbered 130, compared with 148 in 1919 and 173 in 1918. The total number registered was 500, compared with 583 in 1919, or a falling off of 183. The leading counties in registered stallions were San Joaquin, 29; San Luis Obispo, 21; Los Angeles, 20, and Fresno with 19.

Registered Stallions by Breeds, 1920.

Breed	Purebred	Grade
Arabian	5	
Belgian	36	13
Clydesdale	7	1
French draft	8	3
German coach	3	1
Percheron	133	30
Shire	15	7
Standard	17	7
Thoroughbred	11	*1
Totals	235	66

*Unclassified.

(Courtesy Stallion Registration Board)

Registered Stallions and Jacks According to Breeding, 1920.

	Stallions	Jacks
Purebred	235	54
Grade	63	11
Crossbred	2	
Mongrel	67	65
Totals	370	130

(Courtesy Stallion Registration Board)

Summary of the Number of Stallions and Jacks by Counties, July 31, 1920.

County	Stallions	Jacks	County	Stallions	Jacks
Alameda	13		Plumas	1	
Amador	1		Riverside	9	6
Butte	5	2	Sacramento	8	1
Calaveras	2	2	San Benito	8	
Colusa	4	6	San Bernardino	2	1
Contra Costa	13	2	San Diego	7	2
El Dorado	1		San Francisco	4	
Fresno	19	12	San Joaquin	29	9
Glenn	2	3	San Luis Obispo	21	2
Humboldt	12	1	Santa Barbara	11	2
Imperial	5	7	Santa Clara	12	1
Inyo	2	1	Santa Cruz	3	
Kern	13	7	Shasta	1	1
Kings	3	2	Sierra	1	
Lake	2		Siskiyou	8	2
Lassen	3		Solano	10	3
Los Angeles	20	6	Sonoma	14	
Madera	1	2	Stanislaus	12	7
Marin	4	1	Sutter	4	3
Mendocino	7	1	Tahama	4	3
Merced	5	4	Tulare	16	12
Modoc	2		Tuolumne	4	
Monterey	10	2	Ventura	6	3
Napa	4		Yolo	7	4
Nevada	1		Yuba	6	2
Orange	3	4			
Placer	5	1	Totals	370	130

(Courtesy Stallion Registration Board)

CATTLE.*

Cattle not being native to America, there are no strictly American breeds, but owing to difference in climate, care and ideals of American breeders, the European breeds which have been brought to America have changed to some extent.

Neat Cattle.

The Shorthorns, Herefords, and Aberdeen-Angus comprise practically all of the pure-blooded cattle in the United States used for breeding and for grading up native cattle for beef purposes.

Working Oxen.

In the early days oxen were largely employed in farming operations. In 1860 they numbered upward of 26,000, but the number declined rapidly during the next ten years, and after 1890 they dwindled away.

Beef Breeds.

The breeds of beef cattle in the United States are the Shorthorn (sometimes called Durham), Polled Durham, Hereford, Aberdeen-Angus, and Galloway. Each of these breeds has been carefully developed for a long period of years, with the result that individuals transmit their characters very readily when bred to native or scrub cattle. With somewhat frequent exceptions in the case of Shorthorns, the cows of these breeds are not heavy milkers, and in this point lies their success as beef cattle, for the milking tendency is associated with a conformation of body which prevents the animal from yielding the greatest quantity and the best quality of beef. The beef breeds have been bred for the maximum production of beef, and only enough milk is desired to nourish and produce a good, thrifty calf. They are most popular with farmers or ranchers who raise a considerable number of cattle.

Shorthorn.†—The Shorthorn is the most popular of the beef breeds in the United States, as shown by their numbers and by their general distribution over all parts of the country. They have a great range of adaptability and do well everywhere. The milking qualities, combined with the high standard as a beef animal and the gentle disposition, have caused the Shorthorn cow to be termed "the farmer's cow." The three important strains of Shorthorn cattle have been the Booth, the Bates, and the Scotch tribes. The Booth and Scotch strains represent the true beef type of Shorthorns, while the Bates approaches the dual-purpose type. The Shorthorn is the largest breed of beef cattle.

The color of this breed may be red, red and white, pure white, or roan. No other breed of cattle has the roan color, therefore this color in any other cattle usually signifies the presence of some Shorthorn blood.

The dual-purpose breeds are a class of cattle which have been developed to produce a fair to good quality of beef, and at the same time the female should give a good flow of milk.

Polled Durham.—The Polled Durham is a polled Shorthorn. There are two general divisions of this breed, the "single standard" and the

*For list of Breeders' Associations, see Appendix C.

†These are the leading breeds in California.

“double standard.” The single-standard Polled Durhams were produced by breeding “muley” cows to Shorthorn bulls, selecting the polled offspring and breeding these to other Shorthorn bulls.

The double-standard Polled Durhams were secured by using purebred Shorthorn cows that were either natural muleys or had undeveloped horns, for breeding to Shorthorn bulls. The double-standard Polled Durhams are purebred Shorthorns and can be registered in either the Shorthorn or the Polled Durham herdbooks.

This breed is similar to the Shorthorn in every way except that it is hornless. It is a comparatively new breed of cattle, and has not become so popular as the older breeds, but it is increasing in popularity.

Hereford. †—The Hereford ranks next to the Shorthorn in numbers in the United States. Their popularity is constantly increasing, especially where cattle are raised under range or adverse conditions. The Hereford cows have been criticised because of their scanty milk flow, but they usually produce enough to raise a good calf. As a breed they have a better heart girth, stronger constitution, and can withstand adverse conditions better than the Shorthorns. They are early maturing and fatten readily in the feed lot.

In color the Hereford is red with white markings. The white markings usually consist of a white face and head, the white extending along the top of the neck and shoulders, a white throat and dewlap, and white on the underline. Frequently, however, no white is found on the neck or top of shoulders.

Polled Hereford. †—The Polled Hereford is a new breed developed by selecting and breeding Herefords which showed polled characteristics. The double-standard Polled Herefords are purebred Herefords which are hornless and are eligible to registry in either the American Hereford herdbook or the American Polled Hereford record. They differ in no way from the hereford except that they have no horns. The polled feature has been well fixed and the bulls when mated with native cattle sire few calves having either long scurs or horns.

Aberdeen-Angus. †—Aberdeen-Angus cattle are solid black in color and have no horns. These characteristics are so strongly developed that a bull, when bred to horned cows of various colors, will usually produce calves of which 85 per cent or more are black in color and hornless. Occasionally a red animal is found in this breed, but the color is not popular among breeders. While the Aberdeen-Angus is an old breed, it is only within recent years that it has been so popular in the United States. While they are good rustlers, they have never been as popular on the ranges of the west as either the Hereford or the Shorthorn. They stand next to the Hereford and above the Shorthorn as grazers on scanty pastures. This breed is extremely valuable for grading up native cattle, but they have been criticized to a certain extent by rangers because they do not get a greater percentage of calves. This has usually been true where they have been in a herd with horned bulls. If all the bulls were either polled or dehorned there would doubtless be less ground for this claim. The milking qualities of the cows are only fair; they give more milk than the Hereford, but not as much as the

†These are the leading breeds in California.

Shorthorn. A sufficient quantity of milk is produced to raise a good calf.

This breed is very early maturing, and has a tendency to fatten well at any age, hence their popularity for producing baby beef.

Galloway.—The Galloway is one of the oldest breeds of cattle. They are polled, solid black in color, though occasionally some brown is shown, and have a long, curly, silky coat. This breed is very prepotent and transmits the black color and polled characteristics readily to offspring from cows of any color. As high as 90 per cent of the calves from various-colored cows are black, and from 95 to 99 per cent of the offspring from horned cows are polled. This breed is slow maturing, when compared to the Aberdeen-Angus or the Hereford. In size they are smaller than any of the other beef breeds.

Red Polls.—The Red Polled cattle originated in England and were introduced into this country in 1873, but few importations were made until about 1885. Since that time many have been imported. This is strictly a dual-purpose breed, and approaches the ideal of the dual-purpose type. In size they are smaller than the beef breeds, and have not the thick covering of flesh.

The Red Polls are more nervous than the Shorthorn, but less so than the Aberdeen-Angus. As this is a comparatively young breed, they are not so popular as the older breeds.

Devon.—This is one of the oldest breeds of cattle. They were introduced into this country at an early date and became popular in New England and in parts of Virginia nearly a century ago. The cows were good milkers, and the steers were used as work oxen or for beef, and filled either place admirably. They are exceedingly good rustlers, are vigorous, hardy, withstand both heat and cold well, and are very prepotent. For these reasons they were popular with the people of New England. They are slower of growth than any of the beef breeds except the Galloway. Their endurance, intelligence, and their gameness have made them popular as work oxen wherever they have been tried—no breed excels them in this respect.

Brahman or "Indian" Cattle.—Under the names of Brahman, "Indian," or Zebu cattle are classified a number of different strains of cattle of the species *Bos indicus*. Some of these strains vary so in type, color, size, and habitat that they are classified as separate breeds. The most important breeds of these cattle are the Krishna Valley and Hissar breeds. These cattle are classed as dual-purpose animals, as many of the females give a good quantity of milk. They are used quite generally in India as milch cows, and are more satisfactory than any other breed of cattle under the severe conditions of drought, heat, insect enemies, etc.

Although they are of a different species from our common breeds of cattle, they cross readily with them.

BEEF CATTLE IN CALIFORNIA.

“California ranges are naturally grouped in three or four classes on the basis of different systems of handling stock due to different climatic conditions. In the first class fall those ranges in the northern part of the state where cattle are grazed in the mountains during the summer, pastured during the fall on enclosed meadows or pastures, and fed hay during the winter. Calves are dropped throughout the year in most cases, but it is considered better practice not to have them begin to come before February and March. From these ranges cattle are sold in the fall either as fat cattle or feeders. In the second class are all those where cattle are, as in the first class, grazed in the mountains in the summer, but depend on the natural forage of foothill ranges for fall, winter, and early spring feed. From the herds of these ranges cattle may be sold in market condition twice a year—off the mountain ranges in the fall and from the foothill ranges in the spring. Normally no hay is fed. Calves are dropped throughout the year. The third class is that in which cattle run on the same ranges throughout the year. When winters are not severe the rains of that season bring on the feed that makes fat cattle for summer market. To these three might be added a fourth class where the uncultivated valley lands are used as range, and supplemented by the grazing on the vast areas of stubble fields available after grain harvest in June and July.

“Of the vast range areas of the state some 19,250,000 acres are grazed under the supervision of the National Forest Service. On these lands the grazing fee is at the rate of twelve cents a month for grown animals, and it is estimated that from ten acres up are required to carry one animal for six months. Similar grazing lands under private ownership lease at about three times the above rate.

“California has become accustomed to a grass-fat cattle market, and no general provision has been developed in the agricultural practice of the state for taking a part in the production of its beef supply, except as the stubble fields frequently leased for the purpose are used in a limited way for the maintenance of stock cattle through a part of the season of short feed on the ranges. A few men have fed hay to market cattle, and a still smaller number have begun to feed for market on hay and silage. In some cases grain or cottonseed cake has been fed in a manner comparable to practice in the middle west.

“Experiments in the feeding of steers on alfalfa hay only, conducted at the Oregon and at the Colorado Agricultural Experiment Stations, show average daily gains of from less than a pound to one and one-half pounds at a cost of from 8.48 cents to 11.36 cents a pound with alfalfa at \$6 a ton, the addition of grain to the ration giving a higher cost of gain.

“The profit in feeding depends not alone on the cost of gain but upon the spread between the prices at which the cattle are bought and sold. This spread has never been great enough to encourage either cattlemen to buy feed to fatten their cattle, or the farmer to buy cattle to fatten on his home-grown feed.

¹From an article by Gordon H. True, Professor of Animal Husbandry, University of California.

“The valley farms of this state, however, are depended upon by range cattlemen for the production of the pure-bred bulls used in the range herds. There are approximately 8,000 head of cattle in the pure-bred herds of the state producing not to exceed 2,000 bulls a year. There are in the range herds 1,700,000 cattle. If one-fifth of these are breeding cows there should be in use 75,000 head of bulls, one-half to one-third of which should be replaced every year. Bulls for the range should bring from \$100 at weaning to \$250 and up for older bulls, according to quality.”

DAIRY CATTLE.

In the United States five breeds of dairy cattle have attained considerable prominence, namely, the Ayrshire, Brown Swiss, Guernsey, Holstein-Friesian, and Jersey. These breeds have been developed carefully for a considerable time for the purpose of dairy production, and in consequence each transmits its characteristics with regularity to its offspring. Certain distinct features distinguish each breed from the others, but all possess ability as milk producers.

Ayrshire.†—The Ayrshire breed originated in the County of Ayr, in southwestern Scotland. In that region, which borders on the Irish Sea, the surface is rolling and has much rough woodland. Pastures, therefore, are somewhat sparse and it is necessary for animals to graze large areas in order to obtain sufficient feed.

It is only within the last hundred years that the Ayrshires have had a type well enough established to be entitled to the designation of breed. No exact account of the different infusions of blood of other breeds into the native Scotch cattle to form the Ayrshire breed is at hand. It is probable, however, that the Channel Islands, Dutch, and English cattle were all represented. The first importation of Ayrshires to this country was made in 1822, since which time there have been frequent importations into both the United States and Canada. New England, New York, and Pennsylvania probably contain the largest number of representatives of the breed.

Brown Swiss.†—The Brown Swiss breed originated in the Canton of Schwyz, in eastern central Switzerland. The cattle are called variously Brown Switzer, Brown Schwyzer, and Brown Swiss, the last name being the one commonly used in the United States. Conditions in Switzerland are such that a strong animal capable not only of milk production but of service as a draft animal is desired, and the large frame is evidence of fitness for these requirements.

The first importation into the United States was made in 1869, and although other importations have been made since, comparatively few animals have been brought to this country.

Guernsey.†—The Guernsey breed had its early development on the Channel Islands of Guernsey and Alderney, and at present cattle from either island are eligible to registry in the herd book of the American Guernsey Cattle Club. The origin of the breed is obscure, but it is probable that the parent stock came from Normandy, France, which is adjacent to the islands. Early live stock laws of the islands prevented the importation of live stock for any purpose except slaughter, and

†These are the leading breeds in California.

under these conditions, in the course of the last century, the cattle developed into a distinct breed.

The climate of the Channel Islands being mild throughout the year, allows a long grazing season. Because of the high price of land for market-gardening purposes, the cows are tethered on pasture to avoid waste of feed. Although they come from the same parent stock, Guernseys differ from Jerseys in having been developed by men who had somewhat different ideals. The Guernsey of today is larger than the Jersey, and differs in other respects. The first representatives of the breed were imported in the early part of the nineteenth century. There is some resemblance between the Guernsey and the Jersey, but the former is larger and slightly coarser-boned, with a deeper and more "rangy" body. The head also is somewhat longer and more narrow than that of the Jersey.

Jersey.†—The island of Jersey, the largest of the Channel Islands, is the native home of the Jersey breed of cattle. Except for immediate slaughter, no cattle have been landed on the island since 1779, so that ever since that time the purity of the breed has been preserved. It seems probable that the foundation stock is the same as the Guernsey, namely, from Brittany and Normandy, in nearby northwestern France. Conditions on Jersey are similar to those on Guernsey. The breeders on the island have developed cattle that, in addition to productive ability, have uniformity of type and natural beauty, while in America the breeders have developed greater size, with less refinement of features.

Jerseys were first imported into the United States about the middle of the last century, and since that time importations have been made practically every year. The breed probably has the largest numbers and widest distribution of all the dairy breeds in this country. Large numbers of Jerseys may be found throughout New England, the Middle West, the South, and the Southwest.

Jerseys are the smallest of the dairy breeds.

Holstein-Friesian.†—In the low countries bordering on the North Sea, especially in the northern part of Holland, Holstein-Friesian cattle have been bred for centuries. The land is rich and fertile and pastures are exceptionally good. Different names have been used to designate the breed, both in Europe and America, among which the following are the more common: North Hollander, Holland, Netherland, Holstein-Friesian, Dutch, Dutch-Friesian, and Holstein. The last is the name usually used in this country, although Holstein-Friesian is the official name.

The Dutch settlers in the State of New York probably were the first to import individuals of the Holstein-Friesian breed, but the first importations of which records exist were made between 1857 and 1862 by Mr. W. W. Chenery, of Massachusetts, and many of our present-day animals are descended from these importations.

The Holstein is the largest of the dairy breeds.

From the point of view of milk production Holsteins average higher than any other breed. The percentage of butterfat, however, which

†These are the leading breeds in California.

averages lower than that of any other dairy breed, tends to counterbalance the advantage of greater production.

SHEEP.

In 1565 Spanish sheep were introduced into Florida, and those in that state today preserve traces of their Spanish origin. In 1773 they were introduced into California, and under the care of the Missions rapidly increased until, in 1825, it was estimated that seventeen of these Missions, extending from San Diego to San Francisco, held an aggregate of 1,003,970 sheep, exclusive of flocks owned by ranchers.

Sheep, of which at one time there were very large flocks, have fallen off since the year 1880, when they numbered 4,152,349; in 1910 there were 2,417,477, or a decrease of 1,734,872 since the former year.

All the domestic sheep in America have originated from importations, most of which have been made from European countries since the beginning of the nineteenth century.

The better known breeds can be grouped into three classes:

The middle wool class includes Southdown, Shropshires, Hampshires, Oxfords, Dorsets, Cheviots, Suffolks, and Tunis.

The long wool class included the Cotswold, Leister, and Lincoln breeds and the Romney Marsh.

The fine wool class includes the American Merino and the Rambouillet. The various strains of Merinos formerly known by numerous names are now grouped into three types, A, B, and C.

The Southdown* is of the middle wool breeds, and is probably the oldest breed of sheep in existence, and is also the mutton sheep above all.

The Shropshire* is the most widely known and bred of the "down" breeds in America, and is the most popular of medium wool sheep.

Other Long Wool Breeds.

Other long wool breeds are the Romney Marsh,* or Kent, the Wensleydale, Devon Long Wool, and Corriedale,* a breed developed in New Zealand.

Fine Wool Sheep.

All fine wool sheep are descendants of earlier Spanish stock. The American Merinos have been bred nearly altogether for wool. Some breeders of the Delaine, or C type Merino, have bred to some extent for a mutton carcass, in addition to fineness and length of wool. In the case of Rambouillet there has been a great effort to improve the mutton qualities. A common characteristic of all Merinos and Rambouillets is the fineness of the wool.

The American Merino*A, B, and C type.

The Rambouillet* is the largest and strongest of fine wool sheep, or Merino breed, and was developed by the French government between 1783 and 1799 in order to secure a domestic supply of wool. They were first introduced into the United States in 1840.

The Hampshire,* with possibly one exception (the Oxford), is the largest of the down breeds, and it is excelled in size only by the Lincoln and Cotswold among the long wools.

*These are the leading breeds in California. For list of Sheep Breeders' Associations, see Appendix C.

The Oxford Down*—the blood of the Hampshire and Cotswold was used in forming this breed. It is the largest of the medium wool breeds.

The Dorset Horn* is an extremely old breed like the Southdown, and is of the middle wool type, and medium sized, and probably the most fertile of all the mutton breeds.

The Cheviot* is a mountain breed sheep, and an extremely old one, rather small and hardy. The mutton is of good quality.

Other middle wool breeds:

The Suffolk Down is comparatively a new breed of sheep and was first imported into the United States in 1888.

The Tunis comes from Northern Africa, and the wool is white, brown, reddish or mixed in color. The American Tunis has been improved by an infusion of Southdown blood, and the fat tail of the original has been greatly reduced.

Long Wool Breeds.

The long wools, bred chiefly for mutton, are the largest breed of sheep and with very broad backs.

The Cotswold* is a big-bodied, rather tall, sheep, and with the exception of the Lincoln, is the largest breed of domesticated sheep. It has become famous in Australia, South America, South Africa, and the United States and Canada.

The Leicester* is very easily distinguished from the other long wools by its lean and strong face. Practically all the Leicesters in America today are of a modified border type.

The Lincoln* is shorter and more compactly built than the Cotswold.

There are many other varieties of sheep, but little known in the United States, such as the Welsh Mountain, Exmoor Horn, the Ryeland, the Kerry Hill (a Welsh breed), the Shetland, which are deer-like in appearance, and are only suitable for a park, the Dartmoor, Black-faced Highland and others.

In furtherance of the work of its textile department, Leeds University some time ago purchased a small flock of wild Soay sheep, the most primitive breed of the British Isles, and has set itself to preserve it, as, in the opinion of Prof. Ewart, of Edinburgh University, the time will come when the fancy sheep breeder will have to return to the primitive breeds of sheep for stamina, and it would be a great misfortune for Great Britain if such primitive breeds were not available.

Unfortunately sheep which can take a ten-foot fence, as well as creep through one, and climb, are more than difficult to retain within bounds, and the university is still in need of safe pasturage for its small flock.

*These are the leading breeds in California. For list of Sheep Breeders' Associations, see Appendix C.

SHEEP IN CALIFORNIA.

“Sheep are kept in California under three main sets of conditions: On the unfenced public or private ranges where they run in bands of one to two thousand head; on fenced mountain ranches of a few thousand acres, and on valley farms where cultivated crops form part of the feed, and other farm activities may or may not be carried on.

“For use on the open ranges where sheep are run in large bands under the care of a single herder and his dogs, a preponderance of fine-wool blood-Merino or Rambouillet is necessary on account of the natural herding instinct of this class of sheep.

“Sheep run on the open range move constantly from one feeding ground to another. As the snow melts and green feed starts in the mountains the sheep are moved to keep pace with the coming of the new feed. Lambing takes place in the spring, usually in March or April. It is not customary to provide shelter, though it has been found profitable to do so. Flocks lambing in sheds have raised as high as 140 per cent of lambs, while losses in the open are often 40 to 65 per cent in case of bad weather at lambing time. The flock is shorn once a year before lambing in the spring. The average clip is about seven pounds of wool. The increase may be marketed as lambs when the range is good, but more frequently they are carried on to be sold as yearlings. Lambs weighing eighty pounds sold last year at from \$10 to \$12. Under pre-war conditions \$5 was considered a fair price.

“Sheep are especially adapted for grazing over rough land of scanty herbage. They eat many plants not eaten by cattle. On farms they keep down weeds and other volunteer growth along ditch banks, lanes, and on summer fallow. As hogs consume waste grain, fruit, and dairy by-products, so sheep use what would otherwise be waste roughage on the farm.

“In the valleys where they run on stubble-fields, it is the practice to shear twice a year, in March and September, otherwise once a year in spring. The clip will run from six pounds to twelve pounds a head, some fine-wool ewes shearing as high as sixteen to twenty pounds. It is good practice to dip sheep after shearing.

“Thin lambs may be bought and fattened for market by running them on stubble for three or four weeks and then feeding hay and grain for two or three months. On full feed lambs should eat two pounds of hay and one pound of grain a day, and gain from one-fourth to one-third of a pound in weight. Ewes may be wintered on hay and volunteer growth, with some grain at lambing-time. Cull or damaged beans are especially relished by sheep.

“A pure-bred ram of good type should always be used. The period of gestation is five months, and the natural breeding time is September or October. Neither ewes nor rams should be used for breeding under a year old. The ram should not run with the flock, but be turned with the ewes for a short time each day. During the breeding season he should be fed some grain.

“Expensive buildings are not required for sheep. But they need protection from rain. The dog is the sheep's worst enemy, and where there is danger sheep should be put in dog-proof corrals at night. One should see and count the flock every day.”

¹From an article by Gordon H. True, Professor of Animal Husbandry, University of California.

Sheep-Killing Dog Laws.

The sheep-killing dog constitutes one of the greatest menaces to the success of the sheep industry.

The dog not only kills sheep but keeps out of the sheep business men who are otherwise inclined to engage in it.

The most effective method of dealing with the sheep-killing dog is through efficient legislation.

California has just enacted a splendid law, and it is expected that other states will take similar action.

No law, however well worded it may be, can be effective unless it is enforced and has the moral support of the people who are affected by it. Uniform state dog laws are desirable.

GOATS.

The Angora goat, a native of Asia Minor, was introduced into this country in 1849, and has been bred extensively in the United States. It crosses readily with the common goat, and the cross-breed frequently becomes the foundation of a good flock of fleece-bearing animals. The common goat has often been described as the poor man's cow. The Angora goat has been found to be of great service in clearing land of brush and low growths that sheep and cattle will not touch. The meat of the kids is said to be fully equal to the best young lamb, from which it is difficult to distinguish it. Angoras are among the most useful of domestic animals. Their fleeces, called the mohair, furnish material for the manufacture of some of the finest fabrics, their flesh is exceedingly delicate and nutritious, and their milk is richer than that of a cow.

The number of goats of all kinds in 1910 was 138,000, the lead being taken by Tehama County, with 28,000, and Shasta, with 18,000. Lake and Mendocino counties lead in Angora goats, having upward of 5,000 each.

Selection of Goats for the Range.

The goats on the ranges today are generally of two breeds—the Angora and the common, which is sometimes called the Mexican or Spanish-Maltese. In certain places near ranches a few head of the true milch breeds graze on the range. The Angora is by far the most important on the ranges both in numbers and the value of its products, and without doubt the principal increase in goats on the ranges will be in Angoras.

SWINE.

Number of Swine on Farms in the United States and California, 1920 and 1910.

	Swine on farms January 1, 1920					Swine on farms April 15, 1910
	Total	Pigs under 6 months old	Sows and gilts for breeding, 6 months old and over	Boars for breeding, 6 months old and over	All other hogs, 6 months old and over	
United States.....	59,368,167	26,237,924	11,445,239	934,553	20,750,451	58,185,676
California	909,272	452,856	138,868	12,581	304,967	763,551

HOG RAISING IN CALIFORNIA.

"Hogs are raised for market in California as adjuncts to four different main lines of business: Grain farming, alfalfa growing, dairy farming, and fruit growing.

"The grain farmers raise their hogs primarily on grass and waste products until the barley or wheat has been harvested. Then the hogs are turned into the stubble-fields to gather up the scattered grain and unthreshed heads. When winds have been severe after the grain is ripe, or when the combined harvester is not properly operated, the amount of grain available for the hogs is considerable. By this system a two hundred-pound hog is normally produced in about twenty months, but the margin of profit is reasonable because most of the feed used would otherwise be wasted. Hogs raised under this system may be marketed direct from the stubble-fields, but are usually fed a full ration of barley in a dry lot for three or four weeks, and are then sent to market.

"Alfalfa growers, who are not dairymen, sometimes grow hogs to harvest a part of the alfalfa. They may or may not raise their own grain. Some of these establishments produce from five hundred up to several thousand hogs a year. This system is the least stable of the four, for the price of grain fluctuates quite independently of the price of hogs. Because of this fact, there are many 'ins and outs' under this system. Some growers prefer to use a maximum amount of alfalfa and a minimum amount of grain. Some feed no grain at all when pasture is abundant, while others feed from one to two pounds for each one hundred pounds of hog. In either case the hogs are full fed on barley at the finish until sufficient weight and condition is secured.

"Most dairy farmers who do not sell whole milk, feed the skim milk to hogs. This class has increased in number quite rapidly in the past six years, and will no doubt continue to do so unless the demand for skim milk for other uses forces the price too high. Some barley is fed, and in most cases alfalfa pasture is used.

"Fruit growers have found hogs a valuable adjunct to their business, not only to clean up their cull fruit, but to harvest and convert into fertilizer alfalfa and similar crops. Some grain is fed most of the time, the pigs being finished on barley, or sold as feeders to grain farmers.

"At the present time the state is not producing as much pork as it consumes. Quality varies enormously, but the top 30 per cent now compares favorably with the 'corn-belt' product. Better breeding stock and more careful feeding are needed to further improve the quality.

"Self-feeders are generally used when it is desired to full-feed the hogs, but when it is desired to secure a reasonable rate of gain and utilize somewhat more alfalfa, a grain ration of three pounds for each one hundred pounds of pork gives satisfactory results. Tankage or cocoanut meal fed in self-feeders are generally used as protein supplements to barley when skim milk is not available.

"The number of pure-bred herds in the state is increasing steadily, but there is need of more general use of pure-bred sires in average

¹From an article by J. I. Thompson, Assistant Professor of Animal Husbandry, University of California.

herds before the supply of pure-bred boars is absorbed. The demand for pure-bred sows is excellent and is increasing. The principal breeds are Berkshire, Duroc-Jersey, Poland-China, and Hampshires, but a considerable number of Chester-Whites are to be found, also some Tamworths and Yorkshires.

"The long growing season is a decided advantage in pork production. In the irrigated sections alfalfa is available about nine months of the year, and on medium to large ranches, volunteer pasture is to be had for the other three months. The mildness of the climate in the majority of the area makes it entirely feasible to produce two litters of pigs each year. In fact, fall-farrowed pigs often thrive better than those farrowed in the summer. February, March, and April are the most desirable months for spring-farrow; September and October for fall-farrow. No months are especially undesirable, except perhaps July and August for the large interior valleys.

"The chief handicaps of the industry are: A market somewhat lacking in classification and affected by the limited outlet for some of the pork products. At present the market demand for hams and bacon is entirely out of proportion to the demand for many of the fresh cuts of pork and for lard.

"Another handicap is the relatively high cost of carbohydrate or fattening feeds. Barley is the principal grain used, but it seems to require from 10 to 20 per cent more of it to produce one hundred pounds of pork than of Indian corn. The pork thus produced is entirely satisfactory if too much alfalfa is not used, or if the hogs are given a reasonable feed of grain all of the time and not forced to live on green feed alone for a considerable period.

"Where irrigation is practiced, making it possible to grow a crop of milo or kafir corn following a cereal grain crop, the cost of production, due to a long growing season and relatively cheap protein feeds, may be somewhat less than in the corn belt.

"The production of higher quality hogs and the continuous efforts of everyone interested to bring about more satisfactory market conditions are having the desired effect, and the industry is at present reasonably profitable.

"The chief expansion of the industry will probably be through an increase in the alfalfa acreage. One acre of alfalfa is the average unit for each brood sow. Generally speaking, ranches of twenty acres or less will need to produce some pure-breds, some of which are to be marketed as breeding animals, for the price of grain is likely to be so high at times as to leave too small a margin where only market hogs are produced. The surest and most constant profit is to be expected where the hogs fit into a general live stock and farming scheme."

RECOGNIZED BREEDS OF DOMESTIC ANIMALS.

Cattle.

Aberdeen-Angus.	Guernsey.	Kerry and Dexter.
Alderney.	Hereford.	Red Polled.
Ayrshire.	Highland.	Shorthorn.
Devon.	Holstein-Friesian.	Sussex.
Galloway.	Jersey.	Welsh.

Sheep.

Cheviot.	Kerry Hill.	Shropshire.
Cotswold.	Leicester.	Southdown.
Dorset Horn.	Leicester [Border].	Suffolk.
Hampshire Down.	Lincoln.	Wensleydale.
Kent or Romney Marsh.	Rambouillet.	Oxford Down.

Hogs.

Berkshire.	Hampshire.	Mulefoot.
Chester White.	Poland-China.	Yorkshire.
Duroc-Jersey.	Tamworth.	Essex.

Dogs.

Name of breed.	Book of record.
Belgian (Griffon Bruxellois, Schipperke, Chien de Berger Belges)	----- Livre des Origines Saint-Hubert
Fifty-seven recognized breeds	----- Kennel Club Studbook
Foxhound	----- Foxhound Kennel Studbook
Greyhound	----- Greyhound Studbook
Harrier and Beagle	----- Harrier and Beagle Studbook
Swiss	----- Schweizerisches Hunde-Stammbuch
German Shepherd	----- Zuchtbuch für Deutsche Schaferhunde

Provided that no dog or dogs registered in the above-mentioned books shall be certified as pure bred unless a three-generation certificate of pedigree issued by one of the above-mentioned societies is submitted for each dog.

Cats.

Name of breed.	Book of record.
Long haired and short haired	----- Register of the
Governing Council of the Cat Fancy, 65-66 Chancery Lane, London, England	

The Canadian National Records for dogs are recognized for all the breeds registered in said records; provided, that no dog or dogs registered in said records shall be certified as pure bred unless a three-generation certificate of pedigree, issued by the said Canadian National Records, is submitted for each dog.

WOOL.*

“The year 1920 will go down in the history of the industry as a year of marked contrasts—of exhilaration and buoyancy in the early months and of stagnation and depression in the closing months. It was a year of extremes, and the one was as abnormal and artificial as the other, both being the direct results of the Great War. It was brought home to all that the prices forced far upward by war were being forced downward by peace and that the years of inflation were past and the year of deflation was at hand. For the wool grower, the wool merchant, and the wool manufacturer it was one of the most disastrous years of which there is record.

“At the beginning of the year the impetus of the upward movement which had characterized the year 1919 was still felt, though few sensed the danger which false prosperity created. At that time the

*From the “American Wool Review.”

public, stimulated by high wages and the passage of bonus appropriations for returned soldiers, was demanding goods and the finest goods at any price. Manufacturers were bidding against each other for labor, and wages and prices for commodities were soaring.

"In January, at the British Government's auction in Boston of wools sent here to relieve the shortage of fine sorts for which the demand was strong, the high prices paid at the November auctions of U. S. Government wool, at which time the highest prices ever paid for wools in this country were recorded, were sustained, if not surpassed. Machinery was in full operation; orders were abundant and the prospect seemed pleasing. However, students of the industry knowing that the boom period with its accompanying high prices could not last much longer, and seeing the dangerous tendency of the markets gave expression to warnings which were heeded, it must be recorded, by only a few. While all realized that the high prices could not continue indefinitely, many hoped that the deflation process would be extended over a period of years, as it was after our Civil War. In England warnings were issued, and in this country a New York banker, speaking in Boston in January, called attention to the dangerously inflated condition of the money market; but as orders continued to come in, and as good prices continued to be obtained for wools sold, optimism persisted.

"May began with little indication of the approaching debacle. On May 1, as shown by the report which appeared a month later, there were only a few more idle machines than on February 2, but a slowing-up tendency was appearing in the curtailment of machinery running on double time, although the wool consumption in May proved to be 6,000,000 pounds less than in each of the two preceding months. The demands of the workers for a 15 per cent increase of wages based on the previous year's earnings, and made weeks earlier, was granted in May to take effect in June.

"On May 17, Senator David I. Walsh of Massachusetts delivered a speech in the United States Senate in which he charged the American Woolen Company with profiteering, and a few days later the Company was indicted in New York City for profiteering under the Lever Law. This, with reduction sales, which were spreading rapidly over the country, caused great uncertainty and a feeling that prices would go lower. Cancellations of orders poured into the mills in a volume so large that many were obliged to curtail production and later to close entirely. The American Woolen Company, which had lost through cancellations \$40,000,000 worth of contracts, was compelled to close its mills on June 10 for two months for lack of orders. Other manufacturers, large and small, were also deulged with cancellations. The closing down of the mills lessened the consumption of wool and produced a dead wool market. Thus it was again demonstrated that with domestic mills inactive, the domestic wool grower has no market for his product.

"These sudden and untoward developments in the manufacturing branch of the industry brought about a stagnant wool market, with constantly falling prices for wools, and upset the plans of the growers to stand out for higher prices for their wools than were offered and refused early in the season. It was not a question then of refusing

offers, but one of getting offers for their clips. Undeniably their position was most onerous and financially perilous. Unfortunately they had produced their clip under high cost conditions and were confronted most unexpectedly at selling time by a falling market. All producers of raw materials, farmers in general, as well as dealers in securities, stocks and bonds, wool merchants, and wool manufacturers were sharers in a common misfortune—a perpendicular instead of a gradual descent of high prices caused by the World War. No one can deny the hardships experienced by the producers of agricultural commodities who were poorly equipped to stand the shock of shrunken values, but they have not been alone in this misfortune. Wool merchants and wool manufacturers, who have been charged by some as responsible for the growers' plight, themselves suffered enormous losses caused by the decreased value of raw materials and manufactured products made from wool purchased at fancy prices, in not a few cases handsome profits of early months of the year being wiped out by equally heavy losses in the later months of the year. They, along with the wool growers, lost money with every decline in the price of wool and they would have been the last classes deliberately to plan to bring about the greatest price decline in so short a period in the history of the United States. What these losses were may be understood when the slump in prices of tops and yarns between January and December is considered.

“These may be gathered from a consideration of the table which shows the monthly average price for tops sold in the domestic market.

Monthly Average Prices for Tops—Year 1920.

	64s Aust.	13s (56s Ter.)	46s	40s K.
January	\$2 82	\$1 85	\$1 05	\$0 75
February	2 82	1 85	1 02	70
March	2 82	1 80	1 02	65
April	2 85	1 80	95	65
May	2 72	1 70	90	65
June	2 55	1 60	90	65
July	2 25	1 55	85	55
August	2 10	1 50	80	52
September	1 85	1 40	70	48
October	1 50	1 25	70	48
November	1 40	1 07	67	45
December	1 20	90	55	35

“The next table shows the prices by months during the year for yarns made from American grown wools, and also shows how severe were the losses suffered by mills holding heavy stocks of unused yarns.

Prices for Yarns by Months, January 1, 1919, to January 1, 1921, Inclusive.

	2/24's Medium $\frac{1}{2}$ Blood	2/32's $\frac{3}{8}$ Blood	2/40's $\frac{1}{2}$ Blood	2/50's Fine Medium
January 1, 1919.....	\$1 95	\$2 30	\$2 70	\$3 00
April 1, 1919.....	1 57 $\frac{1}{2}$	2 10	2 60	3 00
July 1, 1919.....	1 60	2 45	3 20	3 60
October 1, 1919.....	1 95	2 60	3 75	4 25
January 1, 1920.....	2 20	3 50	4 10	5 25
April 1, 1920.....	2 00	3 25	4 10	5 00
July 1, 1920.....	1 75	2 75	3 25	3 75
October 1, 1920.....	1 20	2 07 $\frac{1}{2}$	2 85	3 15
January 1, 1921.....	85	1 45	1 75	2 00

Number of Sheep.

“The United States Department of Agriculture estimates the wool product of the country and bases its estimate of the number of sheep in each state on the wool clip divided by the average weight per fleece, no attempt being made to count the number of sheep sheared. This method produces a good approximation of the number of sheep of shearing age, and naturally varies from the total number of sheep in the country as estimated by the Department for the country on January 1 of each year.

“The estimate of fleeces sheared shows a decrease of only 82,000 fleeces, the number in 1919 being estimated at 35,983,000 and in 1920 at 35,901,000. The Department of Agriculture’s estimate of the number of sheep including lambs in the country on January 1, 1921, was 45,067,000, and on the same day of 1920, 47,114,000, 48,866,000 in 1919 and 48,603,000 in 1918. Allowance must be made for winter losses from disease and exposure, as well as for slaughter, which averages at least 800,000 a month between the first of January and the time for shearing. It seems, therefore, that the actual difference between the total number as announced for January 1, 1921, and the number of fleeces reported is not disproportionate.

“Decreases are indicated in each one of the groups into which the states are divided in the table, but the total reduction, in view of the rigorous winter, and depressed prices, is less than was expected. The pulled wool product has been reduced from 48,300,000 in 1919 to 42,900,000 in 1920, which shows that fewer sheep than were expected were sent to the shambles.

“The following table shows the clip in the grease of the heaviest producing states, and the scoured conditions for the years 1918, 1919, and 1920, the states being arranged according to their production of wool in the grease in 1918:

	1920		1919		1918	
	Grease*	Scoured*	Grease*	Scoured*	Grease*	Scoured*
Wyoming -----	28,422	9,947	34,707	11,453	34,026	11,228
Montana -----	15,800	6,162	22,175	7,983	23,342	8,403
Idaho -----	21,702	8,680	21,255	7,864	19,500	7,215
New Mexico -----	15,528	5,434	15,076	4,824	17,132	5,482
Utah -----	16,150	5,975	15,800	5,530	15,800	5,530
California -----	13,165	4,739	13,172	4,741	12,545	4,526
Oregon -----	14,040	4,914	13,125	4,331	12,500	4,125
Texas -----	17,600	6,160	14,288	4,715	11,250	3,712
Totals -----	142,207	52,011	149,598	51,439	146,095	50,221

*Three ciphers omitted.

“The changes which occurred in the production of 1920 were due in part, at least, to the drought in the summer of 1919 and the long severe winter of 1920. These elements considerably reduced the flocks of Montana and portions of Wyoming, while more abundant grasses and milder weather in New Mexico and Texas helped to attract increased numbers to their pastures.

“Amid all the gloom in which the year closed, there were rays of sunshine and hope. The manufacturers seem to feel that the bottom prices have been nearly, if not entirely, reached, and that the latent demand for the wool fabrics should soon show itself and make it safe to operate machinery without the danger of cancellation of contracts and great losses. In the West the winter weather, the exact opposite of last year, found the flocks in excellent condition after a favorable summer and autumn. Prices for feed have fallen and the flockmasters' expenses will be drastically cut by a reduction in the wages paid shepherds and sheep shearers. At the same time other economies will be put into effect. Editors of some agricultural papers, who are not pessimists, are advising their readers that ‘those who are tempted to sacrifice sheep just now should take courage and those who are offered bargains should take them,’ adding ‘we haven't much respect for the business courage of those who sell out every time they face a business problem.’”

Comparative Prices for California Wool in Boston, October, 1915-1920.

	1920	1919	1918	1917	1916	1915
(Scoured basis)						
12 months, fine.....	\$0 90	\$1 80	\$1 75	\$1 63	\$0 80-\$0 85	\$0 65-\$0 67
Spring, fine	75	1 60	1 60	1 50	65- 70	60- 62
Fall, fine	50	1 30	1 47	1 45	60- 62	54- 56

Wool Produced, Imported, Exported, and Retained for Consumption.

Fiscal year	Total imports pounds	Exports, domestic and foreign pounds	Net imports		Production pounds	Retained for con- sumption pounds	Fine wool	
			Classes I and II pounds	Class III pounds			Retained for con- sumption pounds	Per cent of for- eign
1890-91	129,303,648	2,930,045	36,783,501	89,882,024	309,474,856	435,848,459	345,966,435	10.63
1891-92	148,670,652	3,210,019	53,350,167	92,312,922	307,101,507	452,562,140	350,249,218	14.81
1892-93	172,433,838	4,310,495	46,189,082	122,026,119	333,018,405	501,141,748	379,115,629	12.18
1893-94	55,152,585	6,497,654	7,167,380	42,007,798	348,538,138	397,193,069	355,185,271	2.02
1894-95	206,081,890	6,622,190	98,388,318	105,402,507	325,210,712	524,722,428	419,319,921	23.46
1895-96	230,911,473	12,972,217	126,966,355	97,918,882	294,296,726	512,235,982	414,317,100	30.61
1896-97	350,852,026	8,700,598	235,282,735	112,141,457	272,474,708	614,626,136	502,485,908	46.84
1897-98	132,795,302	2,625,971	47,480,033	82,810,437	259,153,251	389,322,582	306,512,145	15.50
1898-99	76,736,209	14,095,335	3,349,870	69,947,423	69,947,423	329,361,558	268,387,135	1.25
1899-1900	155,918,455	7,912,557	44,680,424	105,525,783	272,191,330	420,197,228	314,671,445	14.20
1900-01	103,583,505	3,790,067	32,865,814	67,127,159	288,636,621	388,430,059	321,502,465	10.10
1901-02	163,576,963	3,227,941	69,315,286	93,842,199	302,502,382	465,851,407	371,694,390	18.65
1902-03	177,137,796	3,511,914	54,747,583	119,397,268	316,341,082	489,963,914	370,589,646	14.63
1903-04	173,742,834	3,182,803	55,999,545	114,880,226	287,450,000	458,010,031	345,129,795	16.22
1904-05	249,135,746	2,561,648	134,407,321	112,292,726	291,788,082	538,357,180	426,066,402	31.54
1905-06	201,688,638	5,642,859	98,336,137	97,902,153	295,488,438	491,534,247	393,632,094	24.99
1906-07	203,847,545	3,446,748	91,726,655	108,888,982	298,715,130	499,115,927	390,226,945	23.56
1907-08	125,980,524	5,626,463	57,846,442	62,690,077	298,294,750	418,648,811	346,141,192	16.71
1908-09	203,409,304	3,523,975	164,867,526	99,046,169	311,138,321	574,023,650	476,005,877	34.69
1909-10	263,928,282	4,055,473	139,846,192	120,074,087	328,110,749	587,983,508	467,919,421	29.90
1910-11	137,647,641	5,205,699	45,414,054	84,027,888	321,362,750	450,804,692	363,776,804	12.38
1911-12	193,400,713	1,719,870	85,531,845	106,148,998	318,547,900	510,228,743	404,078,845	21.12
1912-13	195,293,255	4,423,161	80,883,313	109,986,781	304,043,400	494,913,494	384,926,713	21.00
1913-14	247,648,869	1,141,874	144,839,106	101,637,879	296,175,300	524,682,285	441,014,406	32.84
1914-15	308,083,429	7,259,934	236,631,246	64,192,249	290,192,000	591,015,495	526,823,246	44.91
1915-16	534,828,022	1,803,570	423,755,453	109,268,969	288,777,000	821,801,452	712,532,453	50.49
1916-17	372,372,218	3,978,724	302,869,173	67,672,671	288,498,600	656,892,004	489,219,423	51.40
1917-18	379,129,934	1,827,873	319,301,542	58,993,632	285,573,000	632,850,061	603,881,399	52.87
1918-19	422,414,985	1,151,089	337,631,158	84,178,455	299,921,000	721,184,896	637,006,441	53.00
1919-20	427,578,038	20,152,110	347,168,453	72,225,748	314,239,000	724,633,201	641,255,343	52.00
1920-21	-----	-----	-----	-----	302,207,000	-----	-----	-----

The proportion of foreign fine wools in 1920 was one per cent less than in the preceding year, which, with the exception of the years 1915-16 and 1917-18, is the largest percentage recorded. The total quantity of fine wools retained for consumption, both foreign and domestic, amounted to 641,255,343 pounds.

The net imports of Class I and II wools amounted to 347,168,453 pounds. The net imports of Class III wools were 72,225,748 pounds.

Wool Product of the United States for 1920 Compared With the Product of 1919.

State	Quality	Estimate of U. S. Department of Agriculture, 1920				Estimate of U. S. Department of Agriculture, 1919*					
		Number of fleeces	Average weight per fleece pounds	Raw wool products pounds	Per cent of shrinkage, 1920	Equivalent quantity of scoured wool, 1920 pounds	Number of fleeces	Average weight per fleece pounds	Raw wool products pounds	Per cent of shrinkage, 1919	Equivalent quantity of scoured wool, 1919 pounds
Maine	10% F., 90% M.	152,000	6.4	973,000	42	564,340	146,000	6.4	486,000	42	542,880
New Hampshire	9% F., 91% M.	31,000	6.5	204,000	43	116,280	31,000	6.6	202,000	43	115,140
Vermont	20% F., 80% M.	94,000	7.2	676,000	48	331,552	96,000	7.2	690,000	48	358,800
Massachusetts	Medium	20,000	6.5	131,000	42	75,980	19,000	6.8	125,000	42	72,500
Rhode Island	Medium	4,000	6.1	23,000	41	13,570	4,000	5.8	25,000	41	14,750
Connecticut	Medium	17,000	6.0	96,000	41	56,640	14,000	5.9	84,000	41	49,560
New York	30% F., 70% M.	592,000	6.9	4,083,000	48	2,123,163	576,000	7.0	4,022,000	49	2,051,220
New Jersey	Medium	16,000	7.0	104,000	44	64,310	13,000	7.0	92,000	41	54,280
Pennsylvania	60% F., 40% M.	702,000	6.5	4,501,000	51	2,234,400	716,000	7.0	5,013,000	51	2,456,370
Delaware	Medium	6,000	5.8	32,000	41	18,880	5,000	5.7	18,500	41	18,500
West Virginia	75% F., 25% M.	138,000	6.0	825,000	41	486,750	135,000	6.0	812,000	41	479,080
Ohio	60% F., 40% M.	640,000	5.0	3,200,000	39	1,600,000	553,000	5.3	2,643,000	39	1,471,500
Kentucky	60% F., 40% M.	623,000	5.0	3,115,000	39	1,561,150	618,000	5.2	3,211,000	39	1,958,710
Michigan	25% F., 75% M.	1,682,000	7.4	12,447,000	53	5,891,463	1,747,000	7.5	13,104,000	53	6,138,880
Indiana	Medium	1,346,000	7.0	9,422,000	39	5,111,500	1,279,000	7.4	9,409,000	39	4,763,000
Illinois	10% F., 90% M.	788,000	7.0	5,516,000	48	2,918,300	676,000	7.4	5,003,000	45	2,751,050
Wisconsin	5% F., 95% M.	503,000	7.8	3,923,000	49	2,690,733	516,000	8.0	4,129,000	49	2,105,790
Minnesota	5% F., 95% M.	484,000	7.4	3,591,000	46	1,814,400	435,000	7.6	3,306,000	46	1,785,924
Iowa	10% F., 90% M.	498,000	7.1	3,536,000	50	1,768,000	419,000	7.5	3,143,000	50	1,571,500
Missouri	5% F., 95% M.	1,292,000	6.8	8,296,000	45	4,632,800	826,000	7.1	5,894,000	45	3,225,200
Virginia	Medium	10,132,000	6.91	70,028,000	48.4	36,186,772	9,487,000	7.11	67,497,000	48.7	34,623,024
North Carolina	Medium	305,000	4.6	1,680,000	38	1,041,000	144,000	5.0	2,071,000	38	1,284,020
South Carolina	Medium	137,000	4.2	575,000	42	333,500	133,000	4.4	587,000	42	340,460
Georgia	Medium	23,000	4.5	103,000	42	59,740	24,000	4.3	103,000	42	59,740
Florida	Medium	131,000	3.2	418,000	42	242,440	142,000	3.1	440,000	42	255,200
Alabama	Medium	122,000	3.2	394,000	42	226,780	131,000	3.5	461,000	42	263,800
Mississippi	Medium	91,000	4.0	364,000	41	214,700	96,000	4.2	405,000	41	238,950
Louisiana	Medium	153,000	3.6	550,000	41	274,500	155,000	4.2	665,000	41	387,040
Arkansas	Medium	137,000	3.9	542,720	44	342,720	137,000	3.9	612,000	44	342,720
Tennessee	Medium	98,000	4.5	443,000	44	248,080	89,000	4.9	396,320	44	206,320
	Medium	428,000	4.8	2,052,000	41	1,210,080	428,000	4.8	2,052,000	41	1,210,080
Kansas	20% F., 80% M.	1,705,000	4.21	7,188,000	41.7	4,194,800	1,767,000	4.42	7,808,000	40.8	4,621,880
Nebraska	20% F., 80% M.	278,000	7.5	2,087,000	55	889,150	231,000	7.6	1,754,000	63	618,900
South Dakota	20% F., 80% M.	686,000	8.0	5,506,000	55	3,870,000	219,000	7.9	1,790,000	64	622,800
	20% F., 80% M.	1,384,000	7.0	4,804,000	55	2,161,800	646,000	7.5	4,842,000	60	1,936,800

North Dakota	20% F., 80% M.	232,000	7.5	1,737,000	58	720,540	215,000	7.7	1,654,000	63	611,980
Montana	20% F., 80% M.	2,005,000	7.9	15,800,000	61	6,162,000	2,600,000	8.1	22,175,000	64	7,983,000
Wyoming	20% F., 80% M.	3,424,000	8.3	28,422,000	65	9,947,700	4,053,000	8.5	34,747,000	67	11,459,310
Idaho	20% F., 80% M.	2,975,000	8.1	21,702,000	61	8,680,800	2,539,000	8.4	21,238,000	63	7,861,350
Washington	10% F., 90% M.	631,000	8.7	5,490,000	67	1,811,700	672,000	8.6	5,773,000	67	1,791,490
Oregon	50% F., 50% M.	1,971,000	8.4	14,040,000	65	4,314,000	1,544,000	8.5	13,125,000	67	4,331,450
California	33% F., 67% S.	1,132,000	7.6	13,165,000	64	4,739,400	1,780,000	7.4	13,172,000	64	4,741,920
Nevada	75% F., 25% M.	1,233,000	7.3	9,000,000	65	3,087,000	1,382,000	7.6	10,360,000	67	3,465,000
Utah	75% F., 25% M.	2,071,000	7.8	16,150,000	63	5,375,500	2,135,000	7.4	15,800,000	65	5,330,000
Colorado	50% F., 50% M.	1,221,000	6.7	8,184,000	63	3,028,080	1,361,000	6.6	8,683,000	63	3,223,710
Arizona	50% F., 50% M.	918,000	6.5	5,970,000	65	2,089,500	855,000	6.3	5,294,000	65	1,841,000
New Mexico	50% F., 50% M.	2,465,000	6.3	15,528,000	65	5,434,800	2,363,000	6.3	15,076,000	68	4,824,320
Texas	55% F., 45% S.	2,514,000	7.0	17,600,000	65	6,161,000	1,984,000	7.2	14,288,000	67	4,715,040
Oklahoma and Indian Territory	50% F., 50% M.	73,000	7.2	526,000	58	224,920	76,000	7.0	534,000	63	197,580
Pulled wool		24,064,000	7.50	182,091,000	63.3	66,903,590	24,726,000	7.71	190,634,000	65.4	65,882,337
Total product		35,901,000	7.2	259,207,000	58.7	107,285,162	35,983,000	7.39	235,939,000	60.4	105,127,484
				42,900,000	30	30,080,000			48,300,000	30	33,810,000
				302,207,000		137,315,162			314,239,000		138,937,484

*These original figures have been retained for comparison with the original estimates of 1920. Although the revised figures change materially the production, in some states, reducing the figures for Pennsylvania, West Virginia, Kentucky, Iowa, Georgia, Florida, Montana, Wyoming, Colorado, and Oklahoma, and increasing them for Michigan, Indiana, Wisconsin, Minnesota, Missouri, South Dakota, Idaho, Oregon, California, Utah, Arizona, and Texas, the total estimated production is decreased by only 601,000 pounds.

LIVE STOCK ON FARMS AND ELSEWHERE IN CALIFORNIA.
Domestic Animals on Farms, 1920.

Class	Farms reporting		Animals		
	Number	Per cent of all farms	Number	Value	Average value
Total	99,661	84.7		\$204,378,445	
Horses, total	87,814	74.6	402,407	35,416,507	\$88 01
Colts under 1 year of age	8,439	7.2	18,259	657,134	33 99
Colts 1 year old and under 2 years	9,087	7.7	20,342	1,012,522	49 77
Mares 2 years old and over	60,705	51.6	176,175	16,196,222	91 98
Geldings 2 years old and over	67,019	57.0	185,363	16,923,839	91 30
Stallions 2 years old and over	1,759	1.5	2,268	626,790	276 36
Mules, total	14,603	12.4	63,419	7,221,930	113 88
Mule colts under 1 year of age	1,808	1.5	4,868	246,524	50 64
Mule colts 1 year old and under 2 years	2,005	1.7	6,090	511,056	85 92
Mules 2 years old and over	12,159	10.3	52,461	6,464,350	123 22
Asses and burros	950	0.8	2,265	171,175	75 57
Cattle, total	74,650	63.4	2,008,037	120,681,446	60 10
Beef cattle, total	16,556	14.1	1,229,068	61,280,293	49 86
Calves under 1 year of age	11,690	9.9	242,315	5,727,723	23 64
Heifers 1 year old and under 2 years	8,183	7.0	134,220	5,325,616	39 63
Cows and heifers 2 years old and over	11,787	10.0	441,059	24,738,260	56 09
Steers 1 year old and under 2 years	7,506	6.4	158,310	7,476,755	47 23
Steers 2 years old and over	5,443	4.6	232,267	15,673,838	67 48
Bulls 1 year old and over	6,144	5.2	20,915	2,338,101	111 79
Dairy cattle, total	65,851	56.0	778,951	59,401,153	76 26
Calves under 1 year of age	28,287	24.0	150,119	3,585,355	23 88
Heifers 1 year old and under 2 years	19,986	17.0	111,543	5,481,934	49 15
Cows and heifers 2 years old and over	63,617	54.1	502,415	48,405,803	96 35
Bulls 1 year old and over	11,027	9.4	14,874	1,928,001	129 62
Sheep, total	7,175	6.1	2,400,151	25,906,445	10 79
Lambs under 1 year of age	4,751	4.0	616,551	4,503,815	7 30
Ewes 1 year old and over	5,917	5.0	1,616,709	19,142,621	11 84
Rams 1 year old and over	3,721	3.2	62,920	1,304,421	20 73
Wethers 1 year old and over	1,346	1.1	103,971	955,588	9 19
Goats, total	5,197	4.4	115,759	1,130,035	9 76
Kids under 1 year of age, raised for fleeces	648	0.6	20,578	89,408	4 34
Goats 1 year old and over, raised for fleeces	971	0.8	58,640	378,992	6 46
All other goats	4,279	3.6	36,541	651,635	18 11
Swine, total	49,858	42.4	909,272	13,850,907	15 23
Pigs under 6 months old	31,718	27.0	452,856	3,454,594	7 63
Sows and gilts for breeding, 6 months old and over	25,953	22.0	138,863	4,436,606	31 15
Boars for breeding, 6 months old and over	9,209	7.8	13,581	698,245	55 50
All other hogs, 6 months old and over	24,315	20.7	304,967	5,261,472	17 25

Sheep on Farms, 1920 and 1910; Goats on Farms, 1920; and Wool and Mohair Produced, 1919 and 1909.

Item	Farms reporting	Number of sheep or goats on hand	Wool (or mohair) produced		
			Number of animals shorn	Weight (pounds)	Value
Sheep on farms January 1, 1920, total	7,175	2,400,151			
On farms reporting wool	4,170	2,047,388			
On farms not reporting wool	3,005	352,763			
Sheep of shearing age ¹ on farms April 15, 1910	3,546	1,525,288			
Wool produced, as reported, total, 1919	4,280		1,956,043	13,153,030	\$5,762,356
On farms reporting sheep	4,170		1,932,210	12,982,331	5,686,204
On farms not reporting sheep	110		23,833	170,699	76,152
Total production of wool, including estimates—					
1919				15,216,957	6,695,461
1909				14,064,703	2,423,946
Increase, 1909-1919				1,152,254	4,271,515
Per cent of increase				8.2	176.2
Goats raised for fleeces, on farms Jan. 1, 1920	1,099	79,218			
Mohair produced, as reported, total—					
1919	695		67,796	220,179	110,160
1909	367			282,596	60,821

¹Sheep born before January 1, 1910.

Selected Classes of Domestic Animals on Farms, 1920 and 1910.

Class	Number		Increase ¹	
	1920 (Jan. 1)	1910 (Apr. 15)	Number	Per cent
Horses:				
Total, excluding spring colts reported for 1910.....	402,407	2445,849	-43,442	-9.7
Colts under 1 year old on January 1 of census year.....	18,259	41,927	-23,668	-56.5
Horses 1 year old and over on January 1 of census year.....	384,148	402,584	-18,436	-4.6
Mules:				
Total, excluding spring colts reported for 1910.....	63,419	66,910	-3,491	-5.2
Mule colts under 1 year old on January 1 of census year.....	4,868	4,913	-45	-0.9
Mules 1 year old and over on January 1 of census year.....	58,551	61,997	-3,446	-5.6
Cattle:				
Total, excluding spring calves reported for 1910.....	2,008,037	21,809,226	198,811	11.0
Calves under 1 year old on January 1 of census year.....	392,434	382,208	10,226	2.7
Cows and heifers 1 year old and over on January 1 of census year.....	1,189,237	1,044,241	144,996	13.9
Steers and bulls 1 year old and over on January 1 of census year.....	426,366	321,984	104,382	32.4
Sheep:				
Total, excluding spring lambs reported for 1910.....	2,400,151	1,525,288	874,863	57.4

¹A minus sign (-) denotes decrease.²Includes animals not classified.

Domestic Animals Not on Farms, 1920 and 1910.

Class	Inclosures reporting		Animals			
	1920 (Jan. 1)	1910 (Apr. 15)	Number		Increase ¹	
			1920 (Jan. 1)	1910 (Apr. 15)	Number	Per cent
Total.....	34,158	56,987				
Horses	15,965	45,708	45,608	132,521	-86,913	-65.6
Horses 1 year old and over on January 1 of census year.....			45,057	130,263	-85,206	-65.4
Mules	1,110	1,519	7,713	10,612	-2,894	-27.3
Mules 1 year old and over on January 1 of census year.....			7,476	10,449	-2,973	-28.5
Asses and burros	287	449	768	1,057	-289	-27.3
Cattle	14,904	21,323	46,547	46,176	371	0.8
Cattle 1 year old and over on January 1 of census year.....			39,994	35,638	4,356	12.2
Sheep	478	214	38,480	64,631	-26,151	-40.5
Goats	7,145	1,477	18,393	7,113	11,280	158.6
Swine	6,061	1,506	33,381	12,168	21,213	174.3

¹A minus sign (-) denotes decrease.

Total Number of Domestic Animals, 1920.

Class	Total	On farms	Not on farms
Horses	448,015	402,407	45,608
Horses 2 years old and over.....	407,939	363,906	44,133
Mules	71,137	63,419	7,718
Mules 2 years old and over.....	59,517	52,461	7,056
Asses and burros.....	3,033	2,265	768
Cattle	2,054,584	2,008,037	46,547
Beef cattle.....	1,249,032	1,229,086	19,946
Dairy cattle.....	805,552	778,951	26,601
Dairy cows.....	521,855	502,415	19,440
Sheep	2,438,631	2,400,151	38,480
Goats	134,152	115,759	18,393
Swine	942,653	909,272	33,381

Live Stock on California Farms and Ranges By Counties and Live-Stock Products, Census 1920.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	Del Norte
<i>Domestic Animals, 1920.</i>									
Farms reporting domestic animals, number.....	99,631	2,214	20	452	1,786	576	704	1,461	129
Value of all domestic animals, dollars.....	204,378,445	3,883,412	95,169	1,248,462	3,145,825	1,566,760	2,218,252	3,181,791	412,549
Horses:									
Total number.....	402,407	8,841	169	1,826	6,253	2,458	3,812	8,418	435
Colts under 1 year of age.....	18,259	385	12	61	236	132	282	383	8
Cows 1 year old and under 2 years.....	20,342	399	18	75	232	176	169	455	16
Mares 2 years old and over.....	176,175	4,975	56	875	2,475	1,113	1,916	3,928	214
geldings 2 years old and over.....	185,363	3,955	81	834	3,280	1,026	1,435	3,649	189
Stallions 2 years old and over.....	2,298	36	2	11	30	11	19	43	8
Total value, dollars.....	35,419,567	868,301	13,450	123,065	559,792	133,365	263,773	781,574	41,889
Mules:									
Total number.....	63,419	131	3	118	1,220	91	2,378	423	7
Mule colts under 1 year of age.....	4,868	5	1	79	29	216	216	40	1
Mule colts 1 year old and under 2 years.....	6,090	9	2	17	146	24	305	31	1
Mules 2 years old and over.....	52,461	117	1	100	995	38	1,857	352	6
Total value, dollars.....	7,221,930	13,265	115	10,289	149,776	4,445	288,413	43,948	759
Asses and burros:									
Total number.....	2,265	5	1	1	49	37	9	3	5
Total value, dollars.....	171,175	75	-----	250	3,201	510	450	910	500
Cattle:									
Total number.....	2,008,037	36,781	1,457	19,476	31,409	22,541	15,065	98,564	7,087
Total value, dollars.....	120,681,416	2,548,776	76,990	919,678	1,657,456	1,052,763	776,754	1,815,094	356,125
Beef cattle—									
Total number.....	1,829,086	19,317	1,147	17,591	21,879	21,214	10,484	12,772	785
Calves under 1 year of age.....	242,915	5,247	345	3,318	4,318	4,088	2,921	2,710	167
Heifers 1 year old and under 2 years.....	134,220	1,976	170	1,632	2,433	2,594	1,218	1,547	132
Cows and heifers 2 years old and over.....	441,059	7,106	396	7,497	9,372	8,885	4,070	4,718	186
Steers 1 year old and under 2 years.....	158,310	2,256	120	1,773	2,755	1,987	1,024	1,865	163
Steers 2 years old and over.....	232,267	2,406	96	3,009	2,420	2,753	1,099	1,680	134
Bulls 1 year old and over.....	29,1915	356	20	272	321	297	152	292	13
Total value, dollars.....	61,289,293	959,582	56,855	759,045	1,021,938	976,874	483,485	715,255	333,954
Dairy cattle—									
Total number.....	778,951	17,434	310	1,975	9,530	1,327	4,521	15,792	6,302
Calves under 1 year of age.....	159,119	3,295	91	437	1,974	314	1,032	3,492	1,300
Heifers 1 year old and under 2 years.....	111,543	2,469	29	223	1,431	125	615	2,161	900
Cows and heifers 2 years old and over.....	502,415	11,803	186	1,276	5,951	854	2,794	9,925	3,964
Bulls 1 year old and over.....	14,874	957	39	39	171	34	80	284	116
Total value, dollars.....	59,401,153	1,580,194	20,135	160,033	636,418	75,829	293,319	1,069,839	322,171
Sheep:									
Total number.....	2,400,151	25,812	335	9,964	46,696	24,792	51,948	27,068	655
Lambs under 1 year of age.....	616,551	5,422	188	1,768	10,198	4,290	9,832	5,721	240
Ewes 1 year old and over.....	1,616,769	18,555	141	7,574	34,811	18,511	39,235	20,783	381
Rams 1 year old and over.....	62,929	412	12	155	1,139	250	1,052	433	14
Wethers 1 year old and over.....	103,971	1,423	14	467	531	1,531	1,829	175	20
Total value, dollars.....	25,906,445	291,231	2,899	92,571	464,092	258,369	557,889	303,728	4,291

Goals:	115,759	467	5	4,518	875	133	210	1
Total number	20,578	19		286	161			
Kids under 1 year of age, raised for fleeces	58,640	100		2,869	505	27	6	
Goats 1 year old and over, raised for fleeces	36,541	348		721	200	94		
All other goats and kids	1,130,085	6,182	20	23,459	8,629	4,482	3,022	5
Total value, dollars	909,272	9,171	128	5,648	21,040	28,511	14,415	805
Swine:	462,856	4,849	43	2,788	8,772	10,166	7,405	465
Total number	138,808	1,284	13	809	2,933	10,562	7,405	465
Pigs under 6 months old	12,581	143	3	90	274	92	211	108
Sows and gilts for breeding, 6 months old and over	304,967	2,945	69	1,961	9,051	9,143	4,541	220
All other hogs, 6 months old and over	13,850,907	155,672	1,686	79,753	311,879	68,328	233,514	9,059
Total value, dollars	10,426,618	307,062	767	22,443	109,815	50,340	127,436	4,662
Other poultry, number	384,535	17,811	24	1,388	6,903	9,180	9,092	132
Value of all poultry, dollars	450,329	480,339	881	26,120	146,886	98,228	178,618	8,788
Bees, number of hives	180,719	586	2	374	2,789	1,324	795	147
Total value, dollars	1,469,447	4,179	18	1,294	25,305	11,713	5,201	331
<i>Poultry and Bees, 1920.</i>								
<i>Live Stock Products, 1919.</i>								
Dairy products:	231,922,406	5,996,615	108,087	494,795	2,756,464	1,765,816	3,991,606	1,994,318
Milk produced (as reported), gallons	77,988,382	4,106,844	3,125	51,085	241,698	84,821	86,221	2,027,372
Milk sold, gallons	3,116,736	106,887	21,535	10,849	49,397	8,600	52,199	98,102
Cream sold, gallons	37,618,426	152,978	3,428	68,973	433,519	4,766	145,785	195,598
Butter fat sold, pounds	5,787,769	103,089	140	28,866	87,415	32,235	44,380	29,091
Butter made on farms, pounds	1,381,986	24,608		9,729	19,894	11,511	20,217	27,568
Butter sold, pounds	2,345,672	5,034		8,551	11,620	12,635	2,755	791
Cheese made on farms, pounds	55,642,649	1,473,896	29,829	90,939	465,744	48,838	270,002	563,990
Value of dairy products, 1 dollar	52,909,964	1,438,316	29,755	78,777	427,677	31,001	212,492	562,282
Receipts from sale of dairy products, dollars	536	317	640	428	325	468	464	505
Average production of milk per dairy cow, gallons	57,659,313	2,392,396	6,392	92,148	523,764	188,591	808,819	16,050
Eggs and chickens:	44,761,823	2,118,882	1,719	47,383	293,267	83,344	638,620	7,892
Eggs produced (as reported), dozens	9,267,144	284,902	373	17,022	99,988	24,137	46,244	3,178
Figs sold, dozens	4,357,376	134,613	62	5,600	33,845	11,360	17,378	1,324
Chickens raised (as reported), number	34,727,985	1,200,047	3,335	59,814	322,445	49,558	316,517	8,040
Chickens sold, number	25,156,986	1,052,930	873	27,141	137,896	62,301	285,683	3,815
Value of chickens and eggs produced, dollars	5,591,738	7,269		6,538	146,167	59,591	135,500	787
Receipts from sale of chickens and eggs, dollars	106,796	90	22	2,214	90	1,401	299	10
Honey and wax:	1,141,999	1,489		1,317	30,096	761	2,791	161
Honey produced, pounds	1,956,045	25,117	388	5,376	42,194	17,908	97,205	693
Wax produced, pounds	13,183,030	167,609	2,390	40,093	257,265	83,685	323,332	3,924
Value of honey and wax, dollars	5,762,356	62,119	1,091	18,440	100,772	35,828	138,596	1,850
Wool and mohair:	67,798	80		2,513	552	4,408	46	8
Sheep shorn, number	220,179	900		7,585	1,426	10,274	187	40
Wool produced (as reported), pounds	110,160	100		4,258	720	87	19	
Value of wool, cream, and butter fat sold, and of butter and cheese made on farms								

Live Stock on California Farms and Ranges by Counties and Ranges and Live-Stock Products, Census 1920—Continued.

	El Dorado	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen
<i>Domestic Animals, 1920.</i>										
Farms reporting domestic animals, number.....	676	8,095	1,203	1,708	2,570	481	1,817	2,031	688	570
Value of all domestic animals, number.....	1,129,426	10,658,635	3,792,519	6,305,820	7,579,711	2,523,140	9,451,397	4,419,773	854,001	4,125,032
Horses:										
Total number.....	2,103	24,839	4,776	5,928	11,027	3,682	10,885	8,614	2,138	8,290
Colts under 1 year of age.....	67	833	253	116	635	265	780	488	70	967
Colts 1 year old and under 2 years.....	77	910	310	195	706	272	706	540	70	881
Mares 2 years old and over.....	951	10,968	2,173	2,677	4,486	1,601	4,612	3,825	1,065	3,676
Colleges 2 years old and over.....	996	12,103	2,010	2,891	5,691	1,516	4,710	3,724	891	2,694
Stallions 2 years old and over.....	12	70	30	46	49	28	77	37	14	102
Total value, dollars.....	150,290	2,253,144	386,272	614,105	1,106,512	300,277	820,365	730,103	158,847	480,167
Mules:										
Total number.....	106	5,139	2,028	336	3,941	448	2,719	1,628	172	709
Mule colts under 1 year of age.....	7	129	46	16	234	52	293	208	17	140
Mule colts 1 year old and under 2 years.....	8	393	19	19	553	104	309	214	11	119
Mules 2 years old and over.....	91	4,447	1,714	271	3,627	292	2,116	1,306	144	450
Total value, dollars.....	9,265	664,549	213,129	25,289	485,886	35,874	290,184	167,842	15,250	56,316
Asses and burros:										
Total number.....	21	112	16	73	22	41	189	18	11	91
Total value, dollars.....	295	10,216	4,155	2,335	2,121	1,425	11,239	1,140	250	8,125
Cattle:										
Total number.....	15,977	81,178	28,412	61,313	66,377	25,453	131,265	41,863	10,566	40,613
Total value, dollars.....	770,535	4,282,957	1,451,473	4,774,919	4,785,582	1,579,523	6,355,792	2,542,043	454,183	2,208,947
Beef cattle—										
Total number.....	12,097	44,103	14,784	29,818	23,212	21,760	119,505	11,929	7,524	35,919
Calves under 1 year of age.....	2,973	7,234	2,909	7,294	2,901	3,849	16,054	2,070	2,124	8,474
Heifers 1 year old and under 2 years.....	1,601	5,343	1,375	3,524	1,028	2,259	6,745	1,389	955	4,491
Cows and heifers 2 years old and over.....	4,398	18,376	5,584	9,536	5,480	6,757	43,524	3,319	2,474	12,950
Stewers 1 year old and under 2 years.....	1,626	6,061	1,614	3,270	6,217	5,359	10,772	2,987	1,072	5,395
Stewers 2 years old and over.....	1,315	5,426	1,614	5,468	7,101	3,317	40,785	2,745	787	3,981
Bulls 1 year old and over.....	184	963	248	726	395	330	1,625	110	112	492
Total value, dollars.....	529,425	1,844,269	817,184	1,522,938	1,336,736	1,268,181	5,691,332	591,378	285,548	1,915,872
Dairy cattle—										
Total number.....	3,880	37,073	8,628	34,495	43,165	3,693	11,760	29,943	3,042	4,724
Calves under 1 year of age.....	829	6,771	1,810	5,640	10,963	1,072	2,879	5,783	703	1,280
Heifers 1 year old and under 2 years.....	612	6,334	1,139	4,046	7,100	783	1,933	5,457	390	607
Cows and heifers 2 years old and over.....	2,368	23,220	5,487	24,162	24,434	1,770	6,674	18,063	1,900	2,743
Bulls 1 year old and over.....	71	618	188	738	68	234	610	94	94	94
Total value, dollars.....	241,110	2,538,688	634,289	3,232,011	3,448,856	321,342	754,460	1,850,065	168,640	323,075
Sheep:										
Total number.....	10,985	232,612	136,862	56,153	60,176	43,542	147,719	41,605	14,880	92,961
Lambs under 1 year of age.....	2,150	52,503	31,003	15,795	19,769	13,361	33,180	13,261	3,616	29,016
Ewes 1 year old and over.....	8,809	146,851	101,295	38,320	38,320	30,631	105,291	25,075	9,067	61,426
Rams 1 year old and over.....	103	25,273	2,348	1,314	1,351	1,382	1,382	1,442	1,442	1,442
Wethers 1 year old and over.....	223	6,985	2,146	6,350	746	1,237	6,956	1,700	2,049	1,077
Total value, dollars.....	103,563	2,644,262	1,340,020	639,188	487,332	515,521	1,548,995	458,138	125,373	1,225,590

Live Stock on California Farms and Ranges by Counties and Live-Stock Products, Census 1920—Continued.

	Los Angeles	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa
<i>Domestic Animals, 1920.</i>										
Farms reporting domestic animals, number	8,506	1,265	642	341	1,658	2,703	707	67	1,605	1,276
Value of all domestic animals, dollars	8,639,944	2,909,851	3,068,990	859,629	3,152,852	10,906,229	4,244,765	556,032	5,732,275	1,641,949
<i>Horses:</i>										
Total number	19,731	4,856	2,778	1,561	5,562	15,754	9,889	504	13,292	3,845
Colts under 1 year of age	690	196	81	58	176	1,086	995	46	692	184
Colts 1 year old and under 2 years	621	256	126	64	211	681	1,084	29	825	135
Mares 1 year old and over	7,053	2,246	1,030	645	2,608	6,768	4,420	242	5,528	1,737
Geldings 2 years old and over	11,177	2,140	1,538	787	2,518	7,271	3,287	182	6,185	1,839
Stallions 2 years old and over	190	18	5	7	49	48	103	5	61	20
Total value, dollars	2,060,149	3,829,968	253,459	96,844	421,129	1,943,782	478,411	87,300	1,036,990	838,995
<i>Mules:</i>										
Total number	3,826	1,981	59	323	431	2,471	709	52	1,113	307
Mule colts under 1 year of age	126	57	40	15	15	270	181	5	353	12
Mule colts 1 year old and under 2 years	163	174	84	84	84	408	163	4	126	31
Mares 2 years old and over	3,539	1,750	59	199	382	1,798	365	43	634	204
Total value, dollars	514,117	208,471	7,740	27,585	35,870	261,000	46,267	5,850	73,904	30,490
<i>Asses and burros:</i>										
Total number	174	33	---	84	39	27	107	25	14	17
Total value, dollars	12,355	2,360	---	2,049	801	3,125	7,697	530	2,115	920
<i>Cattle:</i>										
Total number	54,443	31,740	36,047	11,651	32,870	129,888	47,828	1,746	75,075	16,237
Total value, dollars	4,690,852	1,944,906	2,342,697	561,067	1,584,636	7,850,040	2,320,377	100,941	4,196,353	958,086
<i>Beef cattle—</i>										
Total number	19,205	23,662	860	11,339	22,519	80,427	44,072	1,461	52,862	9,116
Calves under 1 year of age	3,191	4,378	133	2,341	5,276	17,200	10,114	304	10,549	2,012
Heifers 1 year old and under 2 years	2,393	2,787	63	1,256	2,870	9,192	5,893	190	6,069	872
Cows and heifers 2 years old and over	7,752	10,265	133	4,690	8,458	31,398	16,879	549	16,844	2,983
Sters 1 year old and under 2 years	1,965	2,441	147	1,065	1,809	6,242	3,242	156	7,944	1,586
Sters 2 years old and over	3,598	3,088	363	1,889	3,019	5,809	3,775	231	10,654	1,540
Bulls 1 year old and over	306	419	21	208	455	1,234	1,169	31	802	123
Total value, dollars	1,069,040	1,243,354	45,510	544,191	973,453	3,972,497	2,077,122	84,218	2,567,122	427,935
<i>Dairy cattle—</i>										
Total number	35,238	8,078	35,187	262	10,351	49,461	3,756	285	22,213	7,141
Calves under 1 year of age	5,899	1,744	5,255	45	2,113	8,090	975	83	4,051	1,316
Heifers 1 year old and under 2 years	4,540	922	4,421	17	1,290	8,848	487	38	2,753	874
Cows and heifers 2 years old and over	24,211	5,296	24,797	198	6,806	31,640	2,248	160	14,977	4,834
Bulls 1 year old and over	678	126	714	2	232	883	46	4	429	117
Total value, dollars	3,631,812	701,352	2,297,137	16,876	561,183	3,877,513	243,061	16,723	1,629,331	531,151
<i>Sheep:</i>										
Total number	26,207	14,185	10,207	5,461	90,918	85,005	108,062	30,955	10,829	16,500
Lambs under 1 year of age	13,650	4,809	2,600	617	25,398	24,114	20,252	9,597	3,304	3,222
Ewes 1 year old and over	12,964	8,538	7,989	4,817	56,754	49,905	85,450	20,138	7,148	11,725
Rams 1 year old and over	177	258	130	15	1,640	1,727	1,342	339	1,56	1,249
Wethers 1 year old and over	102	580	8	15	16,156	9,259	221	221	304	304
Total value, dollars	278,406	120,361	107,288	53,154	873,341	886,150	1,338,365	404,363	110,340	171,454

Goats:	4,751	1,088	665	3,792	4,703	4,826	448	55	1,359	1,357
Total number	4,751	1,088	665	3,792	4,703	4,826	448	55	1,359	1,357
Kids under 1 year of age, raised for fleeces	33	120	8	510	759	532	127	3	337	350
Goats 1 year old and over, raised for fleeces	142	298	3	1,122	3,456	3,908	307	3	687	682
All other goats and kids	4,576	680	654	2,160	488	386	14	14	275	295
Total value, dollars	260,107	7,489	6,181	22,201	29,054	37,097	3,214	186	8,780	11,861
Swine:										
Total number	38,768	15,132	23,780	8,378	24,061	35,621	4,858	308	23,286	8,511
Pigs under 6 months old	21,291	8,093	12,797	3,265	10,581	18,716	2,812	75	11,064	3,720
Sows and gilts for breeding, 6 months old and over	7,111	2,694	3,752	1,491	4,578	4,968	640	39	3,399	1,213
Pigs for breeding, 6 months old and over	663	227	336	86	353	522	66	9	222	133
All other hogs, 6 months old and over	9,703	4,178	6,895	3,436	8,609	11,415	1,340	245	8,001	3,475
Total value, dollars	803,918	243,303	351,654	96,729	283,971	385,035	49,334	6,822	303,963	134,143

Poultry and Bees, 1920.

Chickens, number	1,307,976	58,463	195,712	10,362	88,144	166,959	22,555	2,282	101,514	123,585
Other poultry, number	42,596	3,483	3,425	1,246	5,096	7,014	1,233	445	4,908	5,679
Value of all poultry, dollars	2,351,386	81,667	244,587	15,363	117,405	221,515	24,879	3,863	123,512	178,693
Bees, number of hives	18,817	919	75	67	1,068	6,568	1,069	100	3,224	544
Total value, dollars	145,147	7,713	844	524	5,430	46,394	6,114	883	26,088	4,867

Live-Stock Products, 1919.

Dairy products:	13,287,769	1,324,067	8,307,368	72,909	2,705,122	17,332,074	1,193,218	54,335	7,422,457	1,907,023
Milk produced (as reported), gallons	9,940,522	247,076	2,831,416	1,393	967,074	5,719,187	29,769	9,605	5,622,956	712,482
Milk sold, gallons	48,321	12,737	333,348	20	40,558	18,395	24,891	1,360	38,333	44,086
Cream sold, gallons	896,621	615,650	1,451,317	205	316,959	3,819,337	223,414	70	217,213	53,385
Butter fat sold, pounds	301,820	75,988	68,653	12,891	192,429	55,182	70,594	6,238	63,740	80,168
Butter made on farms, pounds	70,233	5,941	23,307	1,490	85,276	22,568	19,319	2,735	14,345	27,414
Butter sold, pounds	4,543	1,817	31,298	160	9,563	2,195	130	---	538,889	13,403
Cheese made on farms, pounds	4,912,896	523,237	2,665,016	7,265	597,718	3,842,243	214,305	10,895	1,817,210	395,303
Value of dairy products, dollars	4,786,139	477,847	2,283,193	1,516	533,376	3,822,566	186,692	9,202	1,615,125	288,690
Receipts from sale of dairy products, dollars	634	538	401	250	430	609	465	298	532	472
Average production of milk per dairy cow, gallons:										
Eggs and chickens:	7,793,395	173,330	1,093,172	50,591	421,224	753,476	123,518	9,281	563,257	643,335
Eggs produced (as reported), dozens	6,852,998	90,880	1,028,358	11,882	241,023	482,790	31,325	4,201	381,236	408,080
Eggs sold, dozens	1,246,032	44,088	8,874	76,305	26,941	112,985	65,618	2,301	65,618	121,547
Chickens raised (as reported), number	597,097	26,564	70,850	35,317	49,723	49,723	7,002	469	25,871	55,763
Chickens sold, number	4,624,789	131,550	604,841	33,575	237,135	450,154	74,778	6,136	302,680	404,823
Value of chickens and eggs produced, dollars	3,670,913	72,065	524,776	8,184	132,247	262,826	19,162	2,408	191,860	236,190
Receipts from sale of chickens and eggs, dollars										
Honey and wax:	519,019	22,668	3,920	2,670	10,055	110,256	30,441	3,712	126,763	9,054
Honey produced, pounds	108,076	525	41	40	138	2,388	467	20	1,740	153
Wax produced, pounds		4,739	800	550	2,065	22,982	6,270	750	26,032	1,871
Value of honey and wax, dollars										
Wool and mohair:	19,993	11,819	6,117	2,056	95,680	64,766	77,031	21,154	8,356	16,379
Wool shorn, number	162,184	65,510	39,287	10,314	631,645	457,319	572,624	177,894	66,614	102,824
Sheep produced (as reported), pounds	69,891	26,544	16,083	4,384	325,090	161,403	284,181	87,570	22,726	47,738
Value, dollars	130	307	11	829	3,817	4,014	381	7	1,338	790
Goats shorn, number	491	413	36	1,570	11,593	13,516	1,519	25	2,923	8,251
Mohair produced (as reported), pounds	268	168	18	637	7,032	6,375	779	12	1,459	1,542
Value, dollars										

Value of milk, cream, and butter fat sold, and of butter and cheese made on farms.

Live Stock on California Farms and Ranges by Counties and Live-Stock Products, Census 1920—Continued.

	Nevada	Orange	Placer	Plumas	Riverside	Sacra- mento	San Benito	San Ber- nardino	San Diego	San Fran- cisco
<i>Domestic Animals, 1920.</i>										
Farms reporting domestic animals, number.....	449	2,858	1,176	148	3,019	2,610	830	2,419	2,463	38
Value of all domestic animals, dollars.....	712,726	2,703,961	1,162,660	743,316	2,943,040	3,993,355	2,630,376	2,650,721	3,871,407	22,272
Horses:										
Total number.....	1,923	7,955	3,832	1,985	10,035	11,019	5,219	6,819	9,739	105
Colts under 1 year of age.....	44	156	90	106	362	339	218	249	471	1
Colts 1 year old and under 2 years.....	80	204	115	115	439	370	347	240	378	2
Mares 2 years old and over.....	727	2,788	1,873	326	4,111	5,188	2,710	4,406	4,406	31
Geldings 2 years old and over.....	667	4,170	1,759	587	5,063	5,060	2,062	4,194	4,194	68
Stallions 2 years old and over.....	5	37	15	11	60	52	34	60	85	3
Total value, dollars.....	107,888	930,619	366,163	118,522	998,123	1,046,598	418,069	773,120	795,418	8,889
Mules:										
Total number.....	24	2,919	320	21	2,913	743	110	1,300	1,296	---
Mule colts under 1 year of age.....	---	44	23	2	152	42	9	61	63	---
Mule colts 1 year old and under 2 years.....	2	140	25	5	325	48	20	88	76	---
Mules 2 years old and over.....	22	2,735	272	14	2,496	653	81	1,151	1,067	---
Total value, dollars.....	2,130	498,985	28,065	1,355	315,302	74,921	10,185	161,636	138,501	---
Asses and burros:										
Total number.....	93	13	11	---	118	11	14	59	130	---
Total value, dollars.....	335	3,637	377	---	6,883	345	430	1,720	8,427	---
Cattle:										
Total number.....	9,747	15,070	7,637	10,167	18,812	32,022	33,097	20,498	46,548	254
Total value, dollars.....	421,239	1,130,755	486,872	546,812	1,292,018	2,153,189	1,953,397	1,221,741	2,327,723	11,164
Beef cattle—										
Total number.....	6,789	9,113	4,307	6,322	10,607	13,327	27,928	12,800	34,644	---
Calves under 1 year of age.....	1,739	1,188	1,069	1,694	1,697	2,827	6,136	2,351	6,367	---
Heifers 1 year old and under 2 years.....	483	1,906	766	766	1,295	1,765	3,820	1,857	3,940	---
Cows and heifers 2 years old and over.....	2,660	2,612	1,859	2,180	3,416	4,325	9,587	5,960	10,398	---
Steers 1 year old and under 2 years.....	582	2,195	688	790	1,059	1,642	3,178	1,307	5,451	---
Steers 2 years old and over.....	174	1,548	279	913	2,100	2,692	4,591	1,128	7,948	---
Bulls 1 year old and over.....	---	984	84	79	168	146	616	987	540	---
Total value, dollars.....	267,929	555,304	198,213	320,246	536,193	739,443	1,515,018	550,323	1,601,842	---
Dairy cattle—										
Total number.....	2,958	5,957	3,330	3,845	8,205	18,695	5,169	7,698	11,904	254
Calves under 1 year of age.....	615	886	814	1,170	1,701	3,484	962	1,377	2,371	26
Heifers 1 year old and under 2 years.....	389	962	395	625	1,257	2,276	708	1,372	2,078	16
Cows and heifers 2 years old and over.....	1,882	4,014	2,056	1,987	5,108	12,619	3,395	4,714	7,224	209
Bulls 1 year old and over.....	72	95	65	63	139	356	84	145	231	4
Total value, dollars.....	153,310	575,451	238,599	226,566	665,825	1,413,746	418,379	671,218	925,881	11,164
Sheep:										
Total number.....	11,475	23,829	4,395	4,395	13,964	42,637	14,875	3,919	7,311	4
Lambs under 1 year of age.....	2,389	89	4,951	1,057	4,070	8,742	2,833	1,042	2,497	---
Ewes 1 year old and over.....	8,902	182	3,246	3,246	9,971	31,637	9,538	2,763	4,640	---
Rams 1 year old and over.....	177	443	86	86	110	611	129	60	85	---
Wethers 1 year old and over.....	97	312	6	6	713	1,647	2,355	54	39	---
Total value, dollars.....	126,659	1,449	238,452	57,366	130,570	476,084	138,681	33,476	60,784	50

Live Stock on California Farms and Ranges by Counties and Live-Stock Products, Census 1920—Continued.

	San Joaquin	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano
<i>Domestic Animals, 1920.</i>										
Farms reporting domestic animals, number.....	4,093	1,701	583	1,361	3,797	1,404	912	73	986	1,242
Value of all domestic animals, dollars.....	6,923,386	6,264,669	1,135,378	4,492,046	4,508,615	924,900	2,736,264	604,407	3,734,102	3,657,870
Horses:										
Total number.....	18,050	11,820	2,469	10,652	10,305	2,445	4,505	822	7,676	5,891
Colts under 1 year of age.....	693	407	66	483	279	42	296	54	352	174
Colts 1 year old and under 2 years.....	870	760	91	614	270	74	236	67	654	273
Mares 2 years old and over.....	8,057	5,344	974	4,858	4,232	1,751	2,045	376	3,493	2,839
Geldings 2 years old and over.....	8,361	5,246	1,360	4,626	5,421	1,568	1,889	319	2,921	2,575
Stallions 2 years old and over.....	69	63	33	41	43	10	39	6	36	25
Total value, dollars.....	1,684,634	1,039,506	217,665	1,151,349	1,044,790	306,164	271,659	82,670	485,239	583,666
Mules:										
Total number.....	1,885	767	46	598	225	77	297	27	399	1,161
Mule colts under 1 year of age.....	248	73	14	14	4	4	30	66	66	89
Mule colts 1 year old and under 2 years.....	277	154	48	48	27	1	44	6	44	91
Mules 2 years old and over.....	1,360	540	46	586	194	76	220	21	289	984
Total value, dollars.....	197,884	68,661	3,945	80,057	25,181	5,850	21,442	2,475	28,293	138,522
Asses and burros:										
Total number.....	50	21	19	16	6	5	52	7	49	7
Total value, dollars.....	7,495	1,095	475	2,822	550	190	23,340	320	3,490	525
Cattle:										
Total number.....	46,256	88,677	12,010	46,094	43,389	8,168	39,142	7,328	52,640	92,439
Total value, dollars.....	3,755,669	4,790,734	761,556	2,643,924	3,223,281	481,876	1,869,878	440,281	2,886,586	1,548,265
Beef cattle—										
Total number.....	14,329	62,311	1,051	39,951	25,176	5,991	36,477	4,811	42,204	10,542
Calves under 1 year of age.....	2,941	12,351	243	5,424	3,874	845	9,193	1,414	9,946	2,288
Heifers 1 year old and under 2 years.....	1,599	6,323	101	4,172	2,112	404	4,129	537	5,814	1,387
Cows and heifers 2 years old and over.....	5,713	17,960	359	12,094	8,059	315	13,953	1,632	15,626	4,161
Steers 1 year old and under 2 years.....	1,422	9,670	174	5,701	3,810	465	4,071	896	5,386	1,511
Steers 2 years old and over.....	2,429	15,184	144	11,876	7,408	281	4,515	975	4,790	1,035
Bulls 1 year old and over.....	225	823	30	684	413	91	616	47	672	210
Total value, dollars.....	812,659	3,105,407	47,372	2,107,362	1,532,229	142,498	1,713,583	273,121	2,068,835	602,597
Dairy cattle—										
Total number.....	31,927	26,366	10,969	8,143	17,213	5,177	2,665	2,517	11,426	12,897
Calves under 1 year of age.....	5,745	5,178	2,065	1,800	2,840	1,063	676	464	2,302	2,398
Heifers 1 year old and under 2 years.....	4,204	3,331	1,700	1,066	2,600	732	340	416	1,379	1,864
Cows and heifers 2 years old and over.....	21,246	17,380	6,926	5,205	12,070	3,342	1,571	1,695	7,359	8,421
Bulls 1 year old and over.....	732	477	268	132	303	100	78	32	196	224
Total value, dollars.....	2,942,950	1,685,327	714,184	536,562	1,691,652	389,378	146,345	167,160	739,751	945,668
Sheep:										
Total number.....	68,874	11,609	1,060	31,741	531	2,061	23,258	3,653	19,033	98,660
Lambs under 1 year of age.....	21,854	3,542	177	11,521	84	541	4,347	416	1,992	27,394
Ewes 1 year old and over.....	45,027	6,250	880	14,384	313	1,452	16,765	3,146	16,305	73,064
Rams 1 year old and over.....	670	153	23	1,198	40	4	887	80	538	2,276
Wethers 1 year old and over.....	1,333	1,664	4	4,643	4	12	759	14	258	985
Total value, dollars.....	680,792	99,744	9,707	314,321	7,388	21,567	254,418	70,770	239,788	1,175,410

Goats:	3,409	1,923	80	15,015	371	1,685	2,292	2,552	208	427
Total number	3,409	1,923	80	15,015	371	1,685	2,292	2,552	208	427
Kids under 1 year of age, raised for fleeces	429	318	7	4,337	84	296	695	338	9	78
Goats 1 year old and over, raised for fleeces	1,851	1,102	50	10,372	274	432	1,457	1,286	103	289
All other goats and kids	1,129	503	23	1,066	13	958	138	898	96	60
Total value, dollars	32,347	14,524	843	62,091	2,620	16,442	13,141	28,973	4,865	2,097
Swine:										
Total number	22,040	26,849	11,759	20,561	6,392	61,828	3,690	8,453	26,196	5,065
Pigs under 6 months old	11,451	15,360	5,840	8,962	2,408	30,298	2,017	4,159	11,808	2,289
Sows and gilts for breeding, 6 months old and over	3,023	3,690	1,567	3,889	992	8,982	643	1,810	3,331	721
Bears for breeding, 6 months old and over	435	361	190	199	81	852	51	138	298	56
All other hogs, 6 months old and over	7,128	7,438	4,162	7,981	2,911	20,696	979	2,346	10,759	1,969
Total value, dollars	356,271	412,823	194,981	257,023	76,921	908,087	47,228	105,125	371,343	66,369
<i>Poultry and Bees, 1920.</i>										
Chickens, number	2,986,888	330,488	82,672	82,001	9,048	373,969	18,020	60,770	88,446	26,635
Other poultry, number	35,115	10,855	5,627	7,679	544	16,897	1,418	3,079	7,198	2,953
Value of all poultry, dollars	4,221,536	469,077	112,988	121,529	10,264	473,507	22,456	84,015	127,081	37,529
Bees, number of hives	994	3,485	1,397	1,655	163	6,342	280	7,272	3,168	140
Total value, dollars	9,425	26,297	9,587	9,194	918	46,744	2,074	61,414	25,503	806
<i>Live-Stock Products, 1919.</i>										
Dairy products:										
Milk produced (as reported), gallons	9,419,733	20,341,792	2,461,475	1,352,018	223,419	12,467,791	281,744	680,033	3,592,094	652,278
Milk sold, gallons	1,476,186	9,702,037	332,284	65,929	3,567	641,152	56,339	169,755	909,940	22,737
Cream sold, gallons	325,584	101,231	136,579	31,660	271	46,792	8,251	502	118,871	16,219
Butter fat sold, pounds	1,913,348	3,297,670	275,436	205,980	265,827	3,440,647	19,900	13,871	614,094	97,028
Butter made on farms, pounds	309,651	190,423	71,827	75,688	46,341	251,966	18,836	96,566	33,434	35,461
Butter sold, pounds	89,112	20,978	8,663	9,711	22,746	41,664	4,972	16,094	5,616	7,655
Cheese made on farms, pounds	48,750	113,177	49,384	284	739	13,132	575	8,347	69,543	124,459
Value of dairy products, ¹ dollars	2,145,704	4,773,362	560,478	200,602	24,783	2,764,735	56,875	125,732	737,017	124,459
Receipts from sale of dairy products, dollars	2,014,391	4,087,756	520,876	221,688	12,049	2,461,683	49,347	84,277	710,696	88,165
Average production of milk per dairy cow, gallons	458	669	534	450	437	525	343	420	576	354
Eggs and chickens:										
Eggs produced (as reported), dozens	19,654,744	1,388,135	362,042	282,580	43,514	1,442,416	72,209	275,230	500,829	106,030
Eggs sold, dozens	17,395,882	1,013,216	210,651	218,732	10,848	83,416	41,623	245,386	62,954	17,934
Chickens raised (as reported), number	2,512,179	67,293	97,403	97,403	7,692	305,267	14,738	40,477	15,940	15,940
Chickens sold, number	1,548,974	127,530	25,674	1,936	1,936	110,728	6,155	13,444	24,941	5,808
Value of chickens and eggs produced, dollars	12,380,034	753,052	212,877	254,145	24,917	850,029	46,480	179,587	277,887	58,943
Receipts from sale of chickens and eggs, dollars	10,581,232	515,933	112,591	136,628	6,221	484,219	24,739	52,921	125,388	29,096
Honey and wax:										
Honey produced, pounds	10,990	117,659	42,573	82,263	3,843	172,215	12,160	105,233	129,313	3,344
Wax produced, pounds	132	1,836	598	2,268	35	5,416	365	3,590	2,198	101
Value of honey and wax, dollars	2,249	24,248	8,748	17,549	783	36,555	2,572	22,420	26,720	708
Wool and mohair:										
Wool shorn, number	55,919	23,960	95,982	150,154	2,058	14,674	1,474	2,899	73,019	72,653
Wool produced (as reported), pounds	459,375	171,422	469,391	1,150,165	12,397	104,469	9,150	17,119	624,280	436,586
Value, dollars	293,257	66,483	200,875	620,290	6,273	36,789	3,670	8,437	295,713	193,664
Goats shorn, number	1,376	1,072	62	17,790	317	455	1,351	1,336	69	199
Mohair produced (as reported), pounds	4,159	2,180	185	70,968	1,373	1,428	3,008	4,418	239	468
Value, dollars	2,069	872	95	34,296	600	718	1,584	2,297	118	221

¹Value of milk, cream, and butter fat sold, and of butter and cheese made on farms.

Domestic Animals in California, by Counties, Not On Farms or Ranges, 1920.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	Del Norte
Inclosures reporting domestic animals-----	34,158	2,576	7	234	633	202	194	704	130
Horses, total number-----	45,608	2,802	3	174	1,008	108	338	705	108
Mules, total number-----	7,718	113	-----	10	71	3	60	63	19
Asses and burros, total number-----	7,768	5	-----	8	17	4	5	1	3
Cattle, total number-----	46,547	3,137	7	349	712	423	340	1,279	306
Dairy cows-----	19,440	1,458	4	238	410	134	157	527	134
Sheep, total number-----	38,480	3,288	2	27	61	68	38	1,298	2
Goats, total number-----	18,393	1,616	-----	15	71	53	8	534	32
Swine, total number-----	33,381	1,024	4	215	329	228	174	539	108

	El Dorado	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen
Inclosures reporting domestic animals-----	74	1,017	155	965	3,32	110	410	212	137	153
Horses, total number-----	74	1,671	349	824	918	407	642	268	169	618
Mules, total number-----	3	490	73	21	1,552	218	481	25	5	19
Asses and burros, total number-----	2	26	8	7	7	2	11	1	-----	-----
Cattle, total number-----	110	1,453	293	1,339	355	1,002	443	125	191	184
Dairy cows-----	30	849	168	804	115	162	237	102	72	71
Sheep, total number-----	29	7,144	30	172	224	31	81	5	21	10
Goats, total number-----	41	242	17	112	95	-----	97	32	11	10
Swine, total number-----	-----	1,236	238	510	1,244	201	994	113	206	515

	Los Angeles	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa
Inclosures reporting domestic animals-----	9,021	165	394	16	555	226	130	17	371	209
Horses, total number-----	8,077	129	487	24	560	316	348	38	879	204
Mules, total number-----	1,472	13	6	5	92	115	-----	2	142	5
Asses and burros, total number-----	1,102	3	1	8	10	1	1	-----	9	-----
Cattle, total number-----	11,826	171	455	24	760	322	164	17	471	240
Dairy cows-----	3,627	97	311	13	468	272	103	8	202	141
Sheep, total number-----	11,569	80	3	1	49	152	222	20	7	170
Goats, total number-----	7,742	54	187	154	77	15	-----	1	158	40
Swine, total number-----	8,853	82	186	69	466	514	111	5	703	227

Domestic Animals in California, by Counties, Not On Farms or Ranges, 1920—Continued.

	Nevada	Orange	Placer	Plumas	Riverside	Sacra- mento	San Benito	San Bernardino	San Diego	San Fran- cisco
Inclusures reporting domestic animals.....	178	790	346	101	942	727	77	1,077	1,160	1,060
Horses, total number.....	245	848	458	250	1,063	1,175	79	1,051	1,936	5,491
Mules, total number.....	2	158	169	33	230	159	2	159	237	234
Asses and burros, total number.....	12	1	20	12	43	7		51	72	100
Cattle, total number.....	190	643	607	218	793	803	80	803	867	714
Dairy cows.....	103	477	224	68	440	515	44	519	506	227
Sheep, total number.....	2	5	19	10	4	37		12	4	3,127
Goats, total number.....	38	419	133	1	404	732		556	1,180	820
Swine, total number.....	92	488	291	110	543	895	93	654	421	330

	San Joaquin	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano
Inclusures reporting domestic animals.....	637	247	682	636	1,280	615	270	41	267	379
Horses, total number.....	802	362	674	1,287	1,401	542	581	62	548	538
Mules, total number.....	347	19	2	110	7	90	146	4	72	21
Asses and burros, total number.....	4	4	2	2	3	3	4	10	22	2
Cattle, total number.....	831	418	2,372	3,197	911	676	841	50	440	415
Dairy cows.....	402	193	577	352	580	447	149	35	164	283
Sheep, total number.....	933	216	4,526	3,856	20	53	57	3	10	54
Goats, total number.....	171	29	318	202	584	159	146	11	17	58
Swine, total number.....	764	848	3,372	351	426	652	904	31	300	389

	Sonoma	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba
Inclusures reporting domestic animals.....	768	403	135	206	65	526	183	484	341	136
Horses, total number.....	973	440	288	254	65	585	289	690	529	364
Mules, total number.....	24	55	39	17	11	169	19	52	104	19
Asses and burros, total number.....	8	7		1	3	5	4	57	5	9
Cattle, total number.....	879	434	216	362	152	682	356	325	293	301
Dairy cows.....	538	326	69	140	53	422	149	195	198	100
Sheep, total number.....	200	25	8	3		86	40	30	15	30
Goats, total number.....	315	137	13	34		83	292	109	46	14
Swine, total number.....	619	193	106	70	25	338	358	192	243	169

PART IV.

POULTRY, DAIRY PRODUCTS, BEES AND HONEY.

Poultry and Eggs; Ostriches; Dairy Products, Butter, and Cheese; Production of Butter and Cheese by Counties, 1917-1920; Milk Goats; Production of Honey.

California Poultry and Egg Production, 1920.

The United States Bureau of Markets estimates 922 carloads of eggs shipped from California during 1920, half of which came from the Petaluma district and 255 carloads made up in San Francisco; Los Angeles shipped 110 cars, San Diego 15, and Santa Cruz 2. Modesto shipped its initial carlot during February, 1921, with all indications for a commercial continuance. Average quotation for year on fancy ranch eggs in San Francisco market, 61 cents per dozen, would give a total valuation of \$8,098,748 of the shipments, but California large whites brought as high as \$1.08 per dozen wholesale on the New York market during December, 1920. On the whole, eggs shipped to eastern markets returned the producers higher prices than the San Francisco market.

The Central California Poultry Producers' Association, which operates in several districts, including Petaluma, handled 460,303 cases of eggs, and Petaluma shipped 22,223,923 dozen eggs and 240,041 dozen poultry in 1920, compared with 16,047,355 dozen eggs and 115,874 dozen poultry in 1919. The Southern California Poultry Producers' Association marketed 4,103,444 dozen eggs during the year just past, valued at \$2,096,450.37.

Turkeys brought 60 cents per pound live weight during the holidays, and growers who consigned to the extremely active market were well satisfied. Preference is shown for the Imperial Valley white turkeys, and the 1920 crop returned more than \$200,000 in that territory for the 700,000 pounds, or about 30 express carloads, shipped out.

Poultry and Bees on California Farms, 1920 and 1910.

Item	Farms reporting, 1920		Number reported ¹		Value, 1920	Average value, 1920
	Number	Per cent of all farms	1920 (Jan. 1)	1910 (April 15)		
Poultry, total	92,409	78.5	10,811,183	26,087,237	\$15,298,570	\$1 41
Chickens	91,915	78.1	10,426,618	5,635,964	14,268,768	1 37
Turkeys	16,787	14.3	174,708	116,602	758,569	4 34
Ducks	6,184	5.3	61,792	40,061	96,549	1 49
Geese	3,380	2.9	14,914	14,135	40,872	2 74
Guinea fowls	1,926	1.6	8,987	2,920	9,492	1 45
Pigeons	2,849	2.4	120,986	246,065	85,040	70
Ostriches	2	^a	148	1,082	39,310	265 61
Hives of bees	8,826	7.5	180,719	201,923	1,469,447	8 12

¹The numbers of the different classes of poultry are not strictly comparable for the two censuses, since a considerable number of fowls are killed between January 1 and April 15.

²Includes small numbers of peafowls, India jungle fowls, and pheasants.

³Less than one-tenth of 1 per cent.

THE POULTRY INDUSTRY IN CALIFORNIA.*

“Two factors weigh most heavily in the location of a poultry farm: (1) nearness to good markets, (2) available supply and net cost of feed. Poultry and eggs being perishable products which must be shipped expeditiously, frequently and at low cost, favorable transportation facilities and nearness to good markets are necessary. Being located, however, in a grain growing area where grain can be bought direct from the nearby harvest fields at lowest wholesale prices will often more than offset increased distance from markets provided good rail facilities are to be had. Cooperation is a third factor that can be made to aid in offsetting the disadvantage of rather distant locations from the better markets because it makes possible the buying of feed and supplies in larger quantities at lower prices and permits marketing of finished products to better advantage.

For these reasons the poultry districts have largely developed in the more populous areas and near to the larger cities or within grain growing areas possessing favorable rail connections with the larger cities where the demand is much greater than the supply and prices good.

The Petaluma district surrounding Petaluma, Sonoma County, thirty-nine miles from San Francisco and including the towns of Santa Rosa, Sebastopol and Sonoma; the Hayward district in Alameda County, in the vicinity of the city of Hayward, twenty miles from San Francisco; the Los Angeles district embracing Los Angeles and vicinity and including the cities of Riverside, Pomona, San Gabriel, Burbank and Gardena, are examples of prosperous poultry centers that have developed primarily as a result of being near Los Angeles or San Francisco. The districts around Sacramento, Stockton, Fresno and Tulare are in grain growing areas possessed of excellent rail facilities. Poultry districts have also grown up around Santa Cruz and San Diego because these two cities are popular tourist and summer resorts.

“Poultry farming in the districts mentioned above and in the Santa Clara Valley, Napa Valley, San Mateo County, and the Sacramento Valley west of the Sacramento River and north of Benicia, as well as the area north of Sacramento, is capable of much greater development and most of these last mentioned areas will become increasingly desirable for poultry farming as the population of the state grows and lines of transportation are developed more extensively—especially in an east and west direction. Good roads and motor trucks have already begun to play a very important role in bringing the country closer to the city and making it possible for the poultry raiser to penetrate considerably further into the country where land is cheaper before getting beyond effective reach of profitable markets.

“Poultry raising requires good farming land because the green feed, at least, must be grown and because forage crops should also be raised as much as possible in the poultry yards if the soil is to be kept sweet and free from disease spreading contamination. The value of resting the land from poultry and sowing to green crops every few months is so well recognized that the use of double yards for each pen of fowls

*By J. E. Dougherty, Associate Professor of Poultry Husbandry, University of California.

is becoming more general from year to year. Alkali land and barren hillsides are entirely unsuitable.

"Fowls will do well on practically any well drained agricultural soil. The lighter, sandy and gravelly loams are preferred, however, to the heavier soil types because of a more rapid drainage of surface water and drying of the surface soil. For example, on sandy soils with good underdrainage, a heavy rain will sink into the ground about as fast as it falls, the surface will be dry enough for fowls to use the yards soon after rain ceases and such soils do not become sticky when moist. On heavy clay soils, however, rain drains away much more slowly and the surface soil remains damp and sticky for days, especially in winter. A moist, sticky soil surface adheres to the feet of the fowls. They track this wet soil into the nests and scratching pens so that scratching litter and nests quickly get dirty and damp and the percent of dirty eggs increases. Dirty, damp pens must be restrawed. Dirty eggs must be washed. Washed eggs deteriorate more rapidly than unwashed eggs and are worth less. To prevent restrawing of scratching pens and dirty eggs from this cause, fowls must be confined to houses to a greater extent on heavy than on light soils.

"The size of the average poultry farm is from five to twenty acres. A ten-acre farm can accommodate from 2,000 to 3,000 adult fowls and allow for the growing of green feed and young stock to maintain the adult flock. As high as 1,000 or more fowls per acre of yard space are kept on some commercial farms, but not more than 500 per acre is greatly to be preferred if the land is to be kept free from contamination, the stock in continued good health and a most permanent success secured. Too great crowding is unprofitable.

"Fowls are raised almost entirely for eggs and the S. C. White Leghorn is used most extensively for this purpose. Egg production has proven more successful than the production of market poultry, perhaps because eggs are in greater demand than table poultry and the margin of profit is larger.

"The money needed to make a successful start in poultry raising is rather less than for most other types of farming and it is for this reason that so many people with limited means desiring to leave industrial work and go into farming, turn to poultry. A total investment, including dwelling, of from \$5 to \$10 per laying hen is required, which would be distributed somewhat as follows: 30 per cent in land, 40 per cent in buildings and fencing and for chicken yards, etc., 20 per cent in stock, 4 per cent in equipment such as horse, plow, harrow, green feed cutter, etc., 3 per cent in feed and other supplies, 3 per cent in cash.

"The net profits or labor income will range from 50 cents to \$1.50 per laying hen, depending largely upon the knowledge and experience of the poultry raiser.

"One thousand laying hens is about as small a number as one could afford to start with if poultry must furnish the entire living. Wherever possible it is best for the beginner lacking experience to start with 100 to 300 hens as a side issue until sufficient experience is obtained to justify breaking loose from other sources of income and devoting all his efforts to poultry farming.

“With one acre for each 500 hens, one acre for the growing of green feed, one acre for dwelling, barn, garden and the raising of young stock a minimum of four acres would be needed for a 1000-hen farm. If a cow were kept and some hay raised for the horse, five acres would prove more satisfactory.

“On the basis of an investment of \$5 per hen, a 1000-hen plant would require a total capital of \$5,000, of which about \$1,500 would go into land, \$2,000 into buildings, including living quarters, \$1,000 into stock, \$200 into equipment, \$150 into feed and supplies and \$150 into ready cash. The investment in land will vary with the price paid, and the value per acre for poultry will be subject to favorableness of location and quality of soil. A location within a very short haul of a high class poultry and egg market and wholesale feed markets is worth more than another where the haul would be greater and freight and express costs higher.

“Land used for poultry farming ranges from about \$100 to more than \$500 per acre, with an average price of about \$300. Ownership predominates over tenancy among poultrymen. Suitable poultry farms to rent are not very numerous and the fact that so many buildings are needed causes poultry raisers to hesitate to build on rented land. They prefer to own the land they build on.”

OSTRICH INDUSTRY.

There are ostrich farms at Pasadena, Sacramento, and Brawley, in Imperial County. More than thirty-five years ago the first ostriches were brought from Africa to California by Edwin Cawston and the ostrich farm at Pasadena established. An ostrich weighs as high as 300 pounds, and produces eggs which frequently weigh as much as five pounds. These huge ivory-colored eggs are sometimes hatched by the incubator process, or by the mates, who take turns on the nest, the males at night and females during the day.

The question of the nature of the country most favorable for ostriches is largely affected by the kind of vegetation peculiarly suited to the soil, which in turn is undoubtedly affected by the amount of rainfall. Alfalfa pasture makes an ideal run for the birds, furnishing a large percentage of their food; hence a soil which is or can be made suitable for alfalfa is one of the essentials to success in ostrich farming. A dry sandy soil, made suitable by drainage and irrigation for raising alfalfa, has proved best adapted to successful ostrich farming. Such a soil is generally peculiarly adapted for raising large crops of alfalfa, and makes an ideal soil for an alfalfa pasture. Under such conditions it is essential to have some shade.

The demand for information concerning ostriches indicates that the number of individuals who are interested in ostrich farming is increasing.

The profit to be derived from the business will depend on the management, on the success secured in the raising of the young birds, and on the production of feathers of good quality. The average yearly yield of feathers from an ostrich is $1\frac{1}{4}$ pounds. Birds produce from 12 to 20 ounces of feathers at each plucking, with an average of 16 ounces.

THE DAIRY INDUSTRY.*

"The man who starts a dairy herd is starting a 365-day job, and he should have enough cows and sufficiently high producers to make it worth while to be on hand at the right time, with the right feed, and to have facilities for the proper care of the product and to produce enough of it to pay to seek a favorable market. If these conditions can not be met, it is better to limit the number of cows to the few that will supply the family needs.

"One man on a forty-acre ranch can milk and care for eight to twelve cows and do all the work except putting up the hay. With the major portion in alfalfa, the balance in garden, fruit, poultry or hogs, one man will be kept profitably busy feeding his cows and other animals, with a surplus of feed for sale.

"A California professional milker will milk and feed a string of thirty to thirty-five cows, and possibly haul the milk or cream to the creamery or shipping station. By the employment of one milker the number of cows may be increased to thirty or thirty-five and the owner is free from the daily chore of milking, except in time of labor shortage. Two strings of cows with two milkers and the employer doing the outside work on fifty to seventy-five acres makes an attractive unit, especially if one man is married and can board the other, relieving the owner's home of this task.

"Ordinarily, a location where dairying is already a growing industry, with market assured, is desirable. Humboldt County, San Joaquin, Imperial and northern Sacramento valleys are prominent dairy sections with creameries for markets. San Francisco Bay region, Los Angeles, Sacramento, and in lesser degrees the territory adjacent to the smaller cities, are producing milk for the city milk trade, while the southern coast region is noted for its cheese production and many less conspicuous localities afford excellent alfalfa land and good markets. Occasionally, a growing city inadequately supplied offers a good market for city milk.

"One acre of good alfalfa and silage should support one cow a year. Any cow capable of producing thirty or more pounds of milk a day should have some grain feed in addition to alfalfa or alfalfa and silage. A silo is proving a profitable investment for most dairymen, furnishing succulent feed to supplement the dry hay. It may be a Farm Bureau type, costing \$1.50 to \$2 per ton capacity, a stave silo at \$2.50 to \$4 or a hollow tile, or concrete block, or monolithic at \$5.50 to \$7. Properly made, one will preserve silage as well as the other, but their durability and life is in the order named.

"For a 12 cow dairy a silo 12×24.

"For a 25-30 cow dairy a silo 14×32.

"For a 50-60 cow dairy a silo 18×36 or 2 each 14×32.

"In most dairy sections a silage cutter may be hired for filling the silo or if not available must be purchased at a cost of \$200 and up, while a tractor can usually be rented to run it.

*By H. E. Van Norman, Professor of Dairy Management and Dean of the California University Farm School.

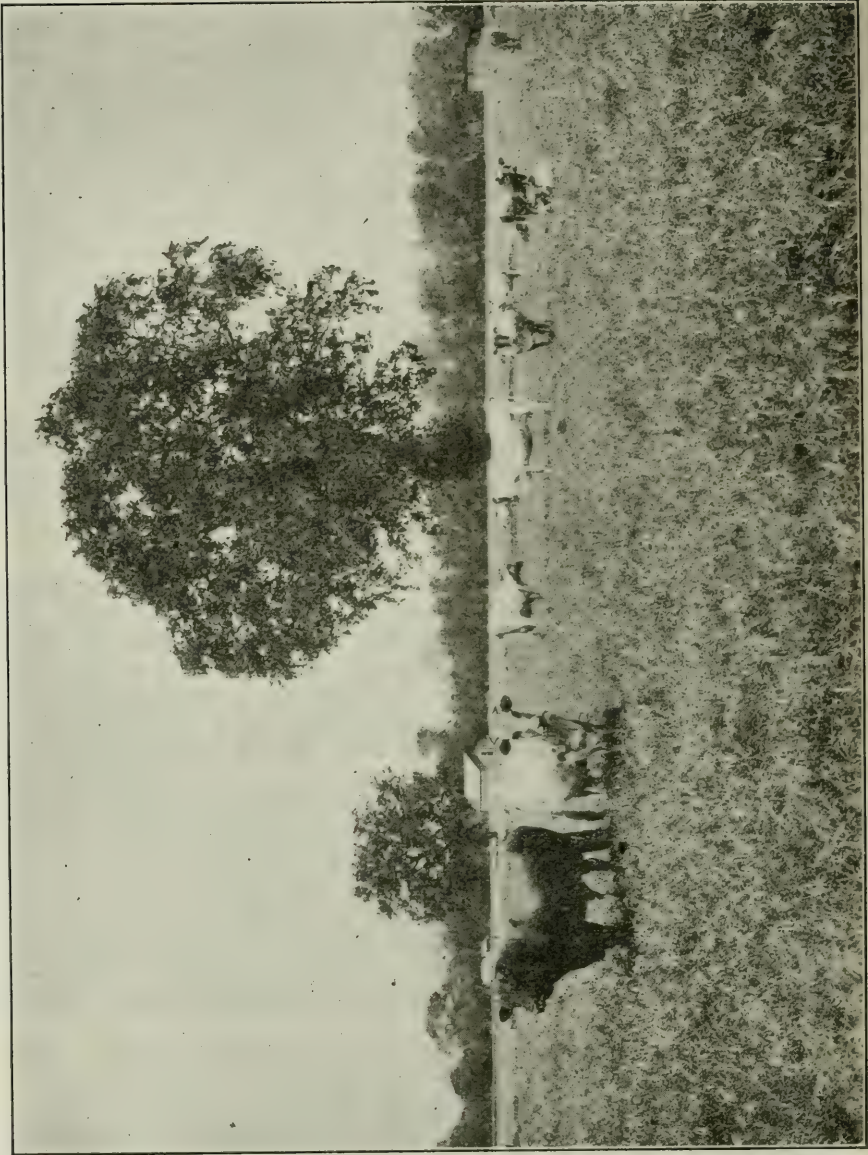
“For the purchase of cows seek the dairy section where cow-testing association records are available and buy good cows. The extra \$15 or \$20 spent for a cow that will produce 275 to 300 pounds of fat per year is a far better investment than twice that saved on a cow that yields only 175 to 200 pounds, for the first \$50 or \$60 of gross income only pays for the feed the good or poor cow eats. Join the cow-testing association or the testing department of the Farm Bureau. If neither is available weigh and test the milk of each cow in the herd every month, for it does not pay to keep poor cows at present prices of feed and labor. Use only a pure-bred sire with a record of at least 400 to 500 pounds of fat per year by his dam. Select one from a family that has the habit of transmitting its producing ability to the next generation. Select a sire and if possible grade cows of the breed that predominates in your community. Some sections are given largely to Jerseys and Jersey grades, while in others the Holstein predominates, while pure-bred herds of these breeds as well as Guernsey and Ayrshire are scattered well over the state. Proximity of a pure-bred herd or herds is a great advantage to the new breeder, as soon as he has animals for sale, for it brings visitors to his neighborhood.

“The larger the number of cattle of one breed in a neighborhood, the higher the price and greater the demand for the surplus animals. This is true whether grades or pure-breds are raised and is especially advantageous if the latter are raised in large numbers. Save the heifer calves from the good cows and the pure-bred sire. Dispose of the others as soon as practicable.

“Clean, cold milk and cream are essential to secure highest market prices. Therefore, provide a clean place to milk, free from dust, arrange for prompt cooling of the milk as low as possible—to 50° F. is desirable and 60° to 65° is essential. Boiling water, or more convenient, but not necessary, steam, for washing so arranged that it is easy to do the work right should be provided for a task that must be performed twice every day. Market milk for city distribution or condensing usually nets the most cash. Sweet cream for ice-cream next, then milk for cheese and cream for butter-making last. However, the sale of cream and wise feeding of skim milk to good calves or pigs has the least exactions to meet and in the long run is apt to be the most profitable type of dairying, as it takes the least fertility from the farm.

“If there are children in the family ten years of age or over, give them a profit-sharing part in the daily routine of the dairy—their regular task is good for them, the income encourages them. Encourage starting a savings account and funds for education will be available in due time.

“Finally, the renter of land and buildings will need \$4,000 to \$4,500 for cows, teams, tools, etc., to get started. The purchaser of land will need in addition to the above amount whatever he must put into the first payment on land and home, and \$100 per cow for stabling and corrals.”



CALIFORNIA BUTTER, 1920.

“While the making of butter has been carried on throughout the centuries from the dawn of history, it has reached its present position as a great factory industry only in comparatively recent times. Within the memory of many men now living the buttermaking industry was located principally in farmers’ kitchens. With the development of the cream separator near the end of the last century, it became possible to separate the cream on the farms and ship it to be manufactured. Largely as a result of this the factory system came into being. The development of the factory system has gone on until in California only a negligible quantity is made on the farms. The process has gone still further; whereas in former years some factories drew their supply of cream from a wide radius; the predominant type being the small factory drawing cream from a limited radius. Consolidation has been going on and today the predominant type of creamery is the large factory drawing its cream supply from a wide radius. Some of these factories are operated by private concerns and some by cooperative dairy-men’s organizations.

“In many of these factories the most approved modern methods are employed. In some of them encouragement of the production of high-grade cream is given by the use of the grading system whereby the better cream gets the better price. The law of California provides that all cream for buttermaking, unless it be from tuberculin-tested cows, *must be pasteurized*. As a result, all the butter made in the state, save the very small amount made from the cream of nonreacting tuberculin-tested cows, is made from pasteurized cream. *A healthful product is thus assured.*”*

Butter production is the largest item in the dairy output of the state. The immensity of this production may be comprehended by the fact that the 68,126,560 pounds produced this year would make up a train of 2,756 carloads, approximately twenty miles in length.

*From report of State Division of Animal Industry.

Production of Butter Made from Cream Produced in the Different Counties of the State During the Year Ended June 30, 1920.

	Pounds		Pounds
Alameda	676,205	Placer	235,885
Alpine	5,000	Plumas	246,393
Amador	110,281	Riverside	23,561
Butte	594,714	Sacramento	1,476,781
Calaveras	59,848	San Benito	323,124
Colusa	759,941	San Bernardino	15,652
Contra Costa	924,359	San Diego	430,951
Del Norte	1,042,542	San Francisco	
El Dorado	311,589	San Joaquin	2,353,005
Fresno	3,214,092	San Luis Obispo	2,555,238
Glenn	1,690,574	San Mateo	493,783
Humboldt	6,377,516	Santa Barbara	402,298
Imperial	5,648,099	Santa Clara	310,370
Inyo	303,571	Santa Cruz	455,389
Kern	1,001,219	Shasta	116,341
Kings	4,548,172	Sierra	344,078
Lake	389,962	Siskiyou	1,256,059
Lassen	311,936	Solano	715,703
Los Angeles	77,559	Sonoma	4,297,363
Madera	1,085,620	Stanislaus	6,524,986
Marin	2,519,499	Sutter	555,071
Mariposa		Tehama	351,181
Mendocino	728,024	Trinity	
Merced	4,311,842	Tulare	4,685,140
Modoc	316,480	Tuolumne	28,230
Mono		Ventura	3,800
Monterey	97,213	Yolo	956,324
Napa	622,877	Yuba	442,556
Nevada	222,161		
Orange	12,000	Total	63,126,569

The production for this year is 6,000,000 pounds more than last year, but is still 2,000,000 behind that of 1916, when over 70,000,000 pounds were produced. The production in 1916 was the largest in the history of the State. Modesto County once led the State in butter production, but that place has been held by Stanislaus County for the past several years. Stanislaus led the State in 1920, having produced 6,524,986 pounds of butter. Modesto is a close second, with a production of 6,377,516 pounds, and Imperial ranks third. Modesto lost her position as the second ranking county in 1913, when Imperial took the lead and succeeded in maintaining that position until 1918. In that year Modesto again became the second largest butter producing county and still continues to hold that place. In the following table the first ten counties shown have been among the ten ranking counties for the past five years, all of them having produced over 2,000,000 pounds per year since 1915. In 1920 there were seventeen counties producing over 1,000,000 pounds of butter.

Rank of Counties in Butter Production, 1920.

Rank	County	Pounds	Rank	County	Pounds
1	Stanislaus	6,524,986	29	Santa Cruz	455,389
2	Humboldt	6,377,516	30	Yuba	442,553
3	Imperial	5,648,669	31	San Diego	430,951
4	Tulare	4,655,149	32	Santa Barbara	402,208
5	Kings	4,548,172	33	Lake	389,962
6	Mereed	4,311,842	34	Tehama	351,184
7	Sonoma	4,297,263	35	Sierra	344,078
8	Fresno	3,264,492	36	San Benito	323,124
9	San Luis Obispo	2,555,238	37	Modoc	316,481
10	Marin	2,519,490	38	Lassen	311,976
11	San Joaquin	2,353,065	39	El Dorado	311,589
12	Sacramento	1,476,780	40	Santa Clara	310,370
13	Siskiyou	1,276,059	41	Inyo	303,571
14	Madera	1,085,629	42	Plumas	246,393
15	Del Norte	1,042,542	43	Placer	235,883
16	Kern	1,001,219	44	Nevada	222,164
17	Glenn	1,000,374	45	Shasta	116,341
18	Butte	994,714	46	Amador	110,281
19	Yolo	956,334	47	Los Angeles	77,359
20	Contra Costa	924,359	48	Calaveras	59,848
21	Monterey	907,213	49	Tuolumne	28,239
22	Colusa	759,941	50	Riverside	23,560
23	Mendocino	728,024	51	San Bernardino	15,652
24	Solano	715,703	52	Orange	12,000
25	Alameda	65,205	53	Alpine	5,000
26	Napa	622,877	54	Ventura	3,800
27	Sutter	555,071			
28	San Mateo	496,786			68,123,561

CALIFORNIA CHEESE.

It has been generally conceded that on the average California has produced the poorest quality of cheese of any state in the Union. It is pleasing, however, to state that this condition is changing and that California's reputation for progress in cheesemaking has reached Uncle Sam. Says the Market Reporter, published by the Bureau of Markets of the Department of Agriculture: "Cheese manufacturers of California are rapidly coming to the front. California Swiss cheese has made a good name for itself, and is in steady demand." Also, "the Cheddar type, while not extensively made, is equal in quality to Oregon and Wisconsin makes."

Cheese Produced in California, 1917 to 1920.

County	1917 pounds	1918 pounds	1919 pounds	1920 pounds
Alameda	150,000		73,281	48,965
Butte	165,990	150,540	167,345	114,634
Colusa	90,321	68,731	20,804	20,560
Contra Costa		360		4,050
Del Norte	349,520		309,789	460,279
Fresno	617,000	330,638	451,163	154,570
Glenn		37,500	11,500	
Humboldt	253,602	898,880	1,670,678	1,111,633
Imperial	270,270	343,263	421,359	635,877
Kern	40,700	55,113	16,506	29,333
Kings		144,000	220,257	
Lake	24,556	55,000	2,480	2,910
Lassen	105,373	100,609	101,993	166,622
Los Angeles		547,049		20,240
Madera	60,000	87,038		13,800
Marin	296,328	352,776	701,146	915,325
Mendocino	129,762	190,925	218,437	279,424
Merced	111,989	78,638	267,000	980,374
Modoc	49,004	83,851	104,318	92,839
Mono	4,000	1,500		
Monterey	1,236,727	1,167,480	653,219	1,145,892
Napa	64,100	165,534	349,846	263,372
Plumas	1,000	3,750	4,500	
Riverside	5,500		339,508	
Sacramento	561,618	387,092	339,508	394,594
San Benito			14,315	576,502
San Bernardino			281,759	
San Diego	6,688		13,390	22,275
San Francisco		18,600	100,000	
San Joaquin	267,632	64,200	10,386	841,932
San Luis Obispo	226,505	175,006	298,302	318,577
San Mateo	335,534	230,725	179,520	307,830
Santa Barbara	173,100	2,500	140,000	158,234
Santa Clara	1,567,305	1,314,935	1,271,340	882,590
Santa Cruz	330,958	222,439	319,451	193,478
Shasta	47,493	42,081	41,983	45,104
Sierra	16,000			11,900
Siskiyou	103,224	76,872	99,599	76,214
Solano	22,126	47,758	47,758	21,236
Sonoma	362,805	646,022	476,758	564,233
Stanislaus	479,351	1,176,396	1,805,528	1,707,459
Sutter	83,855	168,838	103,793	116,580
Tehama	80,000	85,050		
Tulare	72,000	96,044	83,810	200,342
Yolo	192,491	99,938	61,787	61,681
Yuba	28,250	45,250	80,300	71,445
Totals	9,236,663	9,795,974	11,690,138	13,018,468

(Courtesy Division of Animal Industry)

Summary of Butter, Cheese, and Condensed Milk Production, 1909 - 1920.

(Compiled from the reports of the State Division of Animal Industry.)

Year	Butter, pounds	Cheese, pounds	Condensed milk, cases	Year	Butter, pounds	Cheese, pounds	Condensed milk, cases
1909	43,899,018	4,431,194	83,476	1915	67,522,406	6,105,775	345,402
1910	45,989,141	4,648,348	172,916	1916	70,030,174	7,745,124	379,212
1911	50,380,736	4,580,495	116,384	1917	63,373,021	9,236,633	596,095
1912	54,940,886	4,785,617	172,309	1918	60,458,595	9,795,974	1,070,933
1913	55,542,709	5,600,972	172,809	1919	62,149,004	11,600,138	1,145,859
1914	59,283,460	6,016,815	274,093	1920	68,123,560	13,018,469	*84,926,166

*Pounds (bulk and case goods).

Annual Value of Dairy Products, 1918 - 1920.

Products	Value 1918	Value 1919	Value 1920
Butter	\$27,139,112	\$34,747,983	\$42,136,276
Cheese	2,290,298	3,335,040	4,162,511
Condensed, evaporated and powdered milk	6,119,469	10,111,667	11,612,926
Casein	487,493	400,138	791,921
Milk sugar, crude and refined	331,684	685,583	870,147
Market milk, cream and ice cream	15,500,000	22,484,000	38,946,731
Skim milk and buttermilk	1,000,000	1,250,000	213,920
Curds, lactin, semi-solid buttermilk			239,923
Totals	\$52,928,056	\$73,014,281	\$99,004,358

Receipts of Butter in San Francisco for Years 1909 - 1920*.

Year	Pounds	Year	Pounds
1909	14,328,000	1915	27,323,500
1910	13,934,260	1916	27,877,760
1911	19,033,600	1917	25,262,500
1912	23,548,850	1918	24,529,500
1913	23,955,100	1919	19,549,400
1914	22,580,950	1920	21,793,200

Average Prices of Butter and Cheese in San Francisco for Years 1909 - 1920*.
(Cents per pound.)

Year	Butter	Cheese	Year	Butter	Cheese
1909	30.00	14.30	1915	28.70	14.10
1910	31.30	15.60	1916	27.39	15.54
1911	28.00	14.50	1917	37.07	19.78
1912	30.77	15.46	1918	45.07	23.38
1913	32.12	16.06	1919	55.66	28.75
1914	27.61	15.79	1920	61.85	32.15

*These figures were compiled by the State Dairy Bureau for all years prior to the last one and refer to the year ending September 30. Figures for 1920 refer to the year ending June 30, 1920.

MILK GOATS.*

“While milk has been a food for man since civilization began, its value over other foods has been only recently discovered. Though the goat has been a familiar milk producer from the earliest known civilizations, and seems to have been better known in Biblical times than it is now, she is a new factor in the dairy world of America, and promises to become the leading milk animal of the future. Her day is just dawning, she is a new discovery, but her popularity is growing by leaps and bounds.

“The word ‘goat’ has so long been a term of ridicule and contempt that if the milk goat of today had another name, she would not have to meet the bars of prejudice and ignorance that the unthinking and ignorant raise against her. The old-time common scrub goat was not a pleasant animal to look upon, but the neglect she received did not tend to improve her. The scrub bucks were teased from the time they were playful kids; shunned and neglected, they became the source for contempt and ridicule of the whole Caprine race. That the present well-bred milk goat should inherit this ignominy is as preposterous as to class the modern home of today with the primitive hovel. Beautiful, fastidious little animals, they appeal to any one who appreciates cleanliness in animal life.

“The milk of the goat is a perfectly balanced food. It contains a larger quantity of vitamins than cows’ milk and a principle that nourishes the body more readily than any other foods. It is even better than mothers’ milk for the babe, as a mother’s milk is affected adversely by her moods and ill health, often by some deep-seated affliction, whereas the placid, well-fed, contented goat nourishes the child equally well with a milk always the same in its purity and digestibility.

“The milk goat only awaits the call of parents and doctors to make the infant life of today healthy and vigorous and resistant to disease. A goat’s milk baby is a one hundred per cent perfect baby. Such was the rating at the baby clinic at the last State Fair, and is the same wherever examined.

“In pasteurizing milk the growing principle, vitamins, are lost, so its greatest food value to the infant is destroyed. This alone is sufficient cause for substituting goat’s milk for cow’s milk in feeding babies, were it not also for its greater digestibility.

“It seems a paradox how any intelligent person can object to goat’s milk and accept cow’s milk without a murmur. The little goat is the cleanest of animals, her place in life is to furnish milk just as much as the cow. She is dainty in her appetite, free from all disease, absolutely odorless, and almost human in her intelligence. There is not near as much goaty odor about the milking doe as there is cowy odor about the milking cow. Only bucks have an odor, and that offensive only in the breeding season.

“As to the milk, it is most palatable, anyone not knowing it was goat’s milk would say it was very fine milk, thinking of a cow. Served ice cold it is like drinking thin cream. All the products of cow’s milk may be made from the goat’s milk. The most delicious butter is easily made,

*From an article by Alice M. Brown, Sacramento.

cottage cheese has a finer grain and better flavor than that of cow's milk, while the Swiss and French cheeses made of the milk delight the epicure and bring fancy prices on the market. Two goats, milking four quarts each, would keep a family supplied with milk, butter and cheese.

"In the southern part of the state the goat is recognized as the aristocrat of the dairy. The thousands of Eastern visitors have come to know her value, and those suffering from tuberculosis or digestive disorders buy her milk at any cost. One goat dairy having 300 fine milk goats has sale for all the milk produced at 50 cents a quart. Those keeping a few goats for themselves are importuned by invalids to spare some of the milk for them. So popular is the goat, a person would think twice before saying, 'Goat's milk! I could never drink it,' for they would feel they hailed from Missouri.

"The rich vie with each other in owning a fine milker and the sale of pure-bred, heavy milking does at \$350 to \$500 is an ordinary thing.

"The keeping of milk goats to furnish milk for infants and invalids has appealed to college-bred women as a good occupation for ministering to humanity and earning a living in a helpful way. In Los Angeles, at Montara, and in Sacramento, are college women thus engaged. The goat is temperamentally a woman's animal, she is small, easy to handle, docile and affectionate, responding to a woman's kindness and thoughtful care. The little animals in the Los Angeles herd are the hope, the relief and the saving of many a tubercular sufferer. The Montara herd nourishes the children in the San Francisco City and County Hospital, and are saving many a life.

"The Sacramento herd is a new undertaking, but has four infants restored after all other foods had failed, and other less serious cases benefited. It is the adaptability of the goat to the care of women and children along with a supply of unexcelled quality of milk that will give the goat the foremost place as a dairy animal in our domestic life."

Breeds of Goats.

Saanen.—The Saanen is one of the leading breeds and takes its name from the Saanen Valley of Switzerland. It is said to be the largest of all the Swiss breeds. Although considered a hornless breed, occasionally an animal is found with horns. The color ranges from a pure to a creamy white. The dairy conformation is especially well developed in the Saanen breed. The hair is usually short, with the exception of a strip along the spinal column extending to the flanks and the hind quarters.

The first record of the importation of Saanen was in 1904, when 10 head came in through the Canadian quarantine.

The Saanen is without question one of the most beautiful and valuable breeds, and as the supply of pure-breds is very limited in this country it will be necessary to grade up herds from common stock by using Saanen bucks of the best grading obtainable.

Toggenburg.—The Toggenburg is one of the leading breeds of Switzerland and takes its name from the Toggenburg Valley, where they have been bred for a great many years. Although generally considered a hornless breed, occasionally one is found with horns. The color of the Toggenburg is brown with a light stripe or bar down each side

of the face. The legs below the knees and hocks are light gray or almost white. The wattles or appendages, two in number, attached to the under side of the neck, are very characteristic of this breed.

The first record of importations of the Toggenburg into the United States was in 1893, when W. A. Shafor, of Hamilton, Ohio, imported four head from England. In 1904 F. S. Peer imported from Switzerland for other persons 16 head, which later became widely distributed. The largest importation of milk goats ever made to this country was in 1905, when R. N. Riddle, of New Jersey, imported 119 Toggenburgs.

Owing to the fact that Toggenburg goats are more plentiful in this country than other breeds, a good many grade goats of the Toggenburg type are found in various parts of the country. In fact, many herds have been established by crossing Toggenburg bucks upon does of the common American type.

Nubian.—The Nubian, although considered a valuable breed, is found in but small numbers in this country. It is a native of Nubia, Upper Egypt, and Abyssinia. Its important peculiarities consist in the length of the large drooping ears and the shape of the head. The Nubian is considered a hornless breed, but bucks occasionally develop horns. It is one of the largest breeds of goats. The hair is short and fine, and owing to this condition this breed is less hardy than the leading European breeds and can not stand extreme cold. The color is black, dark brown, or tan, with or without white markings. Pure-bred Nubian bucks are said to be free, or nearly so, of the odor so prevalent in the males of other breeds.

The Nubian breed is very prolific and one of the best for milk production.

Maltese.—Although considered a valuable breed of milk goat, the Maltese is of no special importance at the present time in this country, except that it has had some influence on the type of goats in the Southwest. As the name signifies, it is a native of the Island of Malta.

This breed is kept in large numbers on that island. It is usually hornless, but occasionally one is found with horns. The ears are rather long and are carried horizontally. The udders are quite large and in many instances almost touch the ground. The hair is rather long, the color being white and reddish brown or black. For milk production this breed is considered one of the best.

Common, or American.—Either of the names "Common" or "American" may be applied to a large number of short-haired goats found in many sections of the United States, especially in the South. In many sections these goats have been bred for a great many years without the introduction of outside blood, so that in general conformation they are very uniform.

They are of medium size and somewhat short legged, rather meaty in appearance, and do not show the conformation of the Swiss breeds. This type of goats is of various colors; brown of various shades, brown and white, black and white, bluish gray, and white predominate.

Owing to the scarcity of good milk goats, the common or American type properly selected offers a good foundation for grading up with either the Toggenburg, Saanen, or Nubian breeds.

THE MILK GOAT INDUSTRY.*

“Milk goats are kept for three main purposes: For family milk supply, for the raising of breeding stock, and for the production of milk or cheese for the market.

“Milk is usually sold to hospitals or to private families for invalid or infant feeding. It is evaporated and canned by a California firm and sold to drug stores for the above purposes.

“For the family milk supply two does bred to freshen at different times in the year may be depended upon to furnish a constant milk supply of from one to three or four quarts a day. When goat's milk is retailed for hospital or infant feeding the usual price is 25 cents a quart.

“Cheese is made on a commercial scale only in a very small way.

“The three leading breeds of milk goats are the Toggenburg, Saanen, and Anglo-Nubian. Common goats or grades of the above breeds constitute the greater number.

“Pure-bred goats sell at prices ranging from \$75 to \$750 each; grades from \$15 to \$75 each, or even more in the case of mature does of known high production.

“Does may be fed upon clean vegetable waste from the kitchen, and upon such volunteer growth as may be available in backyard, lawn, or vacant lots. This feed should be supplemented by hay and grain to such an extent as to insure a constant supply of nourishing feed. Ordinarily commercial grain feeds, such as barley, oats, bran, dried beet pulp, or commercial mixed feeds may be fed to advantage.

“The following would be suitable grain rations:

	Parts by weight
<i>Ration No. 1</i>	
Rolled barley or ground milo-----	1
Oats -----	1
<i>Ration No. 2</i>	
Dried beet pulp-----	1
Rolled barley -----	1
Wheat bran -----	1

“In the case of raising pure-bred stock for sale, one should keep authentic records of milk production, as values are based upon such records as in the case of dairy cattle. A high-class pure-bred doe should give at least a gallon of milk a day during the flush of her milking period.

“Young stock may be raised on rough hill pastures not suitable for the grazing of larger animals. The goats make use of browse to a larger extent than other animals, making brush available for their use.

“The period of gestation in goats is, like that of sheep, approximately five months. While does will breed at a much younger age, it is counted the best practice to have them freshen at about two years of age.

“Bucks should not be kept anywhere near the milking herd.

“While there is a difference in the flavor of milk of goats and that of cows, this difference is not sufficient to be detected by many people.”

*By E. C. Voorhies, Assistant Professor of Animal Husbandry, University of California.

CALIFORNIA HONEY AND WAX.

California is the leading honey state and owes its pre-eminence to three principal sources of supply—the alfalfa of the valley sections, the wild sage and the wild buckwheat shrub of the southern hills and mountains, and the citrus groves. The mountain sages of California produce a type of honey of much importance commercially and by common consent one of the finest of all in color (white), density, and flavor. The sage honeys possess, in addition to other virtues, the important one of not granulating readily. Honeys from the desert plants other than sage are as a rule good; many are excellent and rarely are they of poor quality.

Orange honey ranks high among the commercial honeys, being produced in large quantities in California.

Honey is produced in three principal forms: First, comb-honey in one-pound sections, as commonly retailed; second, extracted or liquid honey, ordinarily removed from the comb by means of a centrifugal machine, although sometimes by crushing the comb and draining, or by pressing it, although this last procedure is likely to produce an inferior product; third, "bulk" or "chunk" honey, the comb honey more or less broken and mixed with the liquid honey.

Bees on California Farms, 1920 and 1910; and Honey and Wax Produced, 1919 and 1909.

Item	Farms reporting	Hives of bees	Products	
			Quantity (pounds)	Value
Bees on farms January 1, 1920, total.....	8,826	180,719		
On farms reporting honey.....	4,447	148,215		
On farms not reporting honey.....	4,379	32,504		
Bees on farms April 15, 1910.....	6,870	261,023		
Honey produced—				
1919.....	4,478		5,501,738	\$1,107,51
1909.....	4,088		10,264,715	631,529
Wax produced—				
1919.....			106,796	41,648
1909.....			126,445	33,838

BEEKEEPING IN CALIFORNIA.*

"Beekeeping in California is developing into a profession rather than a side line to other farming enterprises. Outbreaks of brood diseases in recent years have reduced the number of small holdings materially and only those persisted who could and would give enough attention to the subject to master its details. Greater financial returns in recent years have stimulated the industry greatly and yet the increase is largely in the hands of the few.

"Extracted honey makes up the bulk of the product of the state, comb honey being produced only in limited quantities and confined largely to regions near the larger towns, where the local market conserved the output, excepting the large comb-honey district in Inyo County.

"The leading honey producing regions of the state are the southern Coast Range beginning in Ventura County and extending south into San Diego County, Imperial Valley, the plateau region of southern California, extending from east San Diego County into Inyo County, the San Joaquin Valley and the central portion of the Sacramento Valley. Other regions of less importance, or at least not so highly developed, are the Coast Range from Monterey County north into Mendocino County and the foothill regions of the Sierra Nevada Mountains from Placer County south to Kern County.

"Many good localities for the beekeeper are still to be found in the state, particularly in the northern regions. The great national forests are largely unoccupied, the industry being largely confined to farming and orchard lands and the adjacent hill country, while thousands of acres of mountain land that every year are producing more or less nectar, remain unused. These higher regions may never produce as heavy a flow of nectar as the sage districts, but nevertheless are worth considering as possible locations.

"The value of the bee as a pollinizing agent for the orchard is also beginning to be recognized by the fruit growers and now many of them are offering special inducements to the beekeeper to locate near them or to keep the bees near the orchard in the blooming season.

"Honey producing plants of California are of two types: (1) the cultivated plant or tree whose moisture supply is regulated by tillage or irrigation and hence yields a fairly constant supply of nectar, (2) native vegetation, depending on the local rainfall for its supply of moisture and therefore of little value in dry years. The first group includes alfalfa, beans, orchard trees and decorative plants. Of these alfalfa is the most important plant for the great valleys, it yielding nectar from June until late in the summer. In southern California the citrus fruits and beans are heavy yielders. The second group includes the sages, of which there are a number of species in the southern Coast Range, blooming at different seasons. These give a heavy flow of nectar in the years of heavy rainfall. But the shrubs as well as the annuals, such as "filaree," blue curls and bur clover are alike subject to failure in the dry years and then the apiary must be moved to another location or fed through the season.

*By E. R. deOng, Instructor in Entomology, University of California.

“Capital invested in beekeeping is represented almost entirely by the bees and their housing. No land need be purchased, or at least but one or two acres, the usual practice being to lease one-quarter to one-half an acre of land in the desired locality. This is ample room for two or three hundred colonies. In addition to the bees and the hives with extra bodies, a honey extractor, empty honey containers and a few small pieces of apparatus and tools are needed. At present a colony of bees, including the hive, sells for from \$7 to \$12, owing to the strain of bees and their strength and condition. Swarms of bees can sometimes be caught along timber and in this way a start secured with very little capital.

“An experienced beekeeper can care for three or four hundred colonies with an extra helper during the busiest season. The total investment for an apiary of four hundred colonies would be from \$3,000 to \$5,000. To handle this number would require one helper for three or four months at \$40 to \$75 per month, including board and room. Work of this type is extremely valuable for the beginner who desires to learn the beekeeping business or determine for himself his fitness for such work.

“If the beekeeper desires to increase his holdings it is possible each year to divide the stronger colonies without materially affecting the yield of honey for the year, dependent upon the locality and the season.

“The average yield of extracted honey for California is given by the Year Book of the State Board of Agriculture at seventy pounds per colony. Considering 10 cents per pound, a good price, this would mean a gross income of \$7 per colony, which would be almost equal to the original cost. The average price for recent years, as given in the Year Book, is 7 cents. But when lower prices on honey are prevailing, the cost of bees is less, so that in the hands of an experienced beekeeper there is the possibility of a gross annual income almost equal to the original investment.

“There is a cooperative marketing association of beekeepers now established in the state which controls the major part of the product, thus stabilizing the market.”

PART V.

FARM CROPS AND VEGETABLES.

Cereals: Barley, Corn, Oats, Rye, Wheat; Hay; Potatoes; Sugar Beets; Rice; Beans; Cotton; Tobacco; Hemp; California Crops; Vegetables and Truck; Vegetable Shipments; Vegetable Growing; Canned Vegetables; Vegetable Seed Production; Dehydration.

CALIFORNIA AGRICULTURAL CROPS.

California has the distinction of having within her boundaries seven of the greatest agricultural producing counties of the United States. The rating of these counties is first, third, fourth, eighth, tenth, eleventh, and fourteenth and they are by name, Los Angeles, Fresno, San Joaquin, Tulare, San Bernardino, Orange and Santa Clara. Ten years ago Los Angeles County in California held first place among counties producing the greatest value of crops in the United States. The decade preceding that year had given the honor to Lancaster County, Pennsylvania, it having fallen to second place in 1910. Again this year one of California's counties ranked first in crop production. The following table gives the crop value and rank of the fourteen leading counties for 1920, as well as the principal products of the counties.

County and state	Value of crops		Principal products
	Rank	Amount	
Los Angeles, Cal.....	1	\$61,864,479	Oranges, lemons, hay and forage, walnuts.
Aroostook, Me.	2	52,541,205	Potatoes, hay and forage, oats, dairy products.
Fresno, Cal.	3	51,861,252	Grapes, peaches, hay and forage, dairy products.
San Joaquin, Cal.....	4	37,956,866	Potatoes, grapes, barley, hay and forage.
Lancaster, Pa.	5	32,191,536	Tobacco, corn, hay and forage, wheat.
Yakima, Wash.	6	32,458,658	Apples, hay and forage, potatoes, peaches.
Whitman, Wash.	7	30,824,407	Wheat, hay and forage, oats, barley.
Tulare, Cal.	8	30,547,341	Grapes, oranges, hay and forage, dairy products.
McLean, Ill.	9	26,938,018	Corn, oats, wheat, hay and forage.
San Bernardino, Cal..	10	26,517,455	Oranges, lemons, grapes, hay and forage.
Orange, Cal.	11	25,572,032	Oranges, walnuts, lemons, sugar beets.
Maricopa, Ariz.	12	24,054,436	Cotton, hay and forage, dairy products, wheat.
Champaign, Ill.	13	23,800,585	Corn, oats, wheat, hay and forage.
Santa Clara, Cal.....	14	23,792,684	Plums, prunes, apricots, hay, forage, dairy products.

BARLEY.*

“Barley is the leading cereal crop in California and its production, like that of the other small grains, is confined to the drier sections of the state where irrigation has not been developed. It is only in rare instances that the crop is irrigated, because after land has been brought under irrigation it becomes too valuable to be used for barley.

*By B. A. Madson, Assistant Professor of Agronomy, University of California.

“The ability of barley to grow under conditions of limited rainfall has doubtless played an important part in centralizing the industry in those sections of the state where the annual precipitation is low. Thus we find the greatest production in the San Joaquin Valley, in the vicinity of Stockton, Merced, and Madera. It is also grown extensively near Yolo, Colusa, and Tehama, in the Sacramento Valley, and near Gonzales, Monterey County, on the coast.

“Barley thrives best in a relatively warm, dry climate and, fortunately, such is the prevailing climate throughout a large portion of the state. In its soil requirements barley is more exacting than most crops. It prefers a rich, fertile loam, well drained and rather light in character. Soils that are low in fertility, extremely light, or extremely heavy, or soils that remain cold and damp for a long period during the winter should be avoided for this crop. The barley plant has a rather delicate root system and any adverse soil condition is apt to seriously affect the growth of the plant.

“The dominant feature which characterizes barley culture in this state is mass production rather than the maximum production per unit area. The grain farms are all large, varying from a few hundred to several thousand acres in size. To handle such large areas with a minimum of labor the methods and implements used must be such as will enable the farmer to cover the most ground in the shortest possible time. Such methods, however, always result in improper preparation of the land. To such an extent has this been true in the past that the physical condition of the majority of our grain soils has been seriously injured, prematurely reducing their crop producing power. In many sections, however, there is at the present time a marked change taking place. The tendency is toward a reduction of the area per unit of labor, better preparation of the land, and a more frequent use of the summer fallow, all of which is being rewarded in greater profits.

“For barley the land should be plowed to a depth of six to eight inches in the fall or early winter, either before the rainy season begins or as soon after as possible. As soon as the soil has been moistened sufficiently to work properly, the field should be worked down to a good seed bed with a disk and harrow, and the barley seeded with a drill as quickly as possible. While barley can be seeded later than wheat or oats, the highest yield will always be obtained by early seeding, preferably before the first of January. The rate of seeding varies from 50 to 120 pounds per acre, depending on the character of the soil and the seasonal precipitation. After seeding no further attention is ordinarily necessary, though if the soil is heavy and inclined to crust it is a good practice to harrow the field after the plants attain a height of four to six inches.

“The use of the fallow is unquestionably one of the most effective means at our command for maintaining the crop producing power of our grain land. Land to be fallowed should be plowed as deep as possible in the fall or early winter and allowed to lie idle until spring. During the spring and summer it should be worked occasionally with surface tillage implements to destroy weeds and establish and maintain a mulch. If properly handled it may then be seeded the following fall in the usual manner without additional preparation. Fallowing serves

as a rotation measure, renovating the soil, destroying weeds, and conserving moisture. For the best results land should be fallowed every second or third year, depending on the character of the soil and the rainfall. One-third to one-half of the field should be fallowed each season.

"Barley is usually harvested with a combined harvester which cuts, threshes, and sacks the grain ready for market at a single operation. Five to six men are required to run the outfit and can harvest from twenty-five to forty acres per day. Barley should be cut as soon as it is ripe to avoid undue loss by shattering.

"Under continuous cropping fifteen sacks may be considered an average yield. In some cases twenty sacks may be obtained, but more often the yield is only ten to twelve sacks per acre. On fallowed land yields will vary from twenty-five to forty sacks or more, though normally thirty sacks is considered good.

"At the present time the cost of plowing, disking, harrowing, and seeding, together with the cost of the seed, is about \$6 per acre. The cost of harvesting a fifteen-sack crop, including sacks and hauling, is about \$6.50, making the total cost of these items \$12.50 per acre. The cost of maintaining the fallow and growing and handling a thirty-sack crop is about \$17, so that the net return in the latter case will be considerably greater than in the former.

"Barley farming as a business must be conducted on relatively low priced land, as profitable returns can not be obtained on a valuation of more than \$75 to \$100 per acre. Then, too, the farm must be relatively large. To yield the operation a paying income a farm of at least 200 to 250 acres is necessary.

"The usual basis for renting grain land is on shares, the owner requiring one-fourth to one-third of the crop; which means that normally eight to ten sacks must cover the cost of production and, besides, leave something to the farmer for his trouble.

"The principal advantage in favor of grain farming is that it requires a minimum of labor and a comparatively small outlay for equipment. The only time help is required is during seeding and harvesting, and sufficient labor of the transient type can usually be obtained from from \$2.25 to \$3 per day. On the other hand, with grain as the dominant feature, the equipment must necessarily lie idle the greater portion of the year, so that its total cost must be charged against the grain crop. It is, however, the type of farming best adapted to a large portion of our unirrigated land, and requires but relatively little capital at the start.

"There is still considerable undeveloped land suitable for this type of farming available in the foothill regions of the Sacramento and San Joaquin valleys, as well as in some of the smaller, more isolated valleys of the state, which can be purchased for from \$40 to \$60 per acre. In the developed sections, on the other hand, there is but little land available for less than \$100 per acre."

California Barley Crop, 1910-1920.

As far back as 1852 California has held first place in the production of barley in the United States. Since 1901 the area in barley has been over 1,000,000 acres. In 1919 the acreage was slightly reduced to pro-

vide for a greater wheat crop, but in 1920 the acreage was about normal. Although North Dakota has a larger barley acreage than California, its yield per acre is considerably less than that of California.

The table below gives the acreage, production, and average yield per acre for the past twenty years:

California Barley Crops, 1900-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	889,591	16.7	14,856,170	\$0 43	\$6 388,153
1901	1,089,785	26.0	28,334,410	41	11,617,105
1902	1,144,274	26.0	29,751,194	63	18,743,208
1903	1,201,488	25.7	30,878,242	61	18,835,728
1904	1,237,533	22.7	28,091,999	60	16,855,199
1905	1,237,533	21.5	26,606,960	59	15,698,106
1906	1,425,000	27.2	38,760,000	54	20,980,400
1907	1,040,000	28.9	30,056,000	78	23,444,000
1908	1,082,000	23.5	25,427,000	74	18,816,000
1909	1,180,000	26.5	31,270,000	74	23,140,000
1910	1,500,000	31.0	46,500,000	55	25,575,000
1911	1,450,000	28.0	40,600,000	85	34,510,000
1912	1,392,000	30.0	41,760,000	70	29,232,000
1913	1,275,000	28.0	35,700,000	68	24,522,000
1914	1,402,000	30.0	42,060,000	59	24,815,000
1915	1,369,000	29.0	39,440,000	62	24,453,000
1916	1,190,000	28.0	33,320,000	95	31,654,000
1917	1,350,000	29.0	39,150,000	1 20	46 980 000
1918	1,320,000	26.0	34,320,000	1 15	39,468,000
1919	1,000,000	30.0	30,000,000	1 41	42,300,000
1920	1,250,000	23.0	28,750,000	1 00	28,750,000

Compiled from reports of the U. S. Department of Agriculture.

Rank of the Five Leading States in Barley Production, 1920.

Rank and state	Production, bushels	Per cent of total production
United States	202,024,000	109.0
1. California	28,750,000	14.2
2. South Dakota	26,825,000	13.3
3. Minnesota	25,000,000	12.4
4. North Dakota	22,680,000	11.2
5. Kansas	21,285,000	10.5
Total five states		61.6

CORN.

Like every other state in the Union, California produces some corn. It is not, however, a leading state in this product. California's highest year of production was in 1891, when it amounted to over 5,570,000 bushels. The acreage and production has been gradually increasing since 1900, when 54,000 acres produced 1,351,000 bushels. While the acreage has not quite doubled in the past twenty years, California today produces almost triple the amount of corn that was produced in 1900. In 1920 the acreage was 90,000 acres, with a production of 3,150,000 bushels.

The following table gives the production for the past twenty years:

California Corn Crops, 1900-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	54,079	25.0	1,351,975	\$0 61	\$824,705
1901	59,703	31.0	1,850,793	68	1,258,539
1902	60,300	30.5	1,839,150	77	1,416,146
1903	57,888	30.7	1,777,162	74	1,315,100
1904	54,415	28.0	1,556,269	78	1,213,890
1905	56,592	32.0	1,810,944	76	1,376,317
1906	57,158	34.9	1,994,814	67	1,336,525
1907	54,000	34.0	1,836,000	85	1,561,000
1908	50,000	32.0	1,600,000	88	1,408,000
1909	50,000	34.8	1,740,000	91	1,583,000
1910	50,000	37.5	1,875,000	80	1,500,000
1911	51,000	36.0	1,836,000	90	1,652,000
1912	52,000	37.0	1,924,000	85	1,635,000
1913	55,000	33.0	1,815,000	88	1,597,000
1914	60,000	36.0	2,160,000	87	1,879,000
1915	64,000	41.0	2,624,000	88	2,309,000
1916	64,000	32.0	2,048,000	1 24	2,540,000
1917	75,000	32.0	2,400,000	1 85	4,440,000
1918	85,000	35.0	2,975,000	1 93	5,742,000
1919	90,000	33.0	2,970,000	1 79	5,316,000
1920	90,000	35.0	3,150,000	1 20	3,780,000

OATS.

During the past three years the California oat crop has remained practically the same. The largest year of production during the past twenty years was in 1912, when 7,800,000 bushels were produced from 200,000 acres, an average yield of 39.0 bushels per acre. The acreage for 1920 was 175,000, with a production of 5,425,000 bushels.

The production for the past twenty years is given in the table below:

California Oat Crops, 1900-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	160,072	24.6	1,477,771	\$0 46	\$679,775
1901	160,768	30.4	4,887,347	44	2,150,433
1902	168,806	30.5	5,148,583	51	2,625,777
1903	165,430	34.8	5,756,964	54	3,108,761
1904	167,684	34.1	5,697,564	57	3,247,611
1905	168,755	28.0	4,725,140	51	2,407,821
1906	163,692	31.5	5,156,298	52	2,681,275
1907	136,000	33.5	4,556,000	71	3,235,000
1908	200,000	33.5	6,700,000	67	4,489,000
1909	200,000	31.4	6,280,000	66	4,145,000
1910	200,000	37.0	7,400,000	50	3,700,000
1911	210,000	34.0	7,140,000	59	4,213,000
1912	200,000	39.0	7,800,000	55	4,290,000
1913	210,000	31.6	6,636,000	60	3,982,000
1914	220,000	35.0	7,700,000	53	4,081,000
1915	211,000	33.0	6,933,000	50	3,482,000
1916	200,000	32.5	6,500,000	72	4,680,000
1917	166,000	35.0	6,260,000	85	5,331,000
1918	175,000	32.0	5,600,000	94	5,264,000
1919	175,000	30.0	5,250,000	96	5,040,000
1920	175,000	31.0	5,425,000	80	5,264,000

RYE.

California has almost discontinued the production of rye. The rye crop has always been very small, and the acreage and production has rapidly fallen off in the past ten years. Since 1916, the production has been too small to report. The following table, however, gives the production for sixteen years:

California Rye Crops, 1900-1916.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	68,669	13.0	502,580	\$0 58	\$291,496
1901	66,087	12.8	845,914	57	482,171
1902	67,409	12.0	808,908	75	6'6,681
1903	68,083	12.3	837,421	77	644,814
1904	67,402	7.6	512,255	78	399,559
1905	67,402	13.0	876,226	77	674,574
1906	62,684	12.8	802,355	71	569,672
1907	65,800	19.0	1,251,000	85	1,063,000
1908	66,000	12.0	792,000	88	697,000
1909	61,000	13.8	842,000	1 04	876 000
1910	7,000	17.0	119,000	86	102,000
1911	8,000	17.0	136,000	85	116,000
1912	8,000	17.6	141,000	90	127,000
1913	8,000	15.0	120,000	75	90,000
1914	8,000	17.0	136,000	85	116,000
1915	8,000	14.0	112,000	90	101,000
1916*	8,000	13.0	104,000	1 16	121,000

*None reported since 1916, the quantity being very small.

WHEAT.

Since 1900, California's wheat fields have given way to other agricultural products. Over 2,000,000 acres less wheat was planted in 1920 than in 1900. California produces only winter wheat, no spring wheat being grown. In the following table the acreage and production for the past twenty years is given:

California Wheat Crops, 1900-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	2,771,226	10.3	28,543,628	\$0 58	\$16,555,504
1901	2,672,547	13.0	34,743,111	60	20,845,847
1902	2,052,679	10.9	22,374,301	80	17,899,361
1903	1,868,410	11.2	20,926,192	87	18,205,787
1904	1,618,043	10.8	17,474,864	88	15,377,880
1905	1,886,238	9.3	17,542,013	82	14,384,451
1906	1,572,144	17.1	26,883,662	75	20,182,745
1907	1,268,000	15.0	20,520,000	98	20,110,000
1908	800,000	14.6	11,680,000	1 02	11,914,000
1909	825,000	14.0	11,550,000	1 11	12,820,600
1910	550,000	18.0	9,900,000	94	9,306,000
1911	480,000	18.0	8,640,000	88	7,603,000
1912	370,000	17.0	6,290,000	93	5,850,000
1913	300,000	14.0	4,200,000	95	3,990,000
1914	400,000	17.0	6,800,000	1 04	7,072,000
1915	440,000	16.0	7,040,000	95	6,688,000
1916	350,000	16.0	5,600,000	1 52	8,512,000
1917	375,000	19.8	7,425,000	2 00	14,850,000
1918	506,000	15.0	7,590,000	2 16	16,394,000
1919	990,000	16.5	16,335,000	2 04	33,323,000
1920	650,000	14.0	9,100,000	1 85	16,850,000

NOTE—All winter wheat; no spring wheat grown in California.

HAY (TAME).

California is one of the leading hay producing states of the United States. In 1920 the state held second place in production, New York ranking first. The yield per acre in California, however, is almost double that of New York. In 1920 the acreage in California was 2,175,000, while that of New York was 4,386,000 acres. The California production for 1920 was 5,002,000 tons, and that of New York 5,482,000 tons. The following table shows the production and acreage in California for the past twenty years:

California Hay (Tame) Crops, 1900-1920.

Year	Acreage	Average yield per acre, tons	Production, tons	Average farm price, December 1	Farm value, December 1
1900	793,491	1.51	1,708,171	\$8 15	\$22,071,594
1901	550,325	1.82	1,001,592	7 92	7,932,600
1902	558,828	1.81	1,006,049	9 41	9,466,921
1903	550,270	2.08	1,144,532	11 63	13,345,593
1904	583,266	2.03	1,184,071	10 41	12,326,179
1905	589,119	2.40	1,413,886	10 05	14,209,554
1906	612,681	1.85	1,133,465	11 25	12,751,481
1907	637,000	1.75	1,115,000	12 50	13,935 000
1908	605,000	1.35	817,000	13 25	10,825,000
1909	650,000	1.70	1,105,000	11 50	12,708,000
1910	2,400,000	1.83	4,392,000	9 60	*42,168,000
1911	2,500,000	1.75	4,375,000	10 90	*47,688,000
1912	2,500,000	1.53	3,825,000	13 70	*52,402,000
1913	2,400,000	1.50	3,600,000	13 50	48,600,000
1914	2,700,000	1.95	5,265,000	8 20	43,173 000
1915	2,350,000	1.80	4,230,000	11 20	47,376,000
1916	2,500,000	1.75	4,375,000	12 60	55,125,00 0
1917	2,400,000	2.00	4,800,000	19 20	92,160,0 0
1918	2,376,600	1.25	2,970,000	20 00	59,400,000
1919	2,175,000	2.30	4,894,000	17 20	84,177,000
1920	2,175,000	2.30	5,002,000	20 00	100,040,000

*Including forage.

Rank of the Five Leading States in Hay Production, 1920.

Rank and state	Production, tons	Per cent of total production
United States	91,193,000	100.0
1. New York	5,482,000	6.0
2. California	5,002,000	5.5
3. Wisconsin	4,814,000	5.3
4. Iowa	4,350,000	4.8
5. Ohio	4,252,000	4.7
Total five leading states		26.3

ALFALFA CULTURE IN CALIFORNIA.*

"Alfalfa is and doubtless always will be the leading forage legume of California. The climate and soil conditions of this state are eminently suited to its growth. While these two factors have doubtless played an important part in centralizing the industry in certain sections of the state, water has in all probability been the controlling

*By B. A. Madson, Assistant Professor of Agronomy, University of California.

factor. Modesto, Turlock, Merced, and Fresno are especially noted as centers of alfalfa production and here also we find irrigation highly developed. Within the past few years the Imperial Valley, with its abundant supply of water, has become an extensive producer of alfalfa. In the Sacramento Valley also we find that the importance and production of alfalfa is in direct ratio to the irrigation development. It is true that in a few sections alfalfa is successfully grown with natural sub-irrigation, but the highest degree of perfection is seldom attained unless the farmer has at his command an adequate supply of irrigation water obtained either from a ditch or from wells.

“Alfalfa is not as exacting in its soil requirements as some other crops, though there are certain conditions which are unfavorable to its growth. It thrives best on a deep, well-drained loam of uniform character and of high lime content. Soils which possess an impervious stratum or hardpan near the surface or which have a high water table should be avoided. The alfalfa plant possesses an extensive root system and any soil condition which interferes with its free development will materially check its growth. Acidity or excessive alkalinity are, of course, always objectionable. The former occurs only to a limited extent in this state, but the latter is quite prevalent and is frequently associated with hardpan.

The first step in the preparation of a field for alfalfa is to level and check for irrigation. This work should be carefully done, as the success of the crop as well as the cost of production is affected in a large measure by the rapidity and uniformity with which the water can be distributed, as well as the ease with which it can be applied. Leveling and checking should always be preceded by a careful survey of the field. The system of checks to be used must be governed by the character of the soil, the contour of the field, and the volume of water available. The best time to do the leveling is in the summer or fall when the soil is dry. At this season of the year less labor will be required to do the work, and there is less danger of injuring the physical condition of the soil by puddling or packing than when it is wet. The cost of doing the work will vary greatly, depending on the character of the field and the amount of soil to be moved, but on the basis of normal conditions should not exceed \$20 to \$25 per acre as an average.

After leveling, the checks should be plowed to a depth of eight or ten inches to provide sufficient loose soil for a good seed bed. If water is available in the late summer or early fall, it is a common practice to irrigate the land, prepare the seed bed as soon as possible after irrigation, and then seed the alfalfa. Alfalfa seeded by the middle of September will usually attain sufficient growth before winter to withstand the frost. The more common practice, however, is to level, check, and plow the land in the fall, and then to allow it to lie idle until about the first of March, when the seed bed is prepared with a disc and harrow and the alfalfa seeded at the rate of twenty pounds per acre.

“Ordinarily but little attention is necessary after the seed has been planted. During the first season the young alfalfa should be irrigated sparingly to encourage deep root development. When once established, however, it should be irrigated regularly to assure rapid uniform

growth. Under normal conditions one irrigation per cutting is ample, but upon light soil two irrigations may prove more efficient. After the first year alfalfa will usually respond readily to winter cultivation, which helps to destroy weeds and loosens up the soil, affording better aeration and encouraging bacterial action.

“Upon well-established alfalfa fields five to seven cuttings are obtained per season. The crop should be cut when one-tenth in bloom, or when the new shoots appear at the crown. Under normal conditions four to six tons of hay per acre may be considered a fair season's yield, though with good cultural methods and favorable conditions eight and ten tons are not impossible.

“The cost of preparing the seed bed and seeding the crop, together with the cost of the seed is, at the present time, about \$8 to \$10 per acre. The average cost of handling the hay crop, including irrigation, is probably about \$4.50 to \$6 per ton, though this may vary considerably with local conditions.

“The alfalfa fields of California vary from a few acres to several hundred acres in size. The smaller tracts usually constitute a part of some diversified type of farming, the bulk of the product being fed on the farm. In such cases the present tendency is to include alfalfa in a definite rotation system, allowing it to occupy the land for a period of from four to six years, after which it is plowed up and the land planted to some other crop. As the yield and quality of hay usually declines rapidly after the fifth or sixth year, such a practice is highly commendable, not only because of the greater returns from the alfalfa, but because of the marked beneficial effect on the succeeding crop. On the larger tracts alfalfa is more often regarded as a permanent crop and is allowed to occupy the land as long as it will yield profitable returns. As the alfalfa becomes older, however, more care and cultivation is required to control weeds and keep the crop in a healthy growing condition. In but few instances in the state does an alfalfa field remain profitable after the tenth year.

“In either case, however, alfalfa production is both desirable and profitable, giving good returns and providing employment for both men and team during a large portion of the year. The labor required to handle the crop will vary with the size of the tract and the equipment available; usually, however, it requires two men and two teams to every forty acres throughout the growing season.

“The rental price of alfalfa land varies from \$15 to \$20 per acre, depending upon the locality. In a few cases where intensive dairying is practiced and the alfalfa hay is fed on the ranch \$25 per acre is secured. Renting on shares is not as common as with grain land, though it is practiced to some extent, the owner receiving one-third of the crop and in nearly all cases supplying the water.

“Developed alfalfa land favorably located and in good condition commands a price of from \$250 to \$300 per acre. There is, however, still considerable undeveloped land in many of the alfalfa growing sections of the state, which can be purchased for \$150 to \$200. Higher prices should not be paid unless it has been proved that the conditions are especially well adapted to the production of the crop. There are suitable areas for growing alfalfa which will, in all probability, be

eventually used for that purpose, though not at present considered within the alfalfa growing sections, which can be purchased for \$100 per acre or less."

POTATOES.

The potato is the most important vegetable raised in California. A short crop in 1919 with high prices resulted in an increase of 10,000 acres in 1920 over the previous year. The total acreage in 1920 was 95,000 with a production of 13,015,000 bushels. The following table gives the acreage and production since 1900:

California Potato Crops, 1900-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	26,808	104	2,758,032	\$0 53	\$1,477,657
1901	45,259	101	4,571,159	.77	3,519,792
1902	47,975	118	5,661,060	58	3,283,409
1903	46,536	130	6,049,680	66	3,992,789
1904	47,001	129	6,063,123	67	4,062,295
1905	40,291	165	8,298,015	67	5,559,670
1906	50,291	125	6,286,375	74	4,651,918
1907	48,000	145	6,900,000	90	6,264,000
1908	49,000	107	5,243,000	77	4,037,000
1909	60,000	130	7,800,000	77	6,006,000
1910	70,000	130	9,100,000	85	7,735,000
1911	72,000	135	9,720,000	90	8,748,000
1912	78,000	130	10,140,000	65	6,591,000
1913	68,000	119	8,092,000	70	5,664,000
1914	75,000	138	10,350,000	70	7,245,000
1915	78,000	130	10,140,000	75	7,605,000
1916	75,000	141	10,575,000	1 40	14,805,000
1917	105,000	145	15,225,000	1 50	22,838,000
1918	90,000	143	12,870,000	1 20	15,444,000
1919	85,000	130	11,050,000	1 71	18,896,000
1920	95,000	137	13,015,000	1 50	19,522,000

POTATO CULTURE IN CALIFORNIA.*

"The principal regions are in the delta lands of San Joaquin and Contra Costa counties and the Salinas Valley of Monterey county. Those desiring to investigate this industry would do well to visit the regions in the vicinity of Middle River, Holt and Stockton for the delta country; Blanco and Salinas (Monterey County) and Sebastopol (Sonoma County) for the other regions. There is, also, a considerable acreage in Los Angeles, Orange, Merced, Stanislaus and Napa counties.

"The delta region consists of lowlands which for a long period of time have been inundated by the high waters of the Sacramento and San Joaquin rivers. They have been overgrown by juncus (tule) and other marsh plants. These marshes have been reclaimed by constructing levees along the water courses and then by electrically driven pumps the water has been removed to a level sufficiently low to grow crops. The soil consists of partly decomposed vegetable matter mixed with sediment from the overflows, and in this form it is loose and friable and permits the ready movement of water. The soil is well suited not only to potatoes, but to onions, asparagus, beans, and barley.

*By John W. Gilmore, Professor of Agronomy, University of California.

“Because this soil is very rich in organic matter and because of its loose texture and abundance of moisture diseases that affect the potato thrive readily. These do not often materially damage the first crop, but they are sufficiently prevalent to infest and multiply in the soil, so that future crops are often greatly reduced. The disease causing the most trouble is the *Fusarium*. It infests the soils from year to year, and while it affects the tubers, it does not render them unfit for use during the early part of the season. Its principal effect is upon the young shoots which, after becoming thoroughly diseased, die before the tubers are formed, but too late in the season for replanting. The only effective remedy against this disease now known is to plant the land to non-affected crops until the disease is starved out. It is estimated that this disease causes an annual loss to potato growers in this region of from 20 to 25 per cent of the crop, or a money loss of nearly, if not fully, a million dollars.

“Other diseases, especially Rhizoctonia Scab and Leaks (*Rhizopus*), are common in this and most other regions. The first two diseases may be kept somewhat in control by treating the seed tubers in a solution of one pound formaldehyde to forty gallons of water for one and a half to two hours. This treatment, with care to secure clean seed and a judicious rotation of crops, is reasonably effective. The leaks is a disease that causes the tubers to rot with much odor and sometimes quite rapidly after they are dug. It enters the tubers through bruises caused in digging or handling. Care in these operations seems to be the only effective remedy. These diseases are not so prevalent in upland soils.

“In this region the land is generally plowed in the fall or winter and again at planting time. Planting begins in March and continues into June and sometimes into July, though this is well known to be too late for good results. As a general rule the planting is accomplished by hand, dropping the seed pieces behind the plow every second or third round. As this is very strong land the potato crop is often affected by weeds and much of the labor of growing the crop is expended in their destruction.

“The yields in this section vary greatly. The factors which influence the yield are diseases, lack of storage facilities for seed and the culture methods, especially the preparation of the land and the rotation of crops. Because of these factors the yield varies from 65 to 750 bushels per acre.

“There is a tendency to grow potatoes continuously for as long a period as possible, for this crop pays better returns when not affected than most other crops. It has not been found possible to do this, however, without incurring greatly diminished yields. Consequently, successful potato growing in this region is contingent upon adopting culture methods, especially in respect to rotation crops that will keep the soil bare from the disease.

“Much of this land is held in large tracts and is usually rented at from \$20 to \$35 per acre; or, when on shares, for one-third of the crop. The cash rental of land for potatoes, however, is the more usual method. Where labor is hired it is generally Japanese or Chinese and wages commonly paid are \$2 to \$2.50 per day. The

intrinsic value of these lands depends upon the prevalence of disease in the soil and the equipment of the farmer for using other crops profitably in rotation. But little of this land is for sale, but that which is for sale is held at from \$300 to \$500 per acre.

"A good deal of land in this section still remains to be reclaimed, but it can only be done at considerable expense and by companies or individuals not demanding immediate returns on the money invested.

"*Salinas Valley.*—The conditions under which potatoes are grown in this region are typical of other portions of the state. They differ, however, from those in the delta region, principally in respect to the nature of the soil and lesser prevalence of disease. The soil, on the other hand, is not so productive. The yields vary from 60 to 200 bushels per acre. The average is about 100 bushels, but on reasonably good land and by practicing good cultural methods, about 150 bushels may be counted upon. In this section much of the potato land is rotated with sugar beets. The deep-rooted nature of both of these crops and the tillage methods keep the land in good tilth and in good producing capacity.

"In both of the sections mentioned potatoes are harvested both by hand and by machine diggers and are marketed in sacks weighing about 110 pounds. The price ranges from 90 cents to \$1.65 per sack (50 cents to 90 cents per bushel).

"In any section of California the successful production of potatoes depends most largely upon the prevalence of a deep loam soil well supplied with moisture and free from disease infestation. The interior valleys, where the temperature during the growing season is excessively hot, must be avoided, for the potato thrives best in a cool soil.

"In the southern counties two crops per year are usually produced. The second crop is the more difficult to grow, mainly because of difficulties of securing a good stand and a vigorous growth during the warm weather. The second crop is planted from the middle of July to August 1st. Proper preparation of the land, its cooling by irrigation and sprouting the seed are the principal factors upon which success depends."

SWEET POTATOES.

The sweet potato is not cultivated in California on a large scale. The acreage has been about 7,000 acres for the past three years, with a gradual falling off in production. In 1920 and 1919 the acreage was 8,000 acres. The production for 1920 was 1,056,000 bushels, compared with 1,080,000 bushels in 1919 and 1,190,000 bushels in 1918.

SUGAR BEETS.

Although the production of beet sugar in the United States this past season was the largest in history, the increase in production in California did not keep pace with the increase in other states. Both the acreage planted and the tonnage per acre in California was small, owing to lack of sufficient rainfall. The outlook for 1921 is more favorable.

Sugar Beets and Beet Sugar Produced in California—Acreage and Production in 1918-1920.

Year	Factories in operation	Sugar made, tons ²	Average extraction, per cent.	Average sugar content, per cent.	Beets worked in factories		Average farm price of beets per ton.	Area of beets planted, acres
					Area harvested, acres	Quantity worked, tons ²		
1920 -----	11	163,700	15.79	17.90	123,500	1,037,000	\$13 62	135,700
1919 -----	10	131,172	16.30	17.87	107,174	804,642	14 17	129,506
1918 -----	13	122,795	14.52	17.03	100,684	845,728	9 95	120,900

¹Based upon the weight of the beets

²Short ton of 2,000 pounds.

SUGAR BEET CULTURE IN CALIFORNIA.*

"Sugar beet culture is confined to the vicinity of sugar beet factories, their culture seldom proving profitable at a distance greater than one hundred miles from a factory. Their growing can therefore best be investigated in the territory surrounding the factories at Alvarado, Anaheim, Betteravia, Los Alamitos, Dyer, Huntington Beach, Oxnard, Spreckels, and New Delhi.

"Since the first six to eight tons of beets produced are required to pay the cost of production, only soils capable of yielding good crops should be selected. Soils should be avoided which are shallow, poorly drained, of poor texture, high in alkali, lacking in plant food or humus, or incapable of adequately supplying the moisture requirements of the crop.

"Land for sugar beets usually commands high prices—\$200 or more per acre—but can be rented on a share or cash basis, the former requiring as payment one-fourth or one-fifth of the crop, the latter about \$20 per acre. Where sugar beets are the primary crop the farms range from 60 to 400 acres in size. As a rule, however, 100 acres may be considered the unit farm.

"Sugar beet culture requires a high grade of work stock and special equipment, amounting in all to from \$2000 to \$3000 for each hundred acres.

"Land to go in sugar beets should be put in a fine state of cultivation, by the complete eradication of former crops—as alfalfa, or the subjection of raw conditions—as preceding beets with some other crop on newly broken lands. It is essential to plow as deeply as is consistent with the past handling of the land, and to work down to a fine, firm seed bed. The common practice is to do the bulk of the heavy work in the fall after applying an irrigation, or early in the rainy season after sufficient moisture falls to start the weeds and bring the soil into the proper condition for working. The land is occasionally worked over until seeding time, which ranges from November to May, depending on the section, the bulk of the seeding, however, being done in February and March.

*By R. L. Adams, Professor of Farm Management, University of California.

“The seed is drilled with machines rented from the factories. These seeders plant either four or eight rows at a time at distances varying from 18 to 28 inches, the 22-inch and 24-inch sizes being popular.

“Cultivation starts as soon as the rows can be seen and is repeated as conditions demand until the crop is laid by. When the plants have four true leaves they are thinned to distances which leave the remaining plants at from eight to twenty-four inches apart, the distance depending on the strength of the soil and the available moisture—the most common distance being ten to fourteen inches.

“Irrigation is given to supply ample moisture during the growing periods with a lessening amount at time of maturing. Some lands need but a single irrigation previous to seeding to carry the crop through, while others require several applications during the growing period of the plants.

“When the leaves turn yellow and a test indicates a satisfactory degree of maturity the beets are ready for digging. Specially designed plows loosen either one, two or more rows at a time, when the beets are pulled, several rows thrown together, topped at the junction of the green top with the creamy yellow root, and hauled or shipped at once to the factory.

“The work of thinning, hoeing weeds, cleaning ditches, pulling, topping, and loading the beets is ordinarily done by Japanese, Hindus, or Mexicans working on a day or contract basis—the sliding scale contract based on tonnage produced with bonus provision as a rule giving the best mutual satisfaction. The contract price ranges from 85 cents to over \$2 per ton, according to the yield per acre, with a general average price of perhaps \$1.50.

“The beets are delivered to the factory under a contract drawn up previous to planting, under the terms of which, among other things, the factory agrees to accept all beets coming up to a certain standard—usually set at a minimum of 12 per cent sugar content and 80 per cent purity, with a maximum weight limit of four pounds. These beets are paid for on either a tonnage basis or on the sugar content at prices designated at the time the contract is drawn.

“Each factory employs the service of a thoroughly trained agriculturist, who stands ready to advise and assist all growers in every possible way.”

Directory of California Sugar Beet Companies.

Company	Main California office		Plant		Daily slicing capacity in tons of beets
	Location	Official in charge	Location	Official in charge	
Alameda Sugar Company	351 California st., S. F.	Geo. E. Springer, Secty.	Alvarado, Alameda County	R. S. Stewart, Fac. Supt.	800
Alameda Sugar Company	331 California st., S. F.	Geo. E. Springer, Secty.	Tracy, San Joaquin County	R. S. Stewart, Fac. Supt.	600
American Beet Sugar Co.	625 Market st., S. F.	Rob't Oxnard, Vice Pres.	Chino, San Bernardino County	J. D. Barry, Fac. Mgr.	1,100
American Beet Sugar Co.	625 Market st., S. F.	Rob't Oxnard, Vice Pres.	Oxnard, Ventura County	Frederick Noble, Fac. Mgr.	3,000
Anahelm Sugar Co.	Merchant's Nat'l Bldg., L. A.	A. R. Peck, Pres.	Anahelm, Orange County	D. Jessurun, Supt.	1,200
Holly Sugar Corporation	Huntington Beach	C. A. Johnson, Mgr.	Huntington Beach, Orange County	G. J. Daley, Mgr.	1,200
Los Alamitos Sugar Co.	Pacific Electric Bldg., L. A.	Henry C. Lee, Vice Pres. and Gen. Mgr.	Los Alamitos, Orange County	E. C. Hamilton, Fac. Mgr.	800
Sacramento Valley	564 I. W. Hellman Bldg., L. A.	E. Baruch, Vice Pres.	Hamilton City, Glenn County*	A. M. Gelston, Mgr.	700
Santa Ana Sugar Co.	Huntington Beach	C. A. Johnson, Mgr.	Dyer, Orange County	E. M. Smiley, Mgr.	1,000
Spreckels Sugar Co.	2 Pine st., S. F.	F. F. Sullivan, Gen. Mgr.	Manteca, San Joaquin County	S. E. Miller, Fac. Mgr.	1,200
Spreckels Sugar Co.	2 Pine st., S. F.	F. F. Sullivan, Gen. Mgr.	Spreckels, Monterey County	C. L. Pioda, Res. Mgr.	4,500
Southern California Sugar Co.	Huntington Beach	C. A. Johnson, Mgr.	New Delhi, Orange County	W. R. Wright, Asst. Mgr.	750
Union Sugar Co.	351 California st., S. F.	Geo. E. Springer, Secty.	Betteravia, Santa Barbara County	F. H. Johnson, Mgr.	1,200

*Plant not operating.

RICE.

California is the second largest rice producing state in the United States, Louisiana ranking first. Rice is grown in twelve states, but in eight of these the production is very small, amounting in all to only one-half per cent of the total United States production. The other four states, Louisiana, California, Texas, and Arkansas, produce over 99 per cent of the total production.

The office of Cereal Investigations of the United States Department of Agriculture began varietal experiments with rice in the vicinity of Biggs, California, in the spring of 1909. The experiments were conducted in that locality during the three succeeding years, and during the same period similar experiments were made with a smaller number of varieties at several places in the Sacramento and San Joaquin valleys. These experimental sowings, which were conducted in cooperation with ranchers, furnished some valuable data on the commercial possibilities of rice culture in California and laid the foundation of a new industry for the state. In order that these studies might be enlarged and conducted under more favorable conditions, the Biggs Rice Field Station was established in 1912 with the assistance of ranchers, who organized the Sacramento Valley Grain Association for the purpose of cooperating with the United States Department of Agriculture. The station farm, consisting of 57 acres, is located four miles northwest of Biggs and is irrigated by gravity from the Feather River through a canal system operated by a private company. Its soil is black adobe, which is representative of a considerable acreage of land in the Sacramento Valley, on which rice is very productive.

The first commercial crop of rice in California was grown in 1912 on adobe soil in the Sacramento Valley near Biggs. The profits from this crop of 1,400 acres were large. The wide publicity that was given to the possibilities of rice culture on black-adobe soil resulted in the sowing of more than 6,000 acres in 1913. The greater part of this acreage was in Butte County, though there were several small sowings in the San Joaquin Valley. The average yield of 3,200 pounds of grain per acre which was produced by the 1913 crop gave so great an impetus to the industry that in 1914 the area sown to rice was increased to 15,000 acres. Since that time rice production has increased rapidly, as is shown in the table below. In 1920 rice was grown on 162,000 acres, and the resulting crop was 9,720,000 bushels.

California Rice Crops, 1912-1920.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1912	1,400	50.0	70,000	\$1 09	\$64,000
1913	6,100	48.0	293,000	1 00	293,000
1914	15,000	53.3	800,000	1 00	800,000
1915	34,000	66.7	2,268,000	1 11	2,041,000
1916	53,300	59.0	3,263,000	1 28	2,545,000
1917	80,000	70.0	5,600,000	1 75	9,800,000
1918	106,220	66.0	7,011,000	1 90	13,321,000
1919	142,000	55.5	7,881,000	2 67	21,042,000
1920	162,000	60.0	9,720,000	1 21	11,761,000

Rank of the Leading Five States in Rice Production, 1920.

Rank and state	Production, bushels	Per cent of total production
United States	53,710,000	100.0
1. Louisiana	25,200,000	46.9
2. California	9,720,000	18.1
3. Texas	9,554,000	17.8
4. Arkansas	8,889,000	16.5
5. South Carolina	102,000	0.2
Total five states	53,465,000	99.5

RICE PRODUCTS.

Rice leaves the thresher with the hull or husk attached. It is called rough rice and in this condition is sold to the miller. In the mills it is prepared for the market. After the removal of the hull and seed coat, or skin, the kernels are polished. The polishing improves the commercial value of the rice, but decreases its food value.

After the rough rice has been cleaned in order to remove all kinds of trash, it is conveyed to the milling stones, between which the hulls are removed. From these stones it passes over horizontal screens, where the hulls and the whole and broken kernels are mechanically separated. The unbroken kernels are now conveyed to a set of machines known as hullers, in which the outer skin and much of the gluten layer of the grain, together with the germ, are removed by friction. After leaving the hullers the rice is screened and fanned, to free it from the bran. It is again subjected to another scouring in a second set of hullers or in a pearling cone. It is now ready to be polished, a process which gives the kernels the pearly luster that is demanded by the general trade. In the polishing process more of the gluten layer and many layers of starch cells are rubbed off. This product is called rice polish. After the polishing the rice is screened. If it is to be coated with glucose and tale, as is generally done, it is conveyed to a revolving cylinder where the coating material is applied. The different grades of cleaned or milled rice are afterwards separated.

The unbroken kernels of milled or cleaned rice are known as head rice. This kind of rice always commands the highest price and is sold under several grades, which vary in the different markets but are separately largely according to the brilliancy of the polish and the color and size of the kernels. The broken kernels may be sold as ordinary or broken rice, screenings, or brewers' rice. The last grade is composed of very fine particles of the kernels.

The principal feeds that are obtained from rice are bran, meal, and polish. The bran is composed of the seed coat and the embryo, with varying quantities of hulls. Bran that contains no hulls or comparatively few is called meal. It is the most nutritious of the rice feeds and when fresh is very palatable to domestic animals. On account of its high percentage of fat it often becomes rancid if kept too long. In the polish the percentage of fat and protein is much lower than in the meal, while the percentage of starch is much higher. Polish is used for feeding cattle and pigs.

RICE IN CALIFORNIA.*

“Rice culture in California is one of the newer agricultural industries. Though started about ten years ago, the value of the rice crop now almost equals that of wheat.

The three essentials for successful rice culture are (1) climate, (2) water, and (3) soil. The growing season for rice extends from the middle of April to the middle of October. Frost, which may be expected after October 15th and almost invariably after November 4th, effectively terminates growth and further maturing of the grain.

Climatic conditions in California restrict the rice growing mainly to the Sacramento and San Joaquin valleys, with the exception of the delta regions, where the cool winds from the San Francisco Bay render the climate too cool in summer for successful rice culture.

Water must be available continuously throughout the rice growing season. This limits the area available for rice to those regions whose irrigation systems have sufficient water available until the beginning of October.

The rice fields of the Sacramento Valley are watered principally by the canals from the Feather River, Cache Creek (supplied from Clear Lake), and canals supplied by water pumped from the Sacramento River. The San Joaquin Valley lacks the late summer supply of gravity water, and produces limited amounts of rice. This is made up largely by pumping from wells, which is more costly than gravity water.

About five acre-feet of water are required to produce a crop of rice under favorable conditions. If more than eight acre-feet are required, it is not likely that rice growing will be profitable. Gravity water costs from \$5 to \$10 per acre per annum and pumped water much more.

Rice soils consist of clay loam, silt loam, or adobe, containing considerable organic matter. The subsoils are tenacious and retentive of water, and may or may not contain hardpan.

The principal rice-producing counties in California are Butte, Colusa, Yolo, Glenn, Sutter, and Yuba, with small areas in Merced, Fresno, and Kern counties.

Rice lands are fairly level and are prepared for irrigation by placing levees or borders on the contours at each fall of three and one-half inches. The borders are usually made by graders drawn by engines.

Rice fields are plowed, harrowed, and drilled in the same manner as grain fields. From 100 to 120 pounds of seed are planted per acre at a depth of about one inch. The seeding begins about April 15th and ends by June 1st. Rice planted after May 20th is likely to be caught by the cool weather and rain in the fall. The best yields are secured by planting during the ten days following April 25th. A well-prepared seed bed is just as essential as for other grains.

Irrigation water is required to sprout rice, as rain is seldom available. The date of the first irrigation is considered the date of planting, for rice seldom sprouts before the irrigation. The first irrigation thoroughly soaks the soil, after which from three to six slight irrigations may be necessary to keep the soil soft and wet until the rice

*By W. W. Mackie, Assistant Professor of Agronomy, University of California.

attains a height of six to eight inches, about June 15th. After this the fields are kept continually flooded to a depth of six or eight inches until drained just before harvest in late September or October. The water is drained off before harvest slowly, because too rapid drainage causes the rice to fall and lodge. Ordinarily from six to ten days are required to dry out the soil sufficiently for harvesting operations.

The rice is cut with a rice binder drawn by three to five animals, usually assisted by an attached gasoline engine which operates the machinery. An average of three acres per day is considered fair, while five acres may be cut under favorable conditions. Within one or two days the rice is shocked. After an interval of ten days or more the bundles are hauled directly to the thresher. Rice is never stacked for fear of rain damage. One binder is required for sixty acres and one thresher for about four hundred acres.

The rices grown in California are of the Japanese short grain varieties, which are heavy yielders. In the Sacramento Valley a yield of 3500 pounds per acre of rough rice is considered satisfactory, although under favorable conditions 6000 pounds per acre have been produced. Rice lands yield best the first year and then rapidly deteriorate until the third or fourth year, when the land becomes foul with weeds and is abandoned for a period. On this account the majority of the rice farmers prefer to rent land rather than to purchase it.

The rice lands of the Sacramento Valley rent from \$15 to \$25 per acre per annum, depending upon the nature of the soil and the age of the rice field. The water is usually furnished by the land owner. Where share rentals are asked the tenant gives one-fourth to one-third of the crop.

The cost of growing and marketing a rice crop varies from \$35 to \$50 per acre, varying with the cost of water, labor and seasonal conditions. This high cost necessitates the production of a good crop if decided profits are to be made.

The greatest pests of the rice fields are water grass, blackbirds, and ducks. Water grass exists in all rice fields, but the best growers hand-pull to clean their fields in order that they may continue to grow rice. Water grass is a far more serious problem than the depletion of the soil fertility. Only the cleanest seed should be planted. Red rice in seed should be eliminated, as it shatters and volunteers in the next crop.

The rice growers of California are organized and have largely handled their products through the Pacific Rice Growers' Association, with offices at Sacramento.

The rice industry in the state is well equipped, with large rice mills situated at Biggs, Gridley, Sacramento, Woodland, and San Francisco."

Caloro a Promising New Rice for California Growers.

A new variety of rice, known as Caloro, and well adapted to both new and old land, is being distributed to California rice growers by the Sacramento Grain Association (Inc.), which has cooperated with the United States Department of Agriculture in rice breeding experiments at Biggs, California. This new variety is pronounced the best

of several in selections made and grown under comparable conditions during the past few years. It has outyielded all of the standard varieties of rice grown in California from 8 to 30 per cent during the past four years. In 1919 it gave an average yield of 7,874 pounds per acre as compared with 6,000 pounds from No. 1600 and 5,800 pounds from Early Wataribune, and in 1920 a yield of 6,300 pounds as compared with 4,800 pounds from No. 1600.

Caloro matures about two weeks earlier than Late Wataribune, or five days earlier than Early Wataribune, seven days later than No. 1600 and 10 days later than Onsen. It is the opinion of those who have the opportunity of watching the results from this new variety that it is superior to Early Wataribune, now generally grown in California, in every respect and eventually will replace it. Seed for 6,000 acres was made available this year.

BEANS.

The past three years has shown a marked decrease in the acreage and production of beans in California. Heavy importations of Oriental beans made it difficult to move the crops; prices were unsatisfactory, and as a result growers reduced their acreage. However, the outlook for 1921 shows renewed activity in bean markets, and a larger production should result. The following table gives the bean production by counties from 1918 to 1920:

California's Bean Production, Acreage and Value: 1918, 1919, 1920—by Counties.*

County	1918†			1919			1920		
	Acreage	Production 100-pound sacks	Value	Acreage	Production 100-pound sacks	Value	Acreage	Production 100-pound sacks	Value
	Alameda	400	1,440	\$3,000	100	600	300	1,800	\$9,000
Butte	2,400	14,400	30,000	1,000	6,000	1,000	6,000	30,000	
Colusa	4,000	36,000	160,380	3,000	29,700	1,000	6,000	28,000	
Contra Costa	1,000	4,200	16,800	400	2,400	500	3,000	17,500	
Fresno	850	4,100	11,700	500	2,800	100	800	3,600	
El Dorado						200	1,200	(0.)	
Glenn	800	3,600	12,600	300	2,100	100	750	3,600	
Humboldt	750	3,600	9,792	200	1,440				
Inyo	500	2,400		300	1,250	100	360	1,800	
Kern	1,500	5,400	7,120	900	3,600				
Kings	600	2,900	6,240	200	800				
Lake	100	400	4,540	100	600				
Lassen	200	850		100	780				
Los Angeles	64,500	542,000	3,197,160	48,000	385,200	40,000	252,000	1,386,000	
Madera	2,000	9,000	12,600	500	2,100	500	2,100	11,375	
Mendocino	200	700	3,840	100	480	100	480	3,200	
Merced	11,000	69,500	180,000	6,000	36,000	3,000	12,600	63,000	
Modoc	100	400	4,940	100	780	100	700	4,200	
Monterey	25,000	97,500	693,000	15,000	126,000	8,000	48,000	224,000	
Napa	600	2,500	3,600	100	600	300	1,800	8,500	
Nevada	1,250	600	5,100	100	600	100	600	3,000	
Orange	58,000	417,500	2,037,625	45,000	265,500	30,000	180,000	1,140,000	
Placer	500	2,000	7,200	200	1,440	300	2,100	7,800	
Riverside	10,750	45,200	64,800	8,000	14,400	3,500	14,700	75,900	
Sacramento	25,000	284,000	748,800	16,000	144,000	8,000	43,200	180,000	
San Benito	250	1,000	3,960	100	600				
San Bernardino	8,900	31,000	16,200	1,000	3,600	1,200	5,100	25,500	
San Diego	20,000	96,000	444,000	12,000	55,500	12,500	52,500	313,700	
San Joaquin	37,000	319,700	1,019,600	20,000	192,000	20,000	108,000	486,000	
San Luis Obispo	21,000	151,200	63,000	15,000	108,000	10,000	42,000	168,000	
San Mateo				1,000	9,000				
Santa Barbara	83,000	727,000	2,880,000	72,000	480,000	41,000	221,400	922,500	
Santa Clara	850	3,600	7,200	200	1,200	100	600	3,600	
Shasta	400	1,700	3,600	100	600	100	600	3,550	
Santa Cruz	1,650	7,900	28,800	1,000	7,200	200	1,440	5,200	
Siskiyou	200	750	3,000	100	600				

Solano	10,000	90,000	5,000	63,000	340,200	1,730,660	2,000
Sonoma	450	1,690	18,000	128,000	689	1,730,660	18,000
Stanislaus	38,000	96,986	100	1,000	689	1,730,660	4,000
Sutter	37,000	286,800	15,000	1,000	689	1,730,660	200
Tehama	650	2,350	100	100	689	1,730,660	300
Tulare	2,700	9,750	100	100	689	1,730,660	70,000
Ventura	91,000	255,282	78,000	128,000	689	1,730,660	8,000
Yolo	28,000	1,314,816	100	100	689	1,730,660	3,000
Yuba	4,000	1,314,816	100	100	689	1,730,660	2,000
Totals for state	597,000	5,156,540	000,598	3,020,000	\$20,530,252	62,000	12,000
Total value	\$47,952,000						

* Figures compiled by California Bean Growers' Association.

The average price received by the grower in 1920 of all varieties was \$9.09 per hundred pounds. The average price for each variety is given by the California Bean Growers' Association as follows:

Bean Prices Received by Growers, 1920.
(Per 100 pounds.)

Variety	Average price	Variety	Average price
Limas -----	\$9 83	Large Whites -----	\$7 80
Blackeyes -----	6 91	Small Whites -----	5 03
Cranberries -----	6 75	Pinks -----	6 34
Baby Limas -----	9 43	Bayos -----	9 34

BEAN CULTURE IN CALIFORNIA.*

"Bean culture in California may be considered under two heads, namely, field bean culture and Lima bean culture. While the soils and culture methods for these two types of beans are similar, they differ materially in respect to their requirements for temperature and moisture, including humidity.

Lima Beans.—Mainly because of this difference the Lima bean is most extensively produced in the counties along the coast, including San Diego, Orange, Los Angeles, Ventura. In these counties the valley soils are deep and strong, and the peculiar requisite moisture conditions are afforded by frequent fogs from the ocean. The summer temperature in these bean sections is tempered, especially in respect to its uniformity, by ocean winds. This industry may be most profitably investigated in the vicinity of Ventura, Los Angeles, and Oxnard. In California the climatic conditions are more important as a limiting factor in the production of Lima beans than the soil, except in cases where the soil is unsuitable because of an alkali condition.

Culture Methods.—The bean is a relatively deep-rooted plant, hence deep preparation of the soil is an important factor in the production of the crop. The land is plowed from six to eight or more inches deep as early in the autumn as is rendered possible by the rains. The land is left with rough, untreated surface during the winter months, in order to impound as much of the winter rains as possible. During February and March, when most of the rains are over, the surface is worked a number of times to smooth it down, to kill early germinating weeds, and to prepare the surface for the conservation of the stored moisture and for the planting of the seed. The work that has been expended upon the land up to this time comprises the major portion of the culture that the crop will receive, and this is very important, for thorough preparation in bean culture is more than half the labor insuring a crop. In Lima bean culture this thorough preparation is all the more necessary because little or no rain falls in the regions mentioned between the planting and the harvesting of the crop.

Planting is usually best accomplished during the earlier days of May. By this time the soil has become warm and the free water has distributed itself through the soil. If beans are planted in cold, wet soil they will rot, or at best the plants will be non-uniform and retarded in

*By John W. Gilmore, Professor of Agronomy, University of California.

their growth. From forty to sixty pounds of seed are used per acre, according to the size (the variety) of the seed and the physical condition and the strength of the soil. With optimum physical condition and moisture content less seed is required, for the fewer plants will cover the ground better and yield more. The rows are arranged from thirty to thirty-six inches apart and the beans are planted and thinned so as to stand eight or twelve inches apart in the row. On the stronger and moister soils the wider distances are given. Two inches is about the right depth of planting.

During the growing season the crop is given several shallow cultivations until the vines cover the ground and during this period also one or two irrigations are given, unless through excellent preparation of the soil or abundant winter rains the growing crop does not need the moisture. On account of the absence of rainfall during the growing season, Lima beans in California do not have to be staked.

Lima beans ripen from August 25th to September 25th. When the pods have matured and begun to turn yellow, the vines are cut just beneath the surface of the soil and are afterward thrown into small piles for ripening and curing. In cutting, from five to six acres per day is considered a day's work, while in piling a man will accomplish from three to four acres.

Threshing is usually accomplished by itinerant threshing outfits, putting up from 1000 to 2500 sacks per day. The charge is from 35 to 50 cents per sack, according to location or accessibility.

The yield of Lima beans may range from twelve to thirty sacks (100 pounds each) per acre. The average is about fourteen sacks. The farmer's selling price ranges from 4 to 6 cents per pound. The cost of production ranges from \$18 to \$25 per acre. On the basis of net returns Lima bean land is worth from \$250 to \$500 per acre.

This crop is produced on farms of all sizes, from small areas of five and ten acres to large estates operated by corporations. The implements of culture and production are not expensive. When land is rented the tenant usually furnishes everything and retains two-thirds of the crop.

Field Beans.—There are eleven varieties of field beans of commercial importance grown in California, with a few additional commercial varieties of lesser importance. These are in order of their production:

Pink	Sacramento Valley and Stockton Delta.
Small White	Pajaro, Salinas and Lompoc Valleys.
Lady Washington	Sutter, Colusa, Sacramento and Contra Costa Counties.
Black Eye (Cow pea)	Throughout the interior valleys, lowlands along the Sacramento River and streams.
Cranberry	About the same range as above.
Garbanzo	Sutter County and Stockton Delta.
Red Mexican	Range about same as Pink, except rare in southern California.
Red Kidney	Range about same as Bayou.
White Tepary	Throughout the central valleys on dry lands.
Horse bean	Bay region and central Coast.

Climate, soil and moisture are the principal factors that influence the distribution of these varieties. The bean grower must choose those varieties that are adapted to the conditions of his locality.

What has been said regarding the preparation of the land, culture methods and care of the crop for Lima beans applies equally well for field beans. Among the varieties mentioned may be found those adapted to various soils; but generally the light, sandy soils and the adobes are not suitable to beans because of the poor moisture-holding qualities of the former and the difficulties of keeping the latter in good physical conditions during the summer months.

The major acreage of field beans is not irrigated, but on the drier lands and for those planted late one or two irrigations add much to the yield. The usual practice is to conserve the moisture required by suitable cultivation.

A satisfactory yield of field beans is about 1,400 pounds per acre, though on account of climate and soils the yield varies greatly, 2,500 pounds per acre being frequently produced. The farm price varies with the variety from 3 cents to 8 cents per pound.

The cost of production of field beans varies more widely than for Lima beans, mainly owing to variation in soil conditions. The most usual figure is between \$15 and \$18 per acre."

COTTON.*

"At the close of 1920 growers found themselves with credit exhausted and banks unable to further aid in making advances for picking and shipment to compress. Closing of textile mills, stagnant markets and increased acreage in all parts of the cotton raising sections, especially in the lower San Joaquin Valley, which has proven favorable for high-grade Pima and long staple, resulted in a most critical situation for the growers. Hundreds of acres are left unpicked and much volunteer in 1921 will result. A spot cotton market has been established at Los Angeles, reduced steamship and warehouse rates obtained by its finance and marketing committees composed of the most experienced and far-sighted men in the Southwest.

Of the 340,000 acres planted to cotton in California, about 50,000 were to American-Egyptian and 290,000 to Durango and short staple. Planted acreage, about two-thirds of which was picked, showed Imperial County leading with 126,000 acres, Riverside 25,027, Kern 10,762, Madera 2,000, and Merced 1,100. December 31, 1920, the ginning report showed but 46,593 bales ginned in California."

Cotton in San Joaquin Valley.

The cotton industry is being reestablished in the irrigated valleys of California by the United States Department of Agriculture, with varieties better suited to soil and climate than those favored by farmers when the business was young. Cotton was grown in the San Joaquin Valley, in California, about 50 years ago, but the planters found it increasingly difficult to compete with the short-staple cotton grown in the eastern cotton belt. The enterprise was abandoned when it became apparent that labor and transportation facilities were difficult to maintain.

*From report of California Development Board.

New Cultural Methods Used.

New cultural methods are being used, and long-staple cotton instead of the old short-staple varieties is being planted with great success. A standardized strain of Egyptian long-staple cotton has been developed which is adapted to the soil and climatic conditions in these irrigated valleys.

In districts where cotton is comparatively a new crop the choice of varieties is important. Comparisons made by the Department of Agriculture for the last six years show the Pima variety of Egyptian cotton well suited to the greater part of the San Joaquin Valley, including Kern County northward to Fresno and Madera counties. Pima is a doubtful crop north of Madera County, but here it may be replaced by Durango and other varieties of Upland cotton. These latter varieties may be planted as far north as Turlock, in Stanislaus County. Pima is a superior type, and there is little need for considering any other variety in the districts where it may be grown.

The profits from a successful crop of long-staple cotton may tempt the farmer to plant too much. Cotton specialists warn against this, pointing out that cotton needs heavy irrigation during July and August. It is better to begin the cotton planting upon a comparatively small scale, with the rest of the land in crops that will not require as much water in the summer. A small planting means better care, and usually better cotton, which, naturally, means a better price.

Long-staple cotton in the districts indicated does well as an interplanted crop and removes the risk of depending for an income on a single crop.

Cotton as an Interplanted Crop.

In many districts cotton is gaining favor as an interplanted crop, especially in young orchards and first-year vineyards. In 1918 a farmer in Kern County planted cotton between young apricot trees which were making their third-year growth, and from about two acres of orchard land he obtained nearly \$500 worth of cotton. The cotton occupied only 1.27 acres of the entire plat. In addition to paying for the upkeep charges of this orchard there was a balance of profit. Another farmer in the same county in 1919 set out twelve acres to Sultanina (*Thompson Seedless*) grapevines and interplanted with two rows of Pima cotton between each two rows of vines, from which he obtained a yield of nearly a bale per acre. At the end of the season the vines were in a very vigorous condition, only one being lost in the entire acreage. The system of interplanting cotton in young vineyards and orchards was so profitable in 1919 that many farmers adopted it in 1920, and there were many instances where cotton planted in two rows between each two rows of young vines yielded nearly a bale per acre. The quality of the cotton is as good as when grown alone, and grape experts claim that the young vines are in every way equal to those grown without an intercrop.

Selection of Land.

As to type of soil, it may be said that any soil that will grow good crops of alfalfa and other deep-rooted field crops will grow good cotton. A medium sandy loam is the ideal type, since it is more easily worked

and holds water readily, though large yields have been obtained from both the extremes of sandy and heavy land. Cotton will stand a small amount of alkali, but should never be recommended for alkaline or hardpan soils. If the hardpan is nearer than three feet to the surface, the roots do not develop normally and more water is required.

On good lands when the plants are well grown, the bolls are larger, picking is easier, and the fiber of better and more uniform quality. Many farmers have the idea that land which has been in alfalfa or pasture for several years should not be planted to cotton. Contrary to this belief, the highest yields of cotton in the San Joaquin Valley have usually been obtained from fields previously in alfalfa. Ordinarily less water is required to grow a crop of cotton on alfalfa land, and for this reason more precaution is necessary in applying irrigations to avoid too luxuriant growth.

The details of land preparation and planting have been put in concrete form by the Bureau of Plant Industry, United States Department of Agriculture, in Circular 164. The circular discusses the methods of cultivation, irrigation, picking, and ginning worked out in the Government's experiments with this crop. The circular is illustrated with eleven photographs taken in the fields where the work is being done.

American-Egyptian Cotton.

The imports of Egyptian cotton into the United States during the year ending July 31, 1920, amounted to 485,004 bales of 500 pounds each. The demand for Egyptian cotton by American manufacturers has led to efforts to grow in the United States cotton having its characteristics, and its culture has been established in Arizona and California. The status of the cultivation of Egyptian varieties of cotton in this country is presented in the following statement, prepared by the Bureau of Plant Industry of the Department of Agriculture:

The crop of American-Egyptian cotton of the calendar year 1919 amounted to 42,374 bales of 500 pounds each and consisted exclusively of the Pima variety, which has an average length of staple of $1\frac{1}{2}$ to $1\frac{3}{4}$ inches. The great bulk of the crop was produced in Maricopa County, Arizona, but several hundred bales were produced in Pinal, Pima, and Yuma counties, Arizona, and in Imperial, Kern, and Fresno counties, California. The prices were by far the highest in the history of the industry. Toward the close of the marketing season a sale at \$1.35 per pound to the producer was recorded. The total value to the growers of the lint and seed produced is estimated at about \$20,000,000. The value of the crop in Maricopa County alone is stated greatly to have exceeded the entire cost of construction of the Salt River reclamation project, including the Roosevelt Dam.

The acreage which has been planted to American-Egyptian cotton of the Pima variety in Arizona and California in 1920 is estimated provisionally at 256,000 acres, or more than two and one-half times the acreage grown in 1919. Of this total approximately 185,000 acres are

located in Maricopa County, Arizona. Preliminary estimates of the acreages in other counties are:

Yuma County, Arizona	13,000
Pinal County, Arizona	10,000
Pima County, Arizona	5,000
Imperial County, California	28,000
Kern County, California	10,000
Other counties in California	5,000

COTTON RAISING IN CALIFORNIA.*

"Cotton can be raised in any of the interior valleys of California where irrigation water is to be had and where there is assurance of freedom from cold coast fogs. Commercial plantings at present occur in Imperial, Palo Verde, San Joaquin and Sacramento valleys; Calexico, El Centro, Blythe, Fresno and Chico being the main cotton centers. Ample ginning facilities are now provided at all Imperial Valley points, at Blythe, Yuma, Bakersfield and Fresno, while cottouseed oil mills are located at Calexico, El Centro, Los Angeles and Fresno.

Three general types of cotton are grown: short staple, Durango and Egyptian. Short staple cotton is most commonly planted, as the market is established and less care is required in growing the crop. Mebane Triumph, which represents the majority of the short staple acreage, has an average length of one inch, has a ginning percentage of from 33 to 35 per cent, and yields from one-half bale to two bales per acre, depending upon the conditions under which it is grown and upon the quality of seed used.

Durango cotton, a medium long staple variety introduced from Mexico by the United States Department of Agriculture, has been grown extensively. This variety is well adapted to California conditions, although the yield is affected by a tendency to drop an excessive number of squares as a result of any sudden change of moisture condition affecting the plant. Durango averages $1\frac{3}{16}$ inches in length, has a ginning percentage of from 29 to 31 per cent, and yields slightly less per acre than Mebane Triumph under like conditions. The fibre is used largely for thread manufacture and brings from 3 to 5 cents more on the market than short cotton during normal times.

Egyptian cotton was grown experimentally for a number of years before being adopted by farmers for commercial planting. Both the Yuma and Pima strains of Egyptian cotton were widely planted in 1918. Pima, the better of the two types, is replacing Yuma as rapidly as pure seed can be secured for planting. Pima cotton averages $1\frac{5}{8}$ to $1\frac{11}{16}$ inches in length, has a ginning percentage of from 26 to 28 per cent, and yields from one-fourth of a bale to one bale per acre, averaging one-half bale. Pima Egyptian requires a relatively longer growing season than either Durango or Mebane Triumph, but has an advantage in its tendency to hold on to both squares and bolls when the plant is affected by unfavorable moisture conditions. American Egyptian

*By Walter E. Packard, Assistant Professor of Agricultural Extension, University of California.

cotton, of the grade of Yuma, sold before the war for 19 to 22 cents. The price from 1918 for Pima has ranged between 56 to 65 cents. The use of this variety in the manufacture of strong fabrics has created a demand for this quality of cotton.

It is highly desirable that one type of cotton be selected in any one section, as promiscuous planting causes deterioration by cross-pollination. The mixing of seed at the gin even when great care is exercised in cleaning the gin between ginnings is another very common cause of deterioration in field planting. Any community can gain by specialization on one variety of cotton not only in developing a pure strain of superior quality, but in creating a reputation for a special type which can always be secured by buyers interested in the particular staples.

Cotton can be grown successfully on a variety of soils. Hardpan land or soil containing excessive alkali should be avoided. Sandy loam soil, particularly if it is old alfalfa land, produces the largest yields. Sub-irrigated land is entirely satisfactory, provided the water does not come so close to the surface as to interfere with the proper root development. Good yields have been secured on land where the water table has risen to within two feet of the surface during the summer months.

Cotton is planted any time after the danger of frost is over until the first of June, April being the best month. The usual practice in preparing land for cotton is to plow the field thoroughly early in the spring. The land is then irrigated by flooding and thoroughly disked as soon as the land becomes dry enough to work. Furrows are made with the use of a lister, the furrows being from 3 feet 6 inches to 3 feet 10 inches apart. After furrowing and shortly before planting time, the land is irrigated by running water down the furrows for a sufficiently long time to allow a thorough saturation of the ridges. The land is then harrowed as soon after irrigation as possible, so that the ridges are dragged down quite thoroughly, leaving a mellow seed bed for planting. The seed is drilled in on top of the ridge by the use of an ordinary one or two row corn and cotton planter, from 20 to 35 pounds of seed being used. The land is sometimes harrowed following seeding.

Where surface irrigation is not required cotton is often planted flat, and when the soil is mellow the results are good. Where the land is not ridged the field is plowed, disked and thoroughly harrowed in the early spring and seeded as soon as the weather permits. The objection to this method, where irrigation is practised, is that the seed is often planted where there is insufficient moisture, requiring a second irrigation to sprout the seed.

Volunteering cotton from year to year has been practised in many cases. If the earth is ridged up thoroughly about the plant during the cold winter period it tends to prevent the freezing of the lower buds and a good plant is often secured without reseeded. Volunteering, however, is not generally considered the best agricultural practice.

The irrigation of cotton can be divided into two periods: the first covering the time from planting to the setting of the first bolls, and the second from the setting of the first bolls until maturity. During

the first period it is important to have a deep penetration of moisture in order that the young plants which are becoming established may develop a deep rooting system. During the second period it is important to maintain as uniform a moisture condition as possible in order that the plants may not receive any sudden shock through irrigation, causing a loss of squares and bolls. The number of irrigations and the time of irrigation depends entirely upon the soil and methods of applying the water. In some fields where the soil is mellow one or two irrigations are sufficient, while in heavy clays where water penetrates slowly from twelve to fourteen irrigations are often given. Each farmer should know his soil type and irrigate according to the needs of the plants.

Cotton is thinned when the plants are from five to ten inches high. Mebane Triumph and Durango are thinned from eighteen to twenty-four inches apart in the row, while Egyptian cotton yields best when thinned to from six to ten inches. The first cultivation usually follows immediately after thinning and is continued during the season as is necessary to keep the soil in tilth.

Two insects have caused appreciable damage in the cotton fields of the state. The "tarnished bug" or "common plant bug" (*Lygus pratensis*) appears about June 1st and stings the squares, causing many of them to drop. The height of the damage occurs in July. A "squash bug" (*Euschistus impictiventris*) appears in July and causes considerable loss by stinging bolls, causing the cotton in one or more locks to spoil. No boll weevils have appeared in California.

Some difficulty has been experienced in securing sufficient experienced labor to handle the cotton during the picking season. Picking cost from 75 cents to \$1.25 per hundred pounds of seed cotton before the war, but was increased during the war period to from 2 to 2½ cents per pound for short cotton and from 4½ to 5½ cents per pound for Egyptian. However, labor conditions are again adjusting toward a pre-war basis.

Land suitable for cotton can be purchased for \$100 to \$200 per acre, or can be rented for cash or on shares. Share renting is commonly practised: the land owner furnishing all horses and tools in addition to furnishing land, paying taxes and a portion of the water charges; the renter furnishing all labor and paying a portion of the water cost and receiving one-half to three-fifths of the crop at the gin. Both the picking and ginning expense is usually divided according to the division of the crop. The seed is usually divided equally. Arrangements vary, of course, according to conditions."

COTTONSEED AND COTTONSEED PRODUCTS.

The demand in recent years for cottonseed for use in manufacture is in striking contrast to former conditions relative to this commodity. Before the advent of the cottonseed-oil mill the disposition of the surplus of cottonseed was a trying problem, while now this former waste material provides many valuable commercial products and has sold in the open market at from \$80 to \$90 a ton. Beginning with the extraction of oil, as the prime object, the industry has developed and improved to such an extent that the dirt which attaches itself to the seed in handling is about the only waste matter cast away in the various processes of manufacture. In the progress of the industry it was found advantageous to delint the seed more and more closely, at first for the better separation of the meats from the hulls and, later, as the uses of linters multiplied and the demand for them became greater, for the commercial value of the linters themselves.

Not unlike other industries, the cotton seed industry in California suffered from drastic declines in prices for the by-products of cottonseed. The cost of milling was about equal to the previous year, due to the continued high cost of labor, power, etc., but the prices for the finished products declined faster than the cost of the cottonseed. The potential possibilities of the cottonseed industry are still undeveloped. In the past fifteen years the remarkable development of the cottonseed-products industry in the United States is clearly shown by the fact that in 1905 the total crude cottonseed products in the United States amounted to \$65,000,000, while in 1920 it totaled \$352,000,000.

Figures furnished by the Globe Cotton Oil Mills of Los Angeles give the following estimate for the production of cottonseed in California:

Cottonseed Production in California for 1920-21.

District	Tons
Imperial Valley	60,000
Palo Verde Valley	8,000
San Joaquin Valley	3,000
Coachella Valley	2,000
Total	73,000

The cottonseed milling capacity on the Pacific Coast is at present considerably in excess of available cottonseed.

Supply and Distribution of Cottonseed and Cottonseed Products for Oil Mills for the Years Ending July 31, 1917, 1918, 1919, and 1920.

	Year	Cottonseed (tons)	Cottonseed products			
			Oil (pounds)	Cake and meal (tons)	Hulls (tons)	Linters (500-pound bales)
Supply						
Total -----	1920	4,218,553	1,222,232,989	1,944,652	1,357,202	865,627
	1919	4,649,824	1,333,378,280	2,255,532	1,350,855	960,580
	1918	4,500,476	1,323,241,503	2,260,588	1,408,416	1,246,186
	1917	4,715,017	1,410,509,974	2,478,974	1,270,140	1,347,316
Held in mill at beginning of year ----						
	1920	23,725	5,743,333	44,548	124,593	254,616
	1919	40,438	6,898,574	28,751	61,425	30,868
	1918	31,828	9,184,052	92,540	56,016	102,754
	1917	13,584	2,475,100	183,881	53,026	15,075
Received -----						
	1920	4,194,828	5,025,675	82,819	119,559	577
	1919	4,609,383	1,144,945	56,035	153,882	143
	1918	4,468,648	1,586,326	100,071	356,335	13,010
	1917	4,701,033	377,223	67,337	248,438	1,638
Produced -----						
	1920	-----	1,211,463,981	1,817,285	1,143,059	610,434
	1919	-----	1,325,334,701	2,170,136	1,136,548	929,549
	1918	-----	1,312,471,125	2,037,977	966,035	1,130,422
	1917	-----	1,407,657,651	2,224,756	968,676	1,330,552
Distribution						
Total -----	1920	4,218,553	1,222,232,989	1,944,652	1,387,202	865,627
	1919	4,649,824	1,333,378,280	2,255,532	1,350,855	960,580
	1918	4,500,476	1,323,241,503	2,260,588	1,408,416	1,246,186
	1917	4,715,017	1,410,509,974	2,478,974	1,270,140	1,347,316
Crushed or used for further manufacture.						
	1920	4,012,704	-----	28,574	63,527	-----
	1919	4,478,508	-----	30,108	121,257	-----
	1918	4,251,680	-----	31,002	304,005	-----
	1917	4,479,176	-----	53,830	206,948	-----
Shipped out (including reshipments) ----						
	1920	173,545	1,211,178,661	1,782,112	1,304,367	1685,129
	1919	129,610	1,327,325,845	2,178,514	1,067,398	1703,820
	1918	197,242	1,316,159,834	2,195,062	1,042,441	1,214,401
	1917	202,956	1,401,325,922	2,330,866	1,006,572	1,243,802
Held in mill at end of year -----						
	1920	304,811	11,040,625	133,475	18,304	176,366
	1919	23,725	5,743,333	44,548	124,593	254,616
	1918	40,438	6,898,574	28,751	60,425	30,868
	1917	31,828	9,184,052	92,540	56,016	102,754
Destroyed -----						
	1920	2,220	13,703	491	404	4,182
	1919	17,981	309,102	2,562	7,597	2,644
	1918	11,116	183,075	773	1,545	915
	1917	1,057	-----	1,718	64	704

¹In addition, some linters held on oil-mill premises for the United States Government were not included in stocks held at the plant but were reported as "shipped out."

TOBACCO.

*“The foothills surrounding the great Sacramento Valley and the slopes of the Coast Range Mountains bordering the Pacific Ocean contain several hundred thousand acres of land unsurpassed for the production of tobacco (Turkish type). Most of these lands are idle, some are utilized for grazing. Even if these soils were suitable for the production of other crops—which they are not—there would still remain the problem of irrigation. The conditions that make these lands desirable for tobacco culture are such that render them worthless for the production of other crops.

In the tobacco sections of California conditions of rainfall, humidity, temperature, and the absence of excessive variations in temperature between night and day are well adapted for this industry. This has been proved by the quality of the tobacco produced during the past sixteen years.

Soil most favorable for the cultivation of this type tobacco should contain clay and lime, and must be stony and airy. The land is dry with the necessary warm climate for the tobacco to mature properly. There would be even danger that the sun would dry up the plants if the sea breeze did not freshen them up sufficiently. The best tobaccos are harvested on the slopes with southern exposure. Flat lands, rich in nitrogen, which are suitable for the cultivation of cereals, are not suitable for the cultivation of tobacco.

The production of Turkish type tobacco requires the maximum of hand work, and barring the shade grown wrapper tobacco, it is the most expensive. Method of production in California follows closely that in use in the countries of the Levant, with few improvements. For instance, tractors are used in plowing and disking the larger fields. Fermentation is accomplished in specially constructed rooms where temperature and humidity can be controlled as against the Levantine method of fermenting in “wolls” dug in the ground. Winter cover crops are planted to maintain the necessary elements of the soil.

Early in the spring the land is plowed and the cover crop put under. The field is then left to “take” the spring rains. The seed beds are prepared and the seed plants grown under glass.

About the middle of April the field is disked and cultivated and the plants transplanted in the field. Hoeing and five to eight cultivations are given during the growing period. If pests appear, insecticides are applied. About the first of June breaking of sand leaves is in order.

Then follows priming of leaves. Every morning, before sunrise, experienced men go through the field and gather the ripe leaves. As leaves ripen from the bottom of the stalk upward, the period of harvesting the ripe leaves extends over a period of 28 to 40 days, depending on the season and other local conditions.

Each morning the ripe leaves are brought from the field to the “barn” and strung on cotton strings about six feet long by piercing the butt of each leaf with a long needle resembling a spear. Care is taken to see that each string carries only tobacco of the same quality. On the string, all leaves face in the same direction.

*From a bulletin by Alfred Aram of California.

They are then given a preliminary sweating in specially constructed rooms where humidity and temperature can be controlled at will. This operation usually requires about twenty-four hours. The strings, resembling garlands, are then stretched on bamboo poles of the same length and the poles placed on horizontal racks in the open allowing the leaves to hang down and be cured by the rays of the sun. Depending on the season, all curing is usually finished by the latter part of August. The garlands are then hung in the barn until the rainy or damp season in winter. When the air is sufficiently humid to make the leaves soft and pliable, they are taken down and put through the process of fermentation in specially constructed rooms.

After fermentation the strings are carefully worked over and all unsound or otherwise undesirable leaves plucked from the strings. The strings are then classified according to quality and size of the leaf.

When the tobacco is at a point containing the proper amount of moisture it is then placed in uniform rows in specially constructed collapsible box forms which are made to produce bales of the desired size. The full boxes are then placed under specially constructed baling machines and the tobacco subjected to pressure, compressing it to the size of the finished bales desired. The tobacco which is now a compact mass—with stems forming the two outer walls—is removed from the collapsible form and sewn in burlap. It is now ready for shipment to the manufacturers.

The period from seed to shipment is about thirteen months.

Experience has proved that saving of expenses can be effected by establishing centrally located plants in each district and relieve the individual farmer of all work by taking the tobacco after the completion of sun curing on the farms.

This plan has also resulted in better standardization and impartial grading of the crops. It has resulted in more expert fermentation by making it possible to install special equipment and carry the work under the supervision of experts. The central plant also serves as the marketing center of the district.

It is the plan of the Associated Tobacco Growers of California to conduct these central plants for the growers on the cooperative principle.

Compared with other products of California, the returns from the tobacco crop have been small. Yet the interest manifested in this crop and the demand for the adequate protection of this industry far exceeds its present monetary importance.

Tobacco is an annual plant. Unlike fruit crops, which form the bulk of California's production, it requires no heavy initial investment, nor is it necessary for the farmers to wait three to eight years to harvest a crop.

All year employment makes for permanent residents and increases the economic and social value of these residents. The comparatively small investment necessary and the quick returns from the culture of tobacco, promotes good citizenship by providing opportunity whereby 'the sober, industrious farm hand of today invests the earnings of his all year employment, and becomes the farm owner of tomorrow.'"

HEMP.

During 1920 there were about fifty acres at Davis, California, planted to ramie from which hemp is made. There is but one company in California producing ramie commercially and in fact is the only company growing ramie commercially in the entire United States. According to G. W. Schlichten, president of the American-Mexican Ramie Company, Inc., at Davis, California, who originated hemp and other fibre growing by irrigation, California possesses splendid soil and climatic conditions for producing hemp. Mr. Schlichten has invented and developed patented machines for the successful treatment of the fibre which heretofore was done only by tedious hand work in Asiatic countries where labor is the cheapest. "Millions of tons of flax straw containing a good commercial fibre are annually burned up after the seed has been threshed out of them. A fibre decorticating machine has been invented that will extract the fibre economically and recover thereby a heretofore wasted product thus adding a big source of income to the producer of linseed flax.

Hemp grown by rainfall alone does not always turn out successfully and sometimes is a total failure on account of either too much or too little rain, or none at the time when the crop needs it the most, or too much rain when none is wanted.

This uncertainty of the success of a crop formed one of the obstacles that prevented hemp growing from becoming general in the United States, while the principal obstacle was the lack of efficient machines for the decorticating or extraction of the fibre from the hemp stalks.

The growing of hemp by irrigation and the invention of the Schlichten fibre decorticator have overcome all obstacles in making hemp growing a general agricultural crop and bringing about the extensive use of the fibre which heretofore was not possible.

Over three million acres of jute are annually grown in India. The fibre of jute is somewhat cheaper than hemp and it is extensively used for yarns, twines and woven goods. Hemp is not only much more suitable for these purposes, but in the end it is considerably cheaper than jute on account of its greater durability.

Hemp fibre has an extensive utility such as for the manufacture of the coarser grade of table linens and towelings, crashes, canvas and many other textile goods that are otherwise made of flax, which includes machine sewing thread, shoe and harness thread, carpet warp yarns, fish nets and fish lines, etc.

The most extensive use of hemp fibre is for the production of commercial twines and sewing thread for grain bags, as it excels greatly other material that could be used for those purposes.

The demand for hemp products very much exceeds the supply in this and other countries, as during the World War very little hemp was grown in Russia and other European countries from where the principal supply of hemp fibre comes, and the output has only slightly increased since the war due to economic conditions.

Since the introduction of hemp growing by irrigation in countries and localities where there is no rainfall during the growing season, but where the best soils and growing conditions are found, it is reason-

able to assume that the principal world supply of hemp fibre should hereafter come from these localities where growing is a safe, certain and profitable crop."

CALIFORNIA CROPS.

The following tables summarize the census data relative to all of the crops of 1919 and 1909, except that it does not include nursery or greenhouse products or forest products of farms.

In comparing one year with another it should be borne in mind that the acreage of crops (or the number of fruit trees) and the number of farms reporting are on the whole a better index of the general changes or tendencies in agriculture than either the quantity or the value of the crops, since variations in quantity may be due mainly to favorable or unfavorable seasons, and variations in the value of the crops may result largely from changes in prices between one census year and the next.

For convenience in making comparisons between the crop figures and the total acreage of improved land, a separate total is presented for all those crops for which acreage is reported.

The combined acreage of crops harvested in California in 1919 for which the acreage was reported was 5,756,994, which represents 48.5 per cent of the total improved land in farms (11,878,339 acres). The total crop acreage reported for 1909 was 4,918,917, or 43.2 per cent of the improved land in farms (11,389,894 acres). Most of the remaining improved land doubtless consisted of improved pasture, land lying fallow, house and farm yards, and land occupied by orchards and vineyards, the acreage of which was not reported.

Farm value of crops.—At the census of 1920 the farm schedule called for the value of all farm property, including live stock, and the value of live-stock products sold.

In the case of farm crops, however, wherever a unit value could be used, such as the value per bushel or per ton, the farmer was asked to report the acreage and production of each crop but not the value. To supplement the information obtained from the farmers, the Bureau of Crop Estimates of the United States Department of Agriculture secured by special schedule from its crop reporters average values for such crops. These special schedules were tabulated by the Bureau of the Census, and the resulting averages, approved by the Bureau of Crop Estimates as representing a fair average of the farm value per unit, were used in computing most of the crop values presented in the accompanying tables.

For some products it was not possible to find any satisfactory unit on which to base a computation of the total value. Values were therefore obtained in the 1920 census schedule for vegetables, other than potatoes and sweet potatoes, and for the farm garden.

Summary for All California Crops: 1920 and 1910 Census Figures.

Crop	Farms reporting			Acres harvested			Quantity			Value		
	Number	Per cent of all farms		1920	1910	Per cent of increase ¹	Unit	1920	1910	Per cent of increase ¹	1920	Value
		1920	1910									
All crops With acreage reports. With no acreage reports.				5,756,994	4,918,917	17.0					\$587,000,501	\$146,526,151
Cereals, total ²				2,956,462	1,970,492	34.8	Bushels	56,416,858	39,105,917	44.3	\$108,570,469	\$28,039,826
Corn	8,271	5.78	7.0	116,740	51,935	124.8	Bushels	3,448,459	1,273,901	170.7	5,882,383	1,077,411
Oats	3,516	2.17	3.1	146,889	192,158	-23.6	Bushels	2,951,776	4,143,688	-28.4	2,067,776	2,637,047
Wheat, total	3,961	4.678	8.3	1,086,498	478,217	127.2	Bushels	16,806,882	6,203,206	171.9	36,638,477	6,823,983
Winter	8,359	3.783	7.1	924,593	446,105	116.8	Bushels	14,611,027	5,346,574	173.6	31,968,151	5,483,204
Spring	1,888		1.6	161,875	51,812	212.4	Bushels	2,255,855	862,632	161.5	4,940,326	840,779
Barley	10,743	7.597	9.1	987,098	1,105,138	-17.4	Bushels	21,897,283	26,441,954	-17.2	35,035,654	17,184,508
Rye	463	193	0.4	18,393	7,027	161.8	Bushels	185,820	70,683	162.9	343,770	65,846
Kaffr and milo.	7,183	2.521	6.1	167,814	44,308	278.7	Bushels	4,651,086	988,049	381.9	6,886,818	725,704
Rough rice	490		0.4	130,387			Bushels	6,926,313			20,432,927	
Mixed crops ⁴	48	(⁵)	(⁵)	2,769			Bushels	74,239			103,934	
Other grains and seeds, with acreage reports, total ¹				468,868	163,776	204.6	Bushels	6,582,951	3,328,218	96.9	31,651,816	6,517,453
Dry edible beans	8,743	3,634	7.4	471,674	137,987	188.6	Bushels	4,494,940	4,331,885	708.0	30,798,849	6,295,457
Horse beans	118	67	0.1	1,450	150	872.7	Bushels	49,694	5,584	798.0	124,235	5,659
Dry peas	408	262	0.3	20,893	2,939	636.1	Bushels	182,779	57,468	218.1	648,804	101,016
Peanuts	161	42	0.1	516	99		Bushels	161,046	2,991	466.6	49,145	2,889
Mustard seed	80	66	0.1	2,828	1,961	41.6	Pounds	1,182,334	3,108,270	-62.7	94,635	100,731
Sugar-beet seed	7			704	257	262.7	Pounds	266,995			186,624	
Sunflower seed	50	21		778			Bushels	52,094			6,885	
Seeds with no acreage reports, total.							Bushels	103.7	25,535	181.5	48,235	6,264
Red clover seed	2	(⁶)	(⁶)				Bushels	41,021	741		6,307,461	800,758
Other clover and alfalfa seed	493		0.4				Bushels	1,924	24,101	70.5	861,441	263,646
Vetch seed	13						Bushels	9,315			10,086	
Grass seed (other than timothy)	88	5	0.1				Tons	4,494,940	4,331,885	764.9	51,237	1,323
Hay and forage, total ⁸	65,953	53,760	56.0	2,202,833	2,534,295	-12.6	Tons	2,509,232	1,875,374	38.6	96,121,846	42,206,272
All tame or cultivated grasses.				848,816	645,595	31.5	Tons	19,389	20,001	-3.1	57,678,888	15,397,884
Timothy alone	458	370	0.4	52,276	49,691	12.0	Tons	75,228	73,188	2.9	398,331	185,579
Timothy and clover mixed	1,115	958	0.9	13,227	8,519	78.7	Tons	24,994	30,380	20.7	1,803,581	620,575
Clover alone	803	703	0.7	13,227	8,519	78.7	Tons	24,994	30,380	20.7	464,969	218,289
Alfalfa	31,652	19,901	22.5	718,535	484,134	48.4	Tons	2,412,554	1,639,676	47.1	54,282,479	13,088,530

	2,229	3,061	3,679	1.9	4.2	49,836	92,556	-46.2	Tons	67,957	122,103	-44.8	1,178,938	1,980,911
Other tame grasses ⁹														
Wild, salt, or prairie grasses	3,061			2.6	4.2	178,333	233,127	-29.5	Tons	183,592	281,033	-34.0	2,598,288	2,028,404
Small grains cut for hay	39,958 ⁷			34.0	44.7	1,085,380	1,604,745	-30.5	Tons	1,306,807	2,019,526	-34.3	30,474,379	24,050,727
Annual legumes cut for hay	915			0.8		25,863				207,913			1,375,184	
Slugs crops	1,803			1.5		29,521				24,767			349,538	
Corn cut for forage ⁸	2,033			1.7		13,661	26,470		Tons	24,545	63,444		388,175	450,581
Kamr, sorghum, etc., for forage	1,386			1.2		14,519				125,827	92,508	36.0	2,076,154	272,563
Root crops for forage	1,641			1.4		6,740	4,298	56.8	Tons		9,824,005	-16.3	18,901,258	12,121,958
Vegetables, total	11,518	12,533		9.8	11.2	63,305	67,688	-6.5	Bushels	8,217,637	572,814	51.4	4,879,449	290.8
Potatoes (Irish or white)	1,814	1,133		1.5	1.3	7,632	5,111	49.3	Bushels	867,300			24,111,588	6,883,885
Sweet potatoes and yams	10,937	33,755		9.3	38.3	146,242	79,163						26,270,380	6,133,035
Other vegetables ¹⁰	37,123			31.5		187,357	88,765	111.1		480,941	4,562		284,166	11,474
Farm garden ¹¹									Pounds	46,418	188		9,237,182	1,092
Miscellaneous crops, total	45	12	18	1.1		87,308	324		Bales	21,444	92		1,340,253	1,032
Tobacco	1,248								Tons	665,565	843,263	-20.9	8,669,258	4,813,981
Cotton									Tons	4,068	188		94,463	2,340
Cotton seed (estimated)	1,488	1,071		1.3	1.2	88,237	78,671	12.2	Tons	792,026	614,250	28.9	68,331	32,569
Sugar beets grown for sugar	78	8		0.1		2,178	1,023	112.9	Pounds	12,610,055	11,994,953	5.1	6,557,229	1,731,110
Sorghum grown for sirup	61	24		0.1		8,118	8,391	-3.3	Pounds	137,000	600,000	-77.2	20,550	39,000
Broom corn	144	273		0.1	0.3	113	300	-62.3	Pounds				3,918	840
Hops	2	2				123	7						270,910,698	50,766,869
Hemp									Quarts	15,458,726	26,824,130	-42.4	3,692,852	1,789,214
Sundry minor crops ¹²							9,687						267,817,846	48,917,955
Fruits and nuts, total	7,270			6.2		7,936								
Small fruits														
Other fruits and nuts														

For 1920, \$5,472,623; for 1910, \$594,724. The acreage for flower and vegetable seeds was incompletely reported and has not been tabulated. The entire acreage from which the grass and clover seeds were secured is believed to be included in the acreage given elsewhere for hay and forage.

⁸Corn cut for forage was not reported to any extent in 1910; the quantity shown for 1910 is too small, however, to have any appreciable effect on comparisons between the hay and forage totals for 1920 and 1910.

⁹Includes millet and Hungarian grass.

¹⁰In 1920 figures represent vegetables raised for sale only.

¹¹In 1910 the value of the farm garden was largely included in the value of "other vegetables."

¹²These crops comprise cassava (1920) and willows and chicory (1910).

A minus sign (-) denotes decrease. Per cent not shown when base is less than 100 or when per cent is more than 1,000.

²Excluding 13,661 acres reported for corn cut for forage, which is practically all duplicated in the acreage shown for corn harvested as grain.

³The 1910 figures include small quantities of emmer and spelt and of buckwheat.

⁴Principally wheat and barley grown and harvested together.

⁵Less than one-tenth of 1 per cent.

⁶Includes small quantities of sorghum seed (1920 and 1910) and of flaxseed and broom corn seed (1910).

⁷Includes small quantities of millet seed (1920) and of timothy seed (1910).

The total values include the value of flower and vegetable seeds, as follows:

Acreage of Important Crops: Census Figures 1820 to 1920.

Crop	1920	1910	1900	1890	1880
Corn	116,740	51,985	53,930	70,303	71,781
Oats	146,889	192,158	153,734	57,569	49,947
Wheat	1,086,428	478,217	2,683,405	2,840,307	1,532,449
Barley	987,068	1,195,158	1,029,647	815,995	586,350
Dry edible beans.....	471,574	157,587	45,851		
Hay and forage.....	12,202,853	2,534,235	2,239,601	1,431,574	758,024
Potatoes	63,305	67,638	42,093	38,178	

¹Includes 13,631 acres in corn cut for forage. This crop was not included to any extent in the hay and forage totals prior to 1920.

Percentages and Averages for Important Crops: Census Figures 1920 and 1910.

Crop	Per cent of improved land occupied		Average yield per acre			Average value per acre	
	1920	1910	Unit	1920	1910	1920	1910
Corn	1.0	0.5	Bushels..	29.5	24.5	\$70.22	\$27.75
Oats	1.2	1.7	Bushels..	20.2	21.6	20.20	13.72
Wheat	9.1	4.2	Bushels..	15.5	13.0	34.00	13.22
Barley	8.3	10.5	Bushels..	22.2	22.1	35.49	14.33
Dry edible beans.....	4.0	1.4	Bushels..	13.0	21.1	65.30	30.85
Hay and forage.....	18.5	22.2	Tons.....	2.04	1.71	43.64	16.45
Potatoes	0.5	0.6	Bushels..	129.8	145.1	258.57	72.00

Vegetables Raised for Sale; 1920 Census.

(Vegetables other than potatoes and sweet potatoes.)

Crop	Farms reporting		Acres harvested	Value of product
	Number	Per cent of all farms		
Total	10,937	9.3	146,242	\$24,111,588
Asparagus	265	0.2	17,444	2,640,610
Beans (green)	1,603	1.4	4,126	522,332
Beets	200	0.2	439	50,203
Brussels sprouts	61	0.1	441	85,836
Cabbages	1,639	1.4	5,422	953,658
Cantaloupes and muskmelons.....	2,301	2.0	21,470	3,895,690
Carrots	220	0.3	580	120,342
Cauliflower	390	0.3	3,668	641,161
Celery	517	0.4	5,351	1,518,082
Corn (pop)	77	0.1	408	29,380
Corn (sweet)	1,994	1.7	5,259	479,225
Cucumbers	861	0.7	1,786	313,432
Lt tuce	1,409	1.2	6,121	1,611,550
Onions	1,482	1.3	8,512	2,818,134
Peas (green)	1,451	1.2	8,246	1,072,608
Peppers (green)	443	0.4	4,870	753,740
Pumpkins	257	0.2	1,132	39,030
Radishes	40	(¹)	282	29,750
Rhubarb	165	0.1	614	148,760
Spinach	216	0.2	2,401	312,887
Squashes	311	0.3	942	107,804
Tomatoes	4,148	3.5	31,410	3,570,115
Turnips	209	0.2	385	40,587
Watermelons	1,790	1.5	7,341	619,485
All other vegetables.....			4,223	820,719
Mixed vegetables	620	0.5	3,460	847,256

¹Less than one-tenth of 1 per cent

Sugar Crops: 1920 and 1910 Census Figures.

Crop	Farms reporting			Production		
	Number	Per cent of all farms	Acres harvested	Quantity	Unit	Value
Sugar beets grown for sugar—						
1920.....	1,488	1.3	88,257	663,866	Tons	\$8 669,278
1910.....	1,071	1.2	78,671	843,569	Tons	4,313,981
Sorghum grown for sirup—						
1920.....	78	0.1	1560	14,668	Tons	-----
1910.....	8	(²)	45	188	Tons	-----
Sirup made—						
1920.....				162,973	Gallons	94,463
1910.....				4,330	Gallons	2,340

¹Figures include estimates for incomplete reports.²Less than one-tenth of 1 per cent.

Small Fruits: 1920 and 1910 Census Figures.

Crop	Farms reporting			Production	
	Number	Per cent of all farms	Acres harvested	Quantity (quarts)	Value
Total, 1920.....	7,290	6.2	7,936	15,458,723	\$3,092,852
1910.....			9,687	23,824,120	1,789,214
Strawberries, 1920.....	2,774	2.4	4,974	10,808,048	2,161,612
1910.....	2,282	2.6	4,585	15,694,326	1,149,475
Raspberries, 1920.....	902	0.8	417	882,432	185,310
Loganberries, 1920.....	823	0.7	159	675,592	131,119
Raspberries and loganberries, 1920.....	2,521	2.9	1,992	5,222,117	304,169
Blackberries and dewberries, 1920.....	3,873	3.3	1,742	2,549,082	509,816
1910.....	3,190	3.6	2,576	4,898,524	282,383
Currants, 1920.....	298	0.3	298	511,278	97,147
1910.....	364	0.4	407	852,378	43,508
Other berries, 1920.....	174	0.1	46	52,294	7,848
1910.....			127	156,775	9,679

Fruit and Nut Trees and Grapevines Not of Bearing Age: 1920 and 1910.

Crop	Farms reporting				Trees or vines not of bearing age	
	Number		Per cent of all farms		1920	1910
	1920	1910	1920	1910		
Orchard fruits, total ¹ -----	32,907	-----	28.0	-----	11,523,930	8,410,062
Apples-----	15,454	12,716	13.1	14.4	1,143,947	1,051,177
Peaches ² -----	14,826	15,231	12.6	17.3	1,366,911	4,404,562
Pears-----	13,823	8,582	11.7	9.7	2,178,526	398,093
Plums and prunes-----	16,673	9,795	14.2	11.1	5,237,145	1,599,939
Cherries-----	8,049	6,217	6.8	7.0	347,572	300,033
Apricots-----	7,245	9,075	6.2	10.3	1,243,706	581,524
Subtropical fruits, total ³ -----	-----	-----	-----	-----	4,884,742	2,867,670
Oranges-----	11,069	8,099	9.4	9.2	2,598,759	2,093,410
Lemons-----	5,777	3,629	4.9	4.1	781,535	379,676
Grapefruit (pomeloes)-----	2,239	744	1.9	1.9	81,873	25,589
Limes-----	12	0	(⁴)	(⁴)	436	151
Tangerines-----	23	10	(⁴)	(⁴)	948	34
Citrons-----	1	4	(⁴)	(⁴)	1	30
Figs-----	8,085	5,612	6.9	6.4	594,736	214,527
Olives-----	2,733	2,018	2.3	2.3	687,017	121,659
Alligator pears (avocados)-----	444	-----	0.4	-----	33,965	-----
Guavas-----	34	34	(⁴)	(⁴)	203	443
Loquats-----	196	125	0.2	0.1	462	1,011
Japanese persimmons-----	136	142	0.1	0.2	7,500	8,801
Pomegranates-----	169	96	0.1	0.1	27,321	2,745
Dats-----	153	30	0.1	(⁴)	69,866	19,552
Grapes-----	9,418	10,162	8.0	11.5	21,388,646	39,523,319
Nuts, total ⁵ -----	-----	-----	-----	-----	1,848,559	931,923
Almonds-----	6,639	3,680	5.6	4.2	1,407,901	365,961
Pecans-----	369	294	0.3	0.3	4,707	2,743
Walnuts (Persian or English)-----	8,862	6,574	7.5	7.4	435,951	546,804

¹Includes quinces and (for 1910) mulberries. Since these fruits were not specifically called for by the 1920 schedule, the returns for that year are somewhat incomplete.

²The 1910 figures include nectarines.

³The 1910 figures include mandarins and bananas.

⁴Less than one-tenth of 1 per cent.

⁵The 1910 figures include black walnuts and several other varieties of nuts not called for by the 1920 schedule.

Orchard and Subtropical Fruits, Grapes and Nuts: 1920 and 1910 Census Figures.

Crop	Farms reporting trees or vines of bearing age			Number of trees or vines of bearing age			Production			Value		
	Number		Per cent of all farms	1920		1910	Quantity		1919	1909	1919	1909
	1920	1910		1920	1910		Unit	1919				
Orchard fruits, total ¹	54,028	19,071	45.9	27,681,787	22,485,104		47,557,570	31,501,507	\$91,687,814	\$18,338,897		
Apples	30,543	19,071	28.0	3,128,886	2,482,762		7,812,017	6,823,073	12,156,128	2,901,662		
Peaches ²	88,725	21,637	32.9	3,067,760	7,829,011		15,969,073	9,367,118	27,642,787	4,373,775		
Pears	24,163	19,073	20.5	2,365,646	1,410,905		3,922,923	1,928,097	7,115,261	1,660,963		
Plums and prunes	29,282	18,105	24.9	8,708,436	7,168,705		13,200,806	9,317,979	28,881,734	5,473,589		
Cherries	12,268	9,177	10.4	657,470	522,304		501,013	501,013	2,614,800	951,624		
Apricots	15,485	15,481	13.2	3,688,217	2,932,453		5,907,645	4,066,823	11,815,200	2,768,921		
Subtropical fruits, total ¹	18,540	10,975	15.8	14,906,721	8,725,005		21,628,444	14,433,180	90,849,592	16,752,101		
Oranges	10,135	4,820	8.6	10,297,593	6,015,803		6,516,657	2,756,221	67,048,178	12,951,505		
Lemons	4,219	982	3.6	2,884,770	941,263		465,085	129,515	18,690,810	2,976,571		
Grapefruit (pomelos)	13	9	(*)	231,136	43,424		136	16	830,170	143,180		
Limes	78	37	0.1	130	18		136	16	477	21		
Tangerines	4	3	(*)	2,473	3,637		6,658	3,581	23,306	4,188		
Citrons	16,561	7,846	3	1,504	8		2,062	6	8,008	9		
Figs	3,039	3,074	2.5	503,973	269,001		21,801,859	22,900,368	2,180,194	290,153		
Olive	224		0.2	910,890	836,347		17,594,050	16,132,412	1,405,121	401,277		
Alligator pears (avocados)	71	125	0.1	11,916	7,031		7,919	95,053	63,352			
Guavas	226	175	0.3	3,654	7,031		32,852	1,643	1,643	4,018		
Loquats	270	169	0.2	3,296	3,711		4,328	4,516	17,312	5,870		
Japanese persimmons	212	120	0.2	13,847	3,274		21,452	2,676	85,808	3,344		
Pomegranates	122	8	0.1	24,258	1,771		953,588	30,075	57,215	963		
Dates	26,313	17,793	22.4	17,209	525		144,992	3,382	28,968	418		
Grapes	11,291	6,311	0.6	153,195,213	144,097,670		2,055,614,612	1,673,686,525	65,780,628	10,846,812		
Nuts, total ²	275	217	0.2	3,682,624	2,034,302		67,615,946	28,378,115	19,499,812	2,959,815		
Almonds	275	217	0.2	2,408,040	1,166,730		15,680,748	6,082,513	3,924,940	700,334		
Pecans	14,380	7,357	12.2	2,907	833,231		44,125	44,955	4,241	4,682		
Walnuts (Persian or English)			8.3	1,273,577	833,231		51,902,033	21,432,246	15,570,631	2,247,192		

¹Includes quinces and (for 1910) mulberries. Since these fruits were not specifically called for by the 1920 schedule, the returns for that year are somewhat incomplete.

²The figures for 1910 and 1909 include nectarines.

³The figures for 1910 and 1909 include mandarins and bananas.

⁴Less than one-tenth of 1 per cent.

⁵The figures for 1910 and 1909 include black walnuts and several other varieties of nuts not called for by the 1920 schedule.

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops; 1920 Census.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	Del Norte
<i>Value of All Crops.</i>									
Total, dollars	587,600,591	8,652,929	83,742	682,186	11,582,780	593,610	13,240,785	10,044,871	358,355
Cereals, dollars	108,570,469	1,482,974	12,016	145,706	6,872,198	73,548	11,024,649	2,345,387	14,207
Other grains and seeds, dollars	38,349,277	19,779	818	818	154,380	2,195	81,984	489,702	210
Hay and forage, dollars	93,121,846	2,851,161	69,804	233,253	1,825,494	293,121	742,304	2,356,755	293,423
Vegetables, dollars	47,377,921	1,681,982	3,566	36,417	96,221	43,919	85,917	3,311,485	39,575
Fruits and nuts, dollars	276,916,698	2,765,805	7,300	246,022	2,882,671	151,663	1,311,943	1,587,962	10,910
All other crops, dollars	26,276,380	331,828		391,766		146	33,021	2,900	
<i>Selected Crops.</i>									
(Acres harvested and production.)									
Cereals—Total, acres	2,656,462	34,988	215	5,174	91,487	2,914	152,486	49,495	820
Bushels	56,416,848	877,430	5,870	92,780	2,869,341	45,912	4,756,512	1,340,183	11,323
Corn, acres	116,740	1,332		143	676	182	2,245	8,313	3
Bushels	3,448,459	33,802		17,880	18,138	2,902	57,463	287,222	110
Oats, acres	146,889	2,719	21	1,350	3,987	773	229	3,160	252
Bushels	2,963,776	72,524	460	23,743	56,970	14,403	5,146	84,780	8,253
Wheat, acres	1,080,428	11,825	181	1,251	44,177	1,257	29,787	17,257	6
Bushels	16,866,882	201,153	4,970	13,559	730,679	14,148	584,347	351,723	112
Barley, acres	987,068	19,045	10	1,916	17,546	700	74,490	20,181	80
Bushels	21,897,283	569,352	420	32,216	465,219	13,844	1,803,870	611,139	3,451
Kafr, mil ^o , etc., acres	167,814			173	1,093	27	883	425	
Bushels	4,051,086			2,977	19,209	513	35,160	13,974	
Rough rice, acres	130,367				24,007		44,849		
Bushels	6,926,313				1,468,786		2,398,367		
Other grains and seeds—Dry edible beans, acres									
Bushels	41,674	145		7	2,177	333	529	5,426	3
	6,562,951	2,797		171	31,628	464	8,975	82,907	33
Hay and forage—Total, acres									
Tons	2,292,853	60,661	1,840	11,082	34,294	12,290	17,051	60,904	4,080
	4,494,910	103,680	3,374	12,710	67,181	14,020	32,900	105,970	17,807
All tame or cultivated grasses, acres									
Tons	848,849	9,151	1,144	2,155	10,917	1,923	6,516	11,095	1,247
	2,599,232	39,549	2,178	4,023	32,820	4,388	23,062	28,156	2,659
Timothy alone, acres									
Tons	19,389	202	240		52		72	203	
	10,389	202	240		52		72	203	
Timothy and clover mixed, acres									
Tons	52,276	206	400	7	47	101	369	50	3
	75,328	484	739	872	47	191	375	100	7
Clover alone, acres									
Tons	15,227	3,083	184	16	274	79	759	330	72
	24,594	4,848	288	28	565	163	88	478	241
Alfalfa, acres									
Tons	718,515	5,227	414	1,243	9,994	1,159	8,924	6,040	42
	2,412,534	24,337	911	3,694	31,449	2,917	22,330	29,711	113
Other tame or cultivated grasses, acres									
Tons	49,836	515	901	301	550	572	101	4,472	1,130
	67,397	728	789	1,067	167	167	167	6,472	2,178
Wild, salt, or prairie grasses, acres									
Tons	178,353	454	665	3,085	1,468	4,614	83	5,229	142
	185,592	476	1,194	2,392	1,411	3,700	70	6,262	183
Small grains cut for hay, acres									
Tons	1,085,380	48,269	1,194	5,428	20,880	5,544	7,065	44,347	1,747
	1,296,807	68,826	5,144	5,428	22,840	5,723	9,198	70,693	4,547
Annual legumes cut for hay, acres									
Tons	25,863	1,709	197	1,147	492	163	271	50	16
	30,057	2,451	135	1,355	495	222	264	90	40
Silage crops, acres									
	29,521	170		99	281		67		187

Tons	882	905	2,185	490	5,092
Corn cut for forage, acres	13,661	127	68	17	69
Tons	24,567	73	98	10	16
Kaffir sorghum, etc., for forage, acres	14,519	22	179	18	9
Tons	24,545	3	884	24	6
Root crops for forage, acres	6,740	9	26	14	27
Tons	125,827	298	26	40	57
Vegetable—Potatoes (Irish or white), acres	63,305	809	54	51	6,671
Bushels	8,217,367	106,782	4,294	4,017	1,144,914
Other vegetables, acres	146,242	9,638	583	82	4,336
Miscellaneous crops—Sugar beets for sugar, acres	88,237	2,604		2	
Tons	66,806			16	
Cotton, acres	87,308			60	
Bales	46,418			6	
<i>Fruits and Nuts.</i>					
Small fruits—Total, acres	7,496	483	46	11	1
Quarts	15,458,726	1,126,312	65,933	13,895	7,854
Orchard fruits—Total, trees not of bearing age	11,536,930	218,548	251,369	140,954	221,386
Trees of bearing age	27,691,757	500,281	785,940	301,871	412,850
Bushels harvested	47,557,370	337,933	785,940	47,679	6,455
Apples, trees not of bearing age	1,143,347	18,907	15,673	3,443	18,640
Trees of bearing age	3,128,386	793	44,491	1,175	21,189
Bushels half-sted	7,842,017	42,485	57,425	2,420	3,246
Peaches, trees not of bearing age	1,305,911	3,406	22,731	2,655	11,873
Trees of bearing age	9,697,760	11,237	196,715	7,401	43,364
Bushels harvested	15,969,073	10,765	301,993	8,447	70,149
Pears, trees not of bearing age	2,178,223	20,289	14,347	428	908
Trees of bearing age	2,305,646	69,949	31,762	4,285	87,138
Bushels harvested	3,952,923	115,981	3,004	5,307	199,651
Plums and prunes, trees not of bearing age	5,237,145	50,184	196,184	134,670	42,848
Bushels harvested	8,708,486	145,111	40,541	101,709	61,497
Apricots, trees not of bearing age	13,200,806	123,622	391,755	372,314	66,322
Trees of bearing age	1,243,706	101,963	1,247	1,334	6,332
Bushels harvested	3,688,217	292,345	3,108	3,210	21,814
Grapes, vin s, not of bearing age	5,907,645	556,269	4,340	3,189	51,517
Vines of bearing age	21,388,646	29,910	18,376	1,254	29,949
Pounds harvested	153,195,213	2,214,397	399,233	74,081	1,710,451
Subtotal fruits—Oranges, not of bearing age	2,055,614,612	13,919,068	594,843	785,151	13,623,589
Trees of bearing age					
Pounds harvested					
Lemons, trees not of bearing age	781,595	144	87	161	142
Trees of bearing age	2,881,770	678	2,157	32	44,233
Boxes harvested	6,551,657	581	3,523	25	3,800
Nuts—Total, trees not of bearing age	1,848,559	7,671	89,388	117,378	8,153
Trees of bearing age	3,682,694	25,140	239,372	80,215	271,406
Pounds harvested	67,615,996	231,970	2,632,417	62,384	1,250,893
Walnuts (Persian or English)—					
Trees not of bearing age	435,951	1,700	5,671	2,262	27,186
Trees of bearing age	1,272,577	7,011	4,114	4,117	39,493
Pounds harvested	51,962,693	133,814	106,067	38,670	408,626

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops: 1920 Census—Continued.

	El Dorado	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen
<i>Value of All Crops.</i>										
Total, dollars	867,088	51,861,292	11,571,013	4,082,555	17,200,784	1,503,195	6,085,421	11,940,369	1,619,428	2,104,934
Cereals, dollars	45,263	2,261,323	9,653,717	156,781	4,903,233	300,901	2,542,033	3,797,094	331,012	373,275
Other grains and seeds, dollars	94	44,233	3,120	31,742	45,017	6,803	16,538	5,784	59,578	675,063
Hay and forage, dollars	226,025	6,762,870	1,416,089	2,982,546	2,562,696	1,071,284	2,610,781	2,082,372	475,496	1,513,177
Vegetables, dollars	80,012	166,100	24,143	517,676	3,541,078	67,692	37,377	63,532	53,758	98,542
Fruits and nuts, dollars	508,680	42,857,283	479,783	303,628	124,978	55,808	484,745	5,937,274	662,977	59,177
All other crops, dollars		333,423	461	85,292	6,065,682	327	193,927	84,313	35,657	
<i>Selected Crops.</i>										
(Acrees harvested and production.)										
Cereals—Total, acres	1,881	75,007	128,912	3,779	112,648	5,997	76,753	87,271	9,181	15,757
Bushels	31,071	1,292,028	4,014,357	110,574	2,742,503	164,034	1,359,527	2,095,230	174,414	187,832
Com, acres	65	3,465	415	418	1,682	3,252	2,453	4,443	1,045	6
Bushels	1,575	76,279	8,008	8,650	51,111	92,694	73,708	193,811	25,840	132
Oats, acres	782	1,282	528	1,486	514	314	697	287	484	1,039
Bushels	15,051	16,628	9,156	50,301	16,805	8,078	12,003	8,102	8,001	19,551
Wheat, acres	704	27,476	39,851	9,17	25,711	2,161	41,772	51,984	5,333	11,986
Bushels	8,382	406,019	529,751	18,343	543,756	57,657	436,523	892,852	94,952	140,042
Barley, acres	275	36,532	54,631	812	18,225	27	17,481	91,280	2,303	926
Bushels	3,687	592,463	1,191,313	31,768	478,031	5,605	348,563	647,282	48,461	17,069
Kafr, millo, etc., acres	17	5,255	3,600		65,421		13,196	7,751		
Bushels		152,252	117,009		1,672,080		403,773	219,331		
Rough rice, acres	220						708			
Bushels		1,050	2,176,250				24,382			
Other grains and seeds—Dry edible beans, acres	2	161	50	303	2	20	162	8	86	
Bushels	20	2,356	504	4,266	32	183	1,623	78	787	
Hay and forage—Total, acres	9,717	94,921	29,875	36,059	61,482	17,883	50,124	42,942	12,477	66,333
Tons	11,023	306,790	64,201	164,000	128,480	52,379	118,711	93,793	21,872	89,740
All tame or cultivated grasses, acres	1,714	67,050	16,184	32,516	49,130	14,934	14,934	30,334	6,023	24,191
Tons	2,294	250,235	45,908	131,710	97,175	43,741	91,648	71,957	14,947	39,618
Timothy alone, acres	5	320	208	252	45	168	225	10	292	
Tons	6	400	268	323	46	311	313	17	450	
Timothy and clover mixed, acres	91	2,619	59	2,312		1,071	156		156	2,631
Tons	219	2,738	73	4,362		2,075	233		233	2,910
Clover alone, acres	165	94		2,312		168	12		140	3,307
Tons	294	22		7,147		318	28		213	2,589
Alfalfa, acres	303	64,056	2,366	48,508		13,169	39,543	30,316	5,375	17,269
Tons	707	255,322	43,646	9,122	86,330	40,763	1,769	71,381	13,017	31,912
Other tame or cultivated grasses, acres	1,150	611	1,841	5,371	381	358	327	139	342	792
Tons	1,048	663	1,921	10,816	383	534	508	258	587	807
Wild, salt, or prairie grasses, acres	2,845	431	813	403		1,940	125		789	34,707
Tons	2,538	533	736	403		1,824	143		751	36,844
Small grains cut for hay, acres	5,022	25,619	12,139	17,697	7,362	205	1,074	10,708	5,254	7,097
Tons	6,219	31,643	14,643	30,409	6,634	181	1,760	14,230	6,045	5,357
Annual legumes cut for hay, acres	91	228	143	496	287	2	105	48	6	239
Tons	117	392	134	1,125	396	2	111	6	217	6
Silage crops, acres	11	2,314	367	1,252		779	785	954		229

Tons	9,410	1,943	3,769	12,802	5,871	4,919	6,023	716	640
Corn cut for forage, acres	14 518	96	636	1,004	293	201	384	164	1
Tons	812	116	966	1,889	564	375	663	214	2
Kafir, sorghum, etc., for forage, acres	8 747	19	132	2,395	132	717	314		
Tons	1,731	721	36	4,415	396	715	913		
Root crops for forage, acres	2 14		3,821	2	10	10		12	33
Tons	98,502	9	95,502	9	40	40		73	63
Vegetables—Potatoes (Irish or white), acres	185	4	902	8	182	557	30	132	324
Bushels	9,705	291	141,324	228	19,101	61,554	3,159	13,193	25,203
Other vegetables, acres	450	85	181	14,059	33	766	282	29	48
Miscellaneous crops—Sugar beets for sugar, acres							300		
Tons	5,551	3		56,938	13	1,296	1,694		
Bales	1,674	2		26,343	33	847	640		
<i>Fruits and Nuts.</i>									
Small fruits—Total, acres	76	17	105	8	9	21	20	19	16
Quarts	152,628	18,124	154,376	24,300	8,239	33,068	19,415	27,385	8,046
Orchard fruits—Total, trees not of bearing age	153,320	142,236	15,039	5,183	28,051	229,060	160,506	172,066	2,133
Trees of bearing age	239,242	89,132	78,982	3,931	28,493	288,487	629,875	169,625	18,130
Bushels harvested	2,632,518	164,812	1,76,055	2,857	26,473	1,166,371	1,482,687	314,139	31,270
Apples, trees not of bearing age	4,721	1,840	7,882	218	18,737	89,630	1,887	2,499	1,130
Trees of bearing age	26,464	3,773	51,375	148	17,963	17,890	5,663	17,394	9,258
Bushels harvested	57,518	63,847	1,749	39	16,728	21,818	12,268	28,217	21,520
Peaches, trees not of bearing age	4,994	101,082	20,379	1,088	2,837	19,131	52,230	2,500	482
Trees of bearing age	51,011	2,515,288	37,355	658	5,850	17,001	92,242	10,988	4,016
Bushels harvested	32,846	5,059,753	2,295	440	6,283	22,569	422,460	12,136	1,856
Pears, trees not of bearing age	127,151	4,561	30,477	2,858	3,465	83,452	497	117,937	188
Trees of bearing age	17,412	17,411	5,066	779	3,465	44,696	6,382	85,776	691
Bushels harvested	30,169	11,954	8,658	376	3,168	26,373	10,587	174,210	885
Plums and prunes, trees not of bearing age	15,310	169,141	2,566	443	77	20,176	50,880	48,622	221
Trees of bearing age	47,211	198,963	34,942	1,988	496	19,005	64,679	54,460	221
Bushels harvested	41,692	292,067	41,373	1,543	500	21,351	117,170	98,523	3,526
Apricots, trees not of bearing age	3	40,422	3,814	293		15,259	55,042	90	27
Trees of bearing age	20	176,838	6,946	12	7	23,392	184,112	363	32
Bushels harvested	27	312,400	8,697	24	7	29,484	420,107	220	101
Grapes, vines not of bearing age	1,044	12,110,728	6,586	1,903	930	142,465	447,248	5,620	53
Trees of bearing age	181,067	59,868,677	22,347	245,684	15,809	375,700	5,608,040	243,278	7,278
Bushels harvested	570,422	944,281,518	112,956	1,871,591	303,600	3,367,010	96,843,093	617,252	13,442
Vines of bearing age	2	7,380	7,380	1,493		25,879	72	8	
Subtropical fruits—Oranges, not of bearing age	78	150,577	40,639	2,512		51,144	101	38	
Trees of bearing age	87	128,516	42,941	1,719		22,834	133	13	
Boxes harvested		5,740	298	298		614	7	1	
Lemons, trees not of bearing age		18,023	1,172	478		962	8	4	
Trees of bearing age		16,903	1,038	418		221	4		
Boxes harvested									
Nuts—Total, trees not of bearing age	3,431	15,107	3,862	240	41	6,148	2,477	24,550	
Trees of bearing age	1,988	10,712	2,263	491	26	9,253	1,900	33,361	
Pounds harvested	21,413	162,271	337,761	16,212	300	35,657	44,517	141,567	
Walnuts (Persian or English)—									
Trees not of bearing age	1,646	2,716	3,826	8	28	943	530	10,178	
Trees of bearing age	1,804	3,837	2,102	400	8	87	780	3,463	
Pounds harvested	20,333	105,723	27,338	16,000	135	2,406	28,288	43,419	

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops: 1920 Census—Continued.

	Los Angeles	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa
<i>Value of All Crops.</i>										
Total, dollars	61,366,608	4,697,938	1,452,334	290,004	4,124,824	13,288,944	2,564,001	210,686	9,593,270	4,229,633
Cereals, dollars	855,630	2,256,056	100,481	43,478	469,947	3,910,108	301,638	7,523	2,408,114	60,923
Other grains and seeds, dollars	12,140	2,586,128	5,462	167	5,030	217,185	111,324	42	1,224,759	785
Hay and forage, dollars	5,690,444	1,170,076	771,537	119,719	1,114,175	5,845,411	1,983,625	103,536	2,389,759	779,394
Vegetables, dollars	7,994,309	460,940	37,464	37,464	81,873	933,022	103,983	45,885	575,175	82,182
Fruits and nuts, dollars	42,117,820	1,105,010	76,341	59,705	1,469,706	2,823,357	64,321	3,200	1,158,199	3,390,370
All other crops, dollars	2,282,248	2,911	37,570	20	884,431	5,751			1,837,268	
<i>Selected Crops.</i>										
(Acres harvested and production.)										
Cereals—Total, acres	31,293	104,559	2,636	1,875	14,034	131,622	13,431	160	66,671	17,146
Bushels	496,213	1,181,325	95,887	27,417	276,583	2,265,390	153,207	4,655	1,342,271	344,315
Corn, acres	6,222	889	39	9	1,036	5,132	4	7	1,317	1,143
Bushels	149,540	24,310	839	108	21,051	97,428	99	125	15,687	29,543
Oats, acr. s	1,363	2,292	2,287	330	2,806	3,731	220	30	4,207	4,465
Bushels	27,162	32,183	83,654	4,415	76,169	75,626	4,832	1,500	15,123	12,815
Wheat, acres	11,563	56,354	78	273	7,818	29,759	8,883	53	39,315	8,780
Bushels	96,822	614,788	1,462	3,189	120,671	482,847	9,970	1,430	491,932	136,943
Barley, acres	9,023	40,634	229	1,230	2,050	80,002	2,349	70	51,012	2,742
Bushels	162,142	448,133	3,793	19,435	56,641	1,403,569	41,213	1,400	764,693	51,872
Kafr, mils, etc., acres	2,281	2,062	3	1		7,845				
Bushels	58,860	35,730	179	8		122,048				
Bushels		275		1		437				
Bushels		9,247		3		28,045				
Other grains and seeds—Dry edible beans, acres	70,505	297	41	3	40	4,164	15	1	17,791	20
Bushels	546,650	2,583	1,153	36	349	38,929	244	9	290,069	167
Hay and forage—Total, acres	125,542	22,497	19,316	6,381	31,707	35,629	89,626	3,430	75,716	19,284
Tons	274,594	52,311	34,307	5,240	51,269	51,693	108,391	7,860	105,249	34,220
All tame or cultivated grasses, acres	23,900	12,574	210	830	7,091	73,337	43,675	2,618	17,103	2,923
Tons	123,700	41,792	411	581	17,415	233,365	62,512	7,107	53,056	7,519
Timothy alone, acres	161		52	99	95	2,445		60		
Tons	172		77	122	148	2,947		108		
Timothy and clover mixed, acres	135	3			22,010	856				
Tons	189				207	30,392		1,577		
Clover alone, acres	149			7	84		145	181	10	52
Tons				14	173		295	180	15	83
Alfalfa, acres	25,992	12,407	121	121	5,582	72,901	15,883	1,562	16,817	2,317
Tons	122,131	41,532	258	186	15,475	232,974	24,889	5,242	52,713	7,217
Other tame or cultivated grasses, acres	463	164	34	702	1,231	4,533	3,692		276	248
Tons	977	246	76	381	1,461	3,311	4,070		397	241
Wild, salt, or prairie grasses, acres	249		240		1,633	4,545	37,847	603	692	116
Tons	331		211		1,818	4,803	36,978	677	324	106
Small grains cut for hay, acres	90,257	9,480	14,182	5,376	21,979	14,061	10,294	63	56,966	16,602
Tons	98,985	8,917	25,465	4,501	26,763	17,483	9,172	44	48,572	25,249
Annual legumes cut for hay, acres	749	30	4,559	122	260	245	108	4	383	74
Tons	870	17	7,443	97	446	362	126	4	260	154
Silage crops, acres	3,559	59			397	1,983				209

34,048	437	1,703	11,413	225	705
Tons	39	16	541	163	176
Corn cut for forage, acres-----	47	272	8	7	8
Tons	260	555	851	200	222
Kafir, sorghum, etc., for forage, acres-----	6	37	19	9	4
Tons	1,350	258	655	13	9
Tons	2,083	89	77	45	50
Root crops for forage, acres-----	80	157	66	20	195
Tons	726	2,780	265	2,000	49
Vegetables—Potatoes (Irish or white), acres-----	1,212	686	250	2,101	49
Bushels	161,508	4,827	17,242	187,597	6,701
Other vegetables, acres-----	272	17	1,211	543	145
Miscellaneous crops—Sugar beets for sugar, acres-----	685			23,484	
Tons	2,800			141,316	
Cotton, acres-----	39				
Bales	9				
<i>Fruits and Nuts.</i>					
Small fruits—Total, acres-----	34	8	70	1	36
Quarts	35,313	16,220	70,119	29,967	258,659
Orchard fruits—Total, trees not of bearing age-----	92,704	2,575	196,805	4,890	518
Trees of bearing age-----	135,302	18,296	227,853	31,312	430,100
Bushels harvested-----	1,476,400	28,901	423,852	694,247	284,178
Apples, trees not of bearing age-----	81,531	1,947	24,481	3,931	669,250
Trees of bearing age-----	8,889	7,323	12,619	4,146	745,752
Bushels harvested-----	303,057	7,912	94,374	25,076	15,737
Peaches, trees not of bearing age-----	50,421	1,850	7,048	549,562	60,858
Trees of bearing age-----	421,680	1,785	13,970	170	7,100
Bushels harvested-----	639,883	2,985	19,837	8,373	32,659
Pears, trees not of bearing age-----	244,900	11,884	95,261	1,645	4,486
Bushels harvested-----	159,331	1,548	612	2,312	38,822
Plums and prunes, trees not of bearing age-----	109,186	1,090	51,087	1,172	9,565
Trees of bearing age-----	60,577	2,292	67,905	2,292	12,499
Bushels harvested-----	89,008	4,187	87,248	2,969	59,087
Apricots, trees not of bearing age-----	35,581	10,904	63,795	1,947	23,210
Trees of bearing age-----	169,125	15,185	17,871	1,458	71,470
Bushels harvested-----	296,633	2,547	77,277	28	344,411
Grapes, vines not of bearing age-----	134,476	769	38,438	688,166	10,506
Vines of bearing age-----	2,042,556	79,736	1,989,977	2,355,545	440,866
Pounds harvested-----	18,700,911	605,745	18,337,381	24,334,197	58,728
Subtropical fruits—Oranges, not of bearing age-----	549,361	57	52	2,679	31
Boxes harvested-----	2,624,172	422	994	3,388	186
Trees of bearing age-----	8,240,673	1,409	8	5,737	730
Lemons, trees not of bearing age-----	256,363	1	10	52	40
Trees of bearing age-----	829,286	9	6	36	74
Boxes harvested-----	2,147,900	44	174	34	118
Nuts—Total, trees not of bearing age-----	138,652	1,073	4,164	118,628	15,378
Trees of bearing age-----	473,823	330	2,681	53,229	15,772
Pounds harvested-----	18,947,338	3,355	42,369	282,059	4,442
Walnuts (Persian or English)—	100,837	38	3,858	1,942	695
Trees not of bearing age-----	410,478	70	1,876	1,042	805
Trees of bearing age-----	18,210,977	1,515	33,166	18,928	6,239
Pounds harvested-----					10,149

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops: 1920 Census—Continued.

	Nevada	Orange	Placer	Plumas	Riverside	Sacra- mento	San Benito	San Bernardino	San Diego	San Francisco
<i>Value of All Crops.</i>										
Total, dollars	399,461	24,467,281	5,089,703	592,728	18,482,449	19,845,858	4,115,671	26,517,455	7,829,041	150,654
Cereals, dollars	11,661	319,878	681,124	62,136	1,536,241	3,285,382	472,112	603,190	795,348	
Other grains and seeds, dollars	320	2,351,901	383		281,148	3,047,559	1,822,442	493,307	370,914	
Hay and forage, dollars	163,576	874,439	261,788	475,322	2,583,202	1,978,778	1,040,191	1,815,266	1,689,621	45
Vegetables, dollars	61,833	1,473,037	49,538	20,633	888,194	3,228,689	104,613	422,718	706,851	150,653
Fruits and nuts, dollars	162,406	17,965,317	4,075,216	5,237	9,689,920	6,346,873	1,131,025	23,429,055	4,065,611	
All other crops, dollars	75	1,466,579	12,789		4,003,714	1,908,603	15,288	127,889	59,656	
<i>Selected Crops.</i>										
(Acres harvested and production.)										
Cereals—Total, acres	453	10,291	33,565	2,270	63,240	101,695	16,062	14,457	35,462	
Bushels	7,518	190,487	396,052	41,605	992,182	1,787,062	269,763	362,516	479,134	
Corn, acres	68	1,505	17		1,385	4,030	613	3,159	3,159	
Bushels	2,293	59,379	533		28,846	159,145	6,879	41,083	51,846	
Oats, acres	110	442	8,131	953	875	17,367	107	718	2,682	
Bushels	1,892	10,574	110,161	27,835	16,332	236,189	2,819	17,365	48,509	
Wheat, acres	117	2,038	38,149	789	18,886	60,669	7,182	17,365	8,809	
Bushels	774	25,650	212,509	10,010	17,776	914,289	94,634	40,239	87,727	
Barley, acres	152	6,137	14,473	77	35,222	18,872	8,608	4,445	18,150	
Bushels	1,919	91,165	15,616	585	542,241	471,960	136,159	188,486	271,533	
Kafr, mill, etc., acres	28	149	39		67,33	488		6,208	1,496	
Bushels	550	3,719	512		134,293	6,488		79,088	14,327	
Rough rice, acres			395		7	100				
Bushels			23,707		61	4,500				
Other grains and seeds—Dry edible beans, acres	6	36,759	5		719	22,222	147	561	16,067	
Bushels	68	481,939	72		8,365	441,645	1,065	8,421	136,243	
Hay and forage—Total, acres	6,854	34,284	12,771	22,946	57,114	46,929	33,255	37,217	72,611	1
Tons	8,565	389,963	11,556	28,485	118,891	91,909	48,402	87,544	77,628	2
All tame or cultivated grasses, acres	2,202	3,477	803	7,427	19,277	13,851	4,170	13,964	5,415	1
Tons	3,443	11,398	1,550	11,332	76,196	52,071	13,687	45,749	20,568	2
Timothy alone, acres	3	5	2	240	13	15		86	82	
Tons	4	5	2	340	13	10		123	37	
Timothy and clover mixed, acres	175	20	82	435	13	10		86	86	
Tons	280	25	31	492	56	100		39	39	
Clover alone, acres	301	32	32	6,920	136	100		40	1,092	42
Tons	463	14	32	96	47	100		85	540	32
Alfalfa, acres	1,368	2,926	773	210	47	2		1	640	
Tons	1,743	10,784	1,405	1,318	17,694	13,455	4,000	11,244	4,814	1
Other tame or cultivated grasses, acres	1,225	540	54	2,627	71,898	51,614	14,828	43,395	20,121	2
Tons	1,594	86	603	811	1,426	280	130	856	517	
Wild, salt, or prairie grasses, acres	1,400	86	403	13,981	1,683	345	174	1,672	318	
Tons	2,913	86	317	15,471	11	3,537	100	2,534	100	
Small grains cut for hay, acres	2,809	27,681	11,378	1,581	34,300	27,997	24,947	20,841	59,658	
Tons	2,809	23,226	9,262	1,677	31,822	29,095	25,207	27,494	42,698	
Annual legumes cut for hay, acres	77	1,794	19	6	163	471	187	217	1,137	
Tons	62	2,515	19	2	169	497	155	340	1,433	
Silage crops, acres		256	37		878	649	166	1,532	1,676	

Tons	532	2,559	226	6,574	1,286	1,705	8,522
Corn cut for forage, acres	80	185	89	250	1,020	1,407	1,566
Tons	183	357	82	1,225	273	601	698
Kafr, sorghum, etc., for forage, acres	18	65	4	1,762	198	343	313
Tons	40	91	15	2,404	169	26	116
Tons	5	49	10	45	248	80	519
Root crops for forage, acres	22	482	181	360	4,309	61	487
Tons	106	607	95	687	204	1,297	33,288
Vegetables—Potatoes (Irish or white), acres	13,084	50,711	1,464	66,856	14,807	97,117	2,704
Bushels	30	7,356	79	2,691	304	1,390	342
Other vegetables, acres				1,100	200	1,294	423
Miscellaneous crops—Sugar beets for sugar, acres		15,003		6,131	1,176	9,298	3,887
Tons		112,607		22,482			
Cotton, acres				17,163			
Bales							
<i>Fruits and Nuts.</i>							
Small fruits—Total, acres	21	18	126	72	61	77	48
Quarts	30,888	40,578	3,289	85,444	294,103	87,760	79,641
Orchard fruits—Total, trees not of bearing age	74,856	36,152	499	286,403	320,173	273,454	72,479
Trees of bearing age	95,987	117,288	2,143	750,494	350,686	1,011,842	297,677
Bushels harvested	73,726	180,925	2,884	1,240,406	500,183	1,394,569	298,131
Apples, trees not of bearing age	4,894	14,672	4,040	50,305	5,616	89,057	17,270
Trees of bearing age	16,611	25,519	1,891	107,808	10,888	263,922	44,482
Bushels harvested	24,537	36,097	2,633	111,973	22,688	329,064	84,115
Peaches, trees not of bearing age	5,780	29,700	40	107,808	16,663	22,688	25,626
Trees of bearing age	11,229	33,285	4	70,276	64,807	79,665	123,229
Bushels harvested	68,198	8,518	25	204,506	68,793	549,251	189,501
Pears, trees not of bearing age	49,295	3,197	13	22,986	39,496	56,523	11,696
Trees of bearing age	27,886	4,384	57	40,399	21,486	21,473	12,573
Bushels harvested	10,031	3,285	13	35,670	46,789	10,169	5,905
Plums and prunes, trees not of bearing age	5,084	1,511	18	47,866	145,311	10,542	16,490
Trees of bearing age	16,740	5,341	149	47,866	152,000	16,816	16,490
Bushels harvested	10,385	5,979	106	66,687	389,406	104,588	6,643
Apricots, trees not of bearing age	419	57		367,918	14,295	136,562	21,376
Trees of bearing age	57	53,433		598,260	203,691	258,672	30,927
Bushels harvested	162	97,291		3,582	264,383	159,065	
Grapes, vines not of bearing age	4,576	15,562		69,612	338,688	62,976,671	1,275,873
Vines of bearing age	73,065	49,510		1,014,486	286,697	6,276,671	8,758,699
Pounds harvested	315,215	269,448		4,083,117	2,258,370	66,161,684	
Subtropical fruits—Oranges, not of bearing age	2,921	798,140		134,053	25	380,659	23,208
Trees of bearing age	365	1,434,078		1,047,343	77,948	95,788	
Boxes harvested	410	3,486,304		1,494,612	89,019	5,102,958	292,806
Lemons, trees not of bearing age	1,880	72,219		79,212	157	12	100,508
Trees of bearing age	15	490,204		2,709	11	293,469	278,480
Boxes harvested	16	868,773		680,383	3,226	15	802,686
Nuts—Total, trees not of bearing age	1,159	27,475		42,660	70,187	19,712	7,122
Trees of bearing age	2,376	990,576		120,528	160,780	30,962	20,890
Pounds harvested	24,387	14,119,399		1,054,942	46,877	510,738	214,285
Walnuts (Persian or English)—							
Trees not of bearing age	1,063	26,311		25,895	6,644	17,410	2,845
Trees of bearing age	1,736	290,775		35,100	4,176	10,796	2,372
Pounds harvested	21,054	14,118,250		693,682	44,448	503,959	223,692

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops: 1920 Census—Continued.

	San Joaquin	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano
<i>Value of All Crops.</i>										
Total, dollars	37,956,866	8,071,813	2,445,096	11,963,615	23,792,684	6,708,924	1,928,069	314,656	3,136,775	11,246,439
Cereals, dollars	10,748,268	2,391,194	176,660	881,372	264,707	138,361	376,853	6,943	721,849	3,993,953
Other grains and seeds, dollars	3,467,328	1,925,401	215,319	6,004,922	673,351	131,666	6,391	9	26,855	722,381
Hay and forage, dollars	4,457,117	1,960,807	582,482	1,335,180	1,871,667	329,401	973,063	286,623	2,081,118	1,917,488
Vegetables, dollars	9,989,852	200,177	1,453,684	388,371	1,455,684	322,663	104,398	16,054	208,958	754,609
Fruits and nuts, dollars	9,432,395	571,285	45,191	2,291,238	19,513,613	5,664,942	467,347	9,027	30,010	4,244,608
All other crops, dollars	221,660	414,947	2,320	715,362	13,773	67,288	17		20	15,000
<i>Selected Crops.</i>										
(Acreage harvested and production).										
Cereals—Total, acres	934,715	86,128	9,078	16,848	7,380	4,850	13,020	542	26,057	87,510
Bushels	6,170,883	1,546,971	150,965	360,880	157,696	83,297	178,715	4,430	363,355	2,130,474
Corn, acres	30,350	2,443	41	680	2,107	2,463	270		212	1,870
Bushels	1,296,160	64,176	721	10,483	41,682	42,121	5,470		1,666	61,391
Oats, acres	19,369	1,768	7,077	2,610	391	1,682	469	173	1,596	6,307
Bushels	311,666	42,268	113,765	45,651	8,123	22,010	7,390	1,736	35,494	144,989
Wheat, acres	73,272	62,777	392	4,451	1,323	537	11,213	114	29,340	42,828
Bushels	1,594,310	908,560	4,504	54,819	22,199	7,279	137,525	1,269	274,910	1,035,043
Barley, acres	104,383	18,456	1,668	8,968	3,565	765	724	105	2,437	35,379
Bushels	2,878,087	527,897	32,035	251,483	85,672	11,845	11,057	885	39,680	910,121
Kafr, milo, etc., acres	5,727	21	10	3			70			122
Bushels	109,587	525		94			2,268			1,873
Rough rice, acres	45						297			113
Bushels	2,690						13,829			5,760
Other grains and seeds—Dry edible beans, acres	22,487	36,330	150	89,878	1,344	1,644	76		51	6,365
Bushels	401,789	385,827	2,702	1,117,726	16,079	24,881	1,086	2	797	10,862
Hay and forage—Total, acres	75,831	52,635	17,646	40,683	43,423	13,347	32,869	14,880	66,589	32,639
Tons	904,785	86,329	25,411	59,227	81,489	18,131	49,541	17,706	101,079	67,755
All tame or cultivated grasses, acres	36,715	5,886	672	2,452	9,232	732	14,337	3,437	42,527	8,933
Tons	147,116	14,846	2,698	7,317	35,212	1,734	30,500	4,388	76,623	31,968
Timothy alone, acres	300	20	3	249	249	3	757	67	801	
Tons	390	50	3	219	219	10	902	102	1,068	
Timothy and clover mixed, acres	196	3	3	20	10	10	4,206	975	7,059	15
Tons	229	5	5	10	12		5,040	1,818	11,269	96
Clover alone, acres	327	16		185	15	15	280	36	133	413
Tons	537	12		291	20	20	433	65	292	593
Alfalfa, acres	35,688	3,877	306	2,190	7,438	516	6,637	1,918	28,483	7,831
Tons	144,896	13,591	1,882	7,696	33,492	1,528	21,068	2,021	54,946	33,843
Other tame or cultivated grasses, acres	804	1,973	361	942	840	116	2,668	441	6,051	272
Tons	1,154	1,263	808	221	1,118	176	3,148	8*2	8,553	413
Wild, salt, or prairie grasses, acres	2,855	460	814			15	11,424	10,261	9,024	1,068
Tons	2,750	460	440	766		15	11,724	12,135	11,535	1,385
Small grains cut for hay, acres	34,082	46,270	15,260	30,178	12,144	12,144	5,405	1,132	14,808	22,100
Tons	44,740	67,207	19,400	46,992	43,294	13,988	5,964	1,183	22,407	30,407
Annual legumes cut for hay, acres	188	369	545	1,262	200	145	154			300
Tons	259	469	512	1,164	436	234	216			599
Silage crops, acres	1,213	337	390	441	616	126	94			524

	5,503	2,560	2,200	2,373	4,116	1,025	568	472	1,406
Tons	172	31	43	35	394	907	50	30	4
Corn cut for forage, acres	195,943	35,930	76,026	48,613	1,184,822	1,087,748	57,185	51,293	301,100
Orchard fruits—Total, trees not of bearing age	300,731	78,188	5,489	18,005	2,004,383	2,051,557	62,682	4,069	1,286,704
Trees of bearing age	531,366	119,366	12,492	49,136	5,219,129	307,910	169,926	30,917	1,900,126
Bushels harvested	890,516	145,362	14,385	58,069	5,583,106	3,310,995	213,309	45,804	828
Apples, trees not of bearing age	5,414	8,265	618	3,833	25,336	97,515	3,213	2,483	5,979
Trees of bearing age	11,347	34,264	4,793	19,856	92,913	665,535	28,688	1,677	17,341
Bushels harvested	15,286	61,494	6,463	25,489	267,563	3,016,031	44,723	33,611	25,614
Peaches, trees not of bearing age	74,851	3,561	273	2,330	45,228	7,268	55,363	888	4,295
Trees of bearing age	318,700	12,065	557	8,847	259,674	15,486	59,153	4,792	214,412
Bushels harvested	543,773	12,913	183	12,974	585,463	13,845	61,355	3,583	387,904
Pears, trees not of bearing age	45,289	21,900	4,140	7,779	183,122	23,087	747	283	195,504
Trees of bearing age	24,553	26,888	716	2,784	249,320	27,450	9,479	1,806	381,622
Bushels harvested	28,053	16,265	516	2,486	495,111	36,047	19,532	3,958	162,160
Plums and prunes, trees not of bearing age	111,875	31,192	273	1,386	1,834,155	36,047	31,921	484	603,755
Trees of bearing age	94,222	29,275	6,043	17,996	3,371,436	103,154	71,437	3,104	803,469
Bushels harvested	168,201	37,264	7,068	2,076	5,615,344	101,983	86,184	2,345	24,073
Apricots, trees not of bearing age	15,320	11,358	10	8,406	370,152	71,787	955	31	217,358
Trees of bearing age	92,238	15,086	180	14,573	1,113,405	77,749	288	20	281,876
Bushels harvested	33,849	16,694	119	14,735	1,500,381	116,647	526	165	31,715
Grapes, vines not of bearing age	215,661	10,367	116	5,331	47,768	33,370	4,916	70	565,624
Vines of bearing age	13,074,667	143,842	12,551	269,833	3,907,761	629,816	112,007	2,461	4,210,057
Pounds harvested	217,159,291	883,930	71,500	451,380	33,254,922	3,529,305	677,657	46,695	448
Subtropical fruits—Oranges, not of bearing age	1,136	429	48	4,285	4,016	288	110	383	27,324
Trees of bearing age	3,257	411	22	4,359	5,414	552	83	157	98,094
Boxes harvested	3,528	666	32	6,811	5,862	633	142	2,646	873,180
Lemons, trees not of bearing age	265	184	11	19,142	2,350	1,189	2	290	1,685
Trees of bearing age	898	77,925	11	77,925	2,143	2,188	2	108	4,566
Boxes harvested	308	1,042	369	187,881	1,765	3,415	326	383	153,576
Nuts—Total, trees not of bearing age	158,594	278,034	375	5,128	49,862	1,191	4,906	720	4,566
Trees of bearing age	238,225	136,198	375	116,969	2,716	2,716	3,200	157	98,094
Pounds harvested	1,765,856	968,118	2,895	5,159,344	817,848	38,459	19,974	2,646	873,180
Walnuts (Persian or English)—	52,835	3,979	252	5,011	86,704	1,049	215	362	1,685
Trees not of bearing age	13,244	327	327	116,836	51,004	2,671	98	98	4,566
Trees of bearing age	134,518	3,184,415	2,745	5,151,870	639,103	38,210	9,764	1,876	153,576

Fruits and Nuts.

Value of All California Crops, by Counties, and Acreage and Production of Principal Crops: 1920 Census—Concluded.

	Sonoma	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba
<i>Value of All Crops.</i>										
Total, dollars	17,477,370	17,140,414	11,640,188	3,579,305	355,558	30,547,311	420,121	18,820,324	14,627,215	2,072,118
Cereals, dollars	519,743	5,368,139	4,363,202	1,252,073	28,492	3,335,240	61,473	168,954	7,292,318	877,077
Other grains and seeds, dollars	10,216	1,368,311	1,449,601	89,873	4,369	30,467	562	7,932,755	1,779,460	172,488
Hay and forage, dollars	2,485,540	5,454,448	900,514	1,135,254	226,159	7,308,294	124,626	828,050	1,532,730	340,424
Vegetables, dollars	2,204,980	1,468,143	50,510	62,500	59,983	139,871	104,739	68,008	425,395	37,749
Fruits and nuts, dollars	10,099,335	3,232,036	4,781,698	1,084,337	36,615	19,146,789	137,691	8,304,370	2,612,233	271,491
All other crops, dollars	2,187,346	18,983	90,408	5,268		26,786		1,003,186	1,021,059	372,465
<i>Selected Crops.</i>										
(Acres harvested and production).										
Cereals—Total, acres	14,737	154,418	97,978	47,826	1,052	126,134	2,370	7,269	144,851	28,215
Bushels	356,437	3,140,541	2,233,511	680,348	15,508	1,786,840	35,676	91,262	3,832,772	422,179
Corn, acres	3,300	8,335	2,145	293	127	3,725	84	785	714	762
Bushels	81,405	88,027	44,244	5,278	3,119	82,448	1,804	10,412	16,420	14,610
Oats, acres	6,204	13,326	5,313	1,629	120	655	369	25	657	4,529
Bushels	167,345	392,205	95,905	30,147	1,950	13,455	8,172	553	15,708	57,003
Wheat, acres	4,083	51,307	45,174	25,112	666	74,784	1,246	2,685	55,529	170,618
Bushels	76,734	797,106	649,584	284,982	7,436	732,739	16,403	28,612	1,301,555	209,036
Barley, acres	1,101	68,006	36,114	18,305	88	31,052	596	3,341	78,308	2,895
Bushels	36,436	1,463,376	1,113,876	322,345	2,612	629,736	6,475	47,463	2,027,053	45,542
Kaffir, milo, etc., acres	1	15,048	1,950	1,661		15,370		491	121	716
Bushels	27	336,414	33,961	26,821		424,237		3,959	2,689	14,508
Rough rice, acres		1,246	7,112	150		22		9,511	2,277	2,277
Bushels		45,566	313,820	8,000		530		469,257	80,895	
Other grains and seeds—Dry edible beans, acres	155	20,710	16,990	408	78	253	12	118,217	9,444	1,811
Bushels	2,133	268,749	360,788	6,218	887	3,333	126	1,646,898	196,639	36,689
Hay and forage—Total, acres	57,162	78,889	19,537	25,994	6,615	103,246	5,498	36,279	10,068	10,068
Tons	111,204	253,410	41,296	50,725	10,732	247,056	5,959	36,467	70,353	15,565
All tame or cultivated grasses, acres	7,488	58,991	6,650	11,879	3,393	54,348	794	15,401	3,070	3,070
Tons	16,225	207,922	23,498	34,972	7,195	278,016	1,611	8,973	45,701	6,774
Timothy alone, acres	4,718	246	5	12	275	40	75		90	90
Tons	8,715	200			370	50	66		121	121
Timothy and clover mixed, acres	261	50	95	178	969	85	16		65	87
Tons	421	25	38	158	1,577	53	25		68	90
Clover alone, acres	20	32	901	67	1,577	77	91		78	826
Tons	48	34	238	114	151	993	166		114	508
Alfalfa, acres	1,669	58,214	7,194	11,162	2,045	53,563	492	3,304	14,826	2,347
Tons	5,578	206,959	22,940	34,123	4,674	277,135	1,245	8,912	44,751	5,866
Other tame or cultivated grasses, acres	820	449	290	467	272	464	120	44	200	200
Tons	1,463	644	274	565	423	515	139	61	767	189
Wild, salt, or prairie grasses, acres	3,313	300	925	1,258	733	2,638	1,542	123	1,792	1,014
Tons	4,956	447	1,283	1,128	779	2,075	1,217	118	1,728	935
Small grains cut for hay, acres	44,652	16,454	10,313	12,360	2,232	40,340	3,168	26,838	14,008	5,993
Tons	82,281	23,926	13,847	13,849	2,605	46,242	3,063	22,834	17,971	7,151
Annual legumes cut for hay, acres	479	736	275	115	14	534	37	5,020	103	191
Tons	530	51	227	110	20	577	67	3,610	145	170
Silage crops, acres		2,495	298	29		2,167		106	319	10

	31,188	19,065	1,870	200	14,872	499	2,730	75
Corn cut for forage, acres.....	157	259	74	34	14,872	499	2,730	75
Tons.....	254	389	94	50	1,769	648	47	187
Kafr, sorghum, etc., for forage, acres.....	153	389	85	174	2,423	302	73	304
Tons.....	384	1,155	162	307	3,336	78	152	32
Root crops for forage, acres.....	200	99	53	6	14	60	322	31
Tons.....	3,210	324	350	65	14	80	167	1
Vegetables—Potatoes (Irish or white), acres.....	7,655	183	57	55	189	51	1,679	4
Bushels.....	827,116	11,849	3,416	4,499	13,892	104	131	50
Other vegetables, acres.....	1,973	10,970	173	83	279	4,190	12,759	2,456
Miscellaneous crops—Sugar beets for sugar, acres.....		93	990			402	2,507	115
Tons.....		465	6,321			10,024	120	
Bales.....		2			297	77,167	600	
		2			114			
<i>Fruits and Nuts.</i>								
Small fruits—Total, acres.....	2,432	93	1	39	39	16	3	12
Quarts.....	3,351,258	66,046	2,662	37,040	43,736	30,909	4,219	11,508
Orchard fruits—Total, trees not of bearing age.....	1,448,323	500,832	474,245	103,566	562,751	153,013	177,725	81,979
Trees of bearing age.....	1,735,093	150,577	712,924	348,577	1,295,901	383,998	381,436	58,147
Bushels harvested.....	3,494,075	922,757	1,634,044	461,955	2,195,276	632,021	675,677	77,447
Apples, trees not of bearing age.....	401,042	2,645	5,918	2,132	22,488	4,981	1,024	1,436
Trees of bearing age.....	617,021	10,172	6,753	5,266	55,263	11,659	6,003	3,287
Bushels harvested.....	1,686,104	15,821	10,023	7,987	71,351	17,065	7,334	4,783
Peaches, trees not of bearing age.....	17,901	84,343	126,737	6,398	48,491	11,659	9,415	15,843
Trees of bearing age.....	61,186	410,394	522,074	155,217	717,195	20,258	67,718	30,175
Bushels harvested.....	65,591	791,863	1,290,137	215,558	1,297,400	26,724	80,984	50,629
Pears, trees not of bearing age.....	85,642	12,823	19,500	556	6,800	2,213	54,124	23,452
Trees of bearing age.....	124,739	12,294	24,697	599	11,806	2,308	55,535	7,336
Bushels harvested.....	233,974	18,872	45,468	1,250	26,076	3,012	112,329	9,718
Plums and prunes, trees not of bearing age.....	877,983	17,787	319,009	69,757	299,009	904	28,139	93,941
Trees of bearing age.....	854,411	18,333	159,002	6,263	422,228	10,941	182,485	40,049
Bushels harvested.....	1,436,718	23,545	277,427	94,298	703,551	11,357	303,698	11,767
Apricots, trees not of bearing age.....	927	23,334	3,868	5,275	12,995	11,889	16,211	60
Trees of bearing age.....	3,313	63,533	2,924	19,435	49,395	103,880	343,543	272
Bushels harvested.....	3,889	63,568	5,192	42,597	112,167	50	156,564	251
Grapes, vines not of bearing age.....	494,121	160,100	518,293	493	3,753,994	9,781	27,660	94,982
Trees of bearing age.....	11,414,171	2,006,576	2,417,954	73,037	13,022,270	59,130	951,063	216,253
Vines of bearing age.....	86,225,849	37,943,953	37,095,870	382,696	230,830,306	579,529	14,203,467	1,974,132
Pounds harvested.....								
Subtropical fruits—Oranges, not of bearing age.....	414	1,705	1,187	1,479	527,294	38	33,030	937
Trees of bearing age.....	5,539	11,625	6,831	9,843	2,041,277	80	1,958	1,409
Boxes harvested.....	4,087	17,301	8,023	5,801	2,107,974	53	505,038	1,596
Lemons, trees not of bearing age.....	1,025	137	229	517	80,237	3	105,928	73
Trees of bearing age.....	605	1,484	265	107,290	197,200	7	407,369	105
Boxes harvested.....	662	1,445	304	151	152,002	7	840,188	98
Nuts—Total, trees not of bearing age.....	15,345	130,501	34,201	33,437	17,151	33,168	104,671	3,653
Trees of bearing age.....	17,227	139,295	177,615	218	16,895	627	188,753	7,203
Pounds harvested.....	155,020	1,144,550	1,643,554	230,508	112,105	10,019,812	2,557,419	99,871
Walnuts (Persian or English).....	13,383	12,174	6,198	2,909	2,656	453	29,349	694
Trees not of bearing age.....	15,691	4,582	4,668	2,565	2,639	509	175,375	684
Trees of bearing age.....	150,120	82,531	74,708	18,718	58,213	18,255	26,355	13,650

VEGETABLES AND TRUCK.*

"The U. S. Bureau of Crop Estimates and the State Crop Reporting Service place an approximate valuation of \$16,000,000 upon the 1920 truck vegetable crop, largely composed of cabbage, cauliflower, potatoes, cantaloupe, etc., which was \$200,000 less than in 1919.

Artichokes coming mainly from the Half Moon Bay District south of San Francisco totaled 150 carloads, 60 of which were shipped to New York, Chicago and far eastern markets at an average price of \$6 per box to the grower.

State acreage planted to cauliflower—5,650 acres, of which Los Angeles County led with 4,000, San Mateo 1,200, Sutter 155, Alameda 150. Of the total movement of 2,319 cars, valued at \$811,650 to the grower, 2,290 were shipped out of the state. Total cabbage marketed 1,223 cars.

There were 5,760 acres of celery planted in 1920, of which San Joaquin County had 1,520 acres, Sacramento County 1,300, Contra Costa 1,165, Los Angeles 950, others 825. Approximate value to growers of the 1,785 cars moved was \$854,800.

Acreage for lettuce showed Imperial County in the lead with 5,500 acres, Los Angeles 4,500, and others 500, contributing to the total movement of 5,764 cars, returning to growers \$907,500.

Several new sections for winter peas came into shipping importance during 1920, notably Carlsbad (San Diego County) and the Sutter Basin in the Sacramento Valley.

The sweet and green chili shipments from the Garden Grove District in Orange County are estimated over 2,000,000 pounds for the year just past. Over 40,000 cases of pimentos were packed from the Santa Ana cannery."

Acreage, Yield per Acre and Production of Commercial Truck Crops in California in 1920.

Crop	Acreage	Yield per acre	Production	Unit
Asparagus	21,300	16.3	3,471,900	Crates
Cabbage	8,300	7.1	58,930	Tons
Cantaloupes,				
Southern District	22,367	18.2	4,070,794	Crates
Central District	8,470	21.2	1,791,400	Crates
Cauliflower	6,475	27.3	1,767,675	Crates
Celery	5,627	19.8	1,114,146	Cases
Cucumbers	2,195	8.6	188,770	Bushels
Lettuce	13,270	52.2	6,990,400	Crates
Onions: early	3,300	25.5	874,500	Bushels
Onions: late	8,400	25.0	2,100,000	Bushels
Peas	2,339	1.3	3,091	Tons
Early Irish potatoes	21,150	13.3	2,812,950	Bushels
Tomatoes	31,601	7.2	227,527	Tons
Strawberries	3,202	9.1	291,382	Crates
Watermelons	6,725	51.0	3,429,750	Number

*From report of California Development Board.

Vegetable Shipments From California in 1920.

	Carloads
Cantaloupes	13,009
Potatoes	9,204
Onions	4,525
Mixed and bunched vegetables.....	6,239
Lettuce	6,341
Cauliflower	2,537
Celery	2,273
Cabbage	1,243
Tomatoes	1,329
Artichokes	60
Asparagus	495
Peas	45
Carrots	112
Turnips	30
Watermelons	3,061
Total	50,503

VEGETABLE GROWING IN CALIFORNIA.*

"Truck production holds an important position in California agriculture. California-grown vegetables may be found in all of the large cities of the United States and to some extent in Canada.

The requirements for a successful vegetable garden are so exacting that congenial soil, moisture, and climatic conditions for the crops to be grown should exist.

The supply of all vegetables is subject to sudden and wide fluctuations upon the markets, making it imperative for the grower to determine carefully the proper time for planting and harvesting the various crops.

The largest centers for vegetable production are located in the river delta situated between Stockton and Antioch, at Sacramento, at Imperial, at San Francisco, in Orange County, in Los Angeles County, and in certain sections of the San Joaquin Valley, especially between the cities of Modesto and Merced.

The most favorable soil and climatic conditions depend wholly upon the crops to be grown, but a mild climate and rich sandy loam are the most desirable for the production of the majority of them.

Practically all vegetables in California are grown under irrigation and it is very important that the water be applied at such intervals that the amount of soil moisture should be as constant as possible. When irrigating most crops the water should not be allowed to come in contact with the plants, and it is best to apply the water in a large number of furrows, allowing it to flow slowly, rather than to use a small number of furrows allowing it to run swiftly.

There is a common tendency to substitute irrigation for cultivation. This practice should be avoided. When surface irrigation is practiced the soil should be well leveled before planting.

As a rule the novice does not appreciate the value of a well prepared seed bed. Too much importance can not be placed upon the necessity for thorough working of the soil before planting any vegetable crop.

The most desirable size of truck farm depends upon the location, crops to be grown, financial condition of the grower, amount of water available, and the labor supply.

*By S. S. Rogers, Associate Professor of Olericulture, University of California.

It is possible to realize a net income of from \$1,000 to \$1,500 per year from five acres of garden properly managed, and in a suitable location, but ordinarily one should have at least ten acres to be reasonably sure of a satisfactory remuneration. Many of the truck growers in California produce from 25 to 100 acres of vegetables annually, and in some sections the amount of land farmed by one individual comprises several hundred acres. In these larger gardens are produced celery, asparagus, onions, and potatoes. Suitable land for vegetable growing can be obtained in practically all sections of California which are level and under irrigation. The purchase price of such land varies from \$150 to \$2,000 per acre. One may, however, procure suitable land in a desirable locality for between \$200 to \$500 per acre. The annual land rentals vary from \$20 to \$80 per acre, cash, or from one-quarter to one-half of the crop, depending upon the vegetables grown and equipment furnished by the owner. The labor is generally done by Japanese, Chinese, Italians, Hindoos and Mexicans, and the prevailing prices during the past year varied from 35 cents to 45 cents per hour, with an average range from $37\frac{1}{2}$ to 40 cents per hour.

The most desirable method of marketing depends upon the location, size of garden, and kind of vegetables grown. For small amounts the stores and hotels would be the most desirable, provided the garden is situated within hauling distance of the markets. For the larger grower, especially if the vegetables are produced a considerable distance from the market, the crops are best handled in carload lots."

California Canned Vegetables—Comparative Packs, 1915-1920.

	Cases 1915	Cases 1916	Cases 1917	Cases 1918		All grades and sizes		
				No. 2, 3 and smaller	Gallons, 6 to case	Cases 1918	Cases 1919	Cases 1920
*1Olives	---	---	---	---	---	250,000	400,000	300,000
*2Chilis and pimentos	---	---	---	---	---	225,000	450,000	400,000
*3Sweet corn	---	---	---	---	---	54,000	25,000	2,000
Tomatoes	1,730,437	2,650,000	3,650,000	3,125,981	759,392	3,884,973	3,809,979	1,856,822
Tomato pulp	14,000	17,500	60,000	896,028	813,777	1,809,805	885,906	833,010
Other tomato products	---	---	1,297,000	233,628	32,342	266,970	191,584	363,679
Peas	210,000	228,000	412,000	879,752	22,484	902,236	1,091,909	1,024,813
Asparagus	620,859	945,375	1,040,000	90,000	---	150,000	476,866	685,298
Spinach	23,755	26,000	90,000	---	---	100,000	130,000	75,000
Squash	21,163	24,000	75,000	---	---	175,000	300,000	130,000
Pumpkin	9,000	10,000	20,000	---	---	25,000	20,000	20,000
Kraut	5,000	6,000	20,000	134,947	20,176	155,123	154,278	89,269
String beans	98,000	125,000	160,000	857,460	410,253	1,267,713	501,657	382,116
Other vegetables	56,872	60,000	173,000	---	---	---	---	---
Total vegetables	2,744,676	4,091,875	7,004,000	6,227,396	2,058,424	8,285,820	7,091,519	6,196,946

*Add to total packs given below.

†Included in other tomato products.

‡Estimates, not included in totals.

§Estimates, not included in totals.

||Estimates, not included in totals.

*Estimates, included in "other vegetables" in 1918.

†Estimates, included in "other vegetables" in 1918 and 1919.

‡Estimates, included in "other vegetables" in 1918 and 1919.

§Estimates, included in "other vegetables" in 1918 and 1919.

||Estimates, included in "other vegetables" in 1918 and 1919.

VEGETABLE SEED PRODUCTION IN CALIFORNIA.*

“Owing chiefly to the European conditions, vegetable seed production has increased enormously in California, so that at the present time large amounts of practically all of the common vegetable seeds are being produced.

The most serious losses are caused in certain sections by hot winds which frequently burn and shatter considerable quantities of seed. Occasionally not a little difficulty is experienced in planting at the proper time due to unfavorable weather conditions and shortage of experienced labor.

Regions.—The principal vegetable seed growing centers are located near the cities of Sacramento and Stockton, and in the Santa Clara Valley between the cities of Palo Alto and Hollister. Bermuda onion seed is grown in the Coachella Valley, Riverside County.

Soil.—Vegetable seed is produced on a very large variety of soils ranging from adobe to peat. The most suitable soil is a rich loam.

Moisture.—A large percentage of the crop is produced under irrigation and it is especially desirable to have a suitable amount of moisture in the soil from March to June, inclusive. The water is applied either in furrows between the rows of plants, or allowed to subirrigate from permanent ditches.

Climate.—Vegetable seeds do best in a moderate climate, but are being successfully produced in the hot interior valleys under suitable irrigation systems.

Methods.—The planting is done principally during the months of November to February, inclusive, and the crops mature during the months of July and August. For such crops as beets, carrots, parsnips, mangel, chard, etc., the bulbs are set three feet by three feet, or four feet by four feet apart. Lettuce, radish, mustard, peas, etc., are drilled in rows from two and one-half to three feet apart. Onions are usually placed six inches apart in rows three feet apart.

One should be certain that the soil is rich and that a suitable irrigation system is available before planting.

The size of the seed farms varies from a few acres to several hundred. One person with the necessary labor can best handle from forty to sixty acres.

Vegetable seed is being produced on land ranging in price from \$100 to \$1,000 or more per acre, but the usual value of lands so used range from \$200 to \$500 per acre. The rents range between \$20 and \$50 per acre cash, or from one-fourth to one-half the crop, depending upon the amount of capital and equipment furnished by the owner.

Most of the hand labor is done by Chinese, Japanese, Hindoos, or Mexicans, and the average wage paid during the past season varied from 35 cents to 40 cents per hour.

For the beginner who has not become known to the seed trade it is generally disastrous to attempt to grow seeds except under contract made before the planting. The seed contracts are usually made from June to August preceding the year of delivery.

*By S. S. Rogers, Associate Professor of Olericulture, University of California.

Commercial Vegetable Seed Acreage and Production in California for the Year 1920.

Kind of seed	Acreage planted, acres	Production, pounds	Kind of seed	Acreage planted, acres	Production, pounds
Beans, dwarf snap	1,286	450,000	Parsley	186	117,450
Beans, garden pole (not including Lima beans)	6,969	2,947,600	Parsnip	106	61,440
Beet, garden	145	71,530	Peas, garden	22,864	19,500,000
Beet, mangel	55	30,860	Pepper	9	1,485
Beet, sugar	785	950,000	Pumpkin	1,011	123,000
Carrot	538	290,700	Radish	1,148	362,100
Celery	59	27,590	Salsify	52	15,490
Cucumber	63	15,500	Spinach	42	25,640
Lettuce	1,995	587,000	Squash, summer	567	59,650
Muskmelon	41	4,650	Squash, winter	654	40,800
Watermelon	87	15,400	Sweet corn	108	105,000
Onion seed	1,919	685,200	Tomato	440	67,350

California Vegetable Pack by Varieties, 1916-1920.

	1916	1917	1918*	1919*	1920*
Tomatoes and tomato products	2,647,300	4,702,859	5,694,778	4,695,885	2,691,841
Peas	227,120	472,670	265,970	191,564	363,679
Asparagus	990,740	965,708	902,296	1,031,289	1,024,813
String beans	123,355	169,326	155,123	154,278	99,269
Spinach				476,866	687,228
Other vegetables	236,525	637,206	1,267,713	501,657	382,116
Total vegetables	4,225,070	6,947,769	8,285,820	7,051,519	5,249,946

*Figures compiled by the Cannery League of California.

DEHYDRATION.*

Dehydration is not new—for drying is probably the oldest method of food preservation the human race has employed. The practice of drying food products for the purpose of conserving the surplus of a year of plenty to tide man over periods of famine dates back beyond the dawn of written language. Long before the art of recording human thought by means of the wedge-like characters of the inhabitants of Babylonia and Assyria, man used the sun's rays to dry his food, in order that his family might live during the seasons when nature lay dormant, or the soil refused to yield subsistence.

In early Colonial days the drying of foods for winter use was one of the important duties of the housewife. Apples, peeled and quartered, were hung on strings to dry, and raspberries, dried on bits of bark, were used in place of raisins.

In the arid regions of the interior, the Indians, and, later, the early settlers, dried their beef and buffalo meat, cutting it into thin strips and hanging them up for the sun to remove the excess moisture, and seal over the outside with a protective coating that would prevent spoilage.

During the Civil War desiccated, or dehydrated products, were extensively used as a means of combating scurvy among the troops, and numerous reports of medical officers mention the use of concentrated soup, desiccated vegetables, and dried apples and peaches as additions to the regular rations issued to safeguard the health of the men.

*From "Dehydration," published by King Dehydrator Company, San Jose.

Thus, long before the advent of canning on an extensive scale, the process of dehydration, or the removal of excess moisture from fresh food products, was utilized in this country, and dehydrated foods are now a well-known and thoroughly tested form of subsistence.

It is authoritatively stated by the United States Department of Agriculture that fully 50 per cent of the vegetables and fruits grown never reach the consumer's table, and, it is equally certain that the larger part of the product so sacrificed does not leave the farm or orchard. This loss is occasioned by unfavorable weather conditions, difficulties of transportation, the state of the market, and the fact that only the very best of the fruits and vegetables will pass final inspection, or lend themselves to profitable shipping. Nevertheless, by far the greater part of the products that do not leave the grower could be saved and made available by drying.

Then, too, it is essential that certain and profitable markets be created for the rapidly increasing production of fruits and vegetables. In fruit, especially, thousands of acres are coming into bearing annually. The shipment of fresh fruits and vegetables is already seriously handicapped by the shortage of refrigerator cars and other transportation difficulties. The shortage of tin cans has also limited the production of canned fruits and vegetables. On the other hand, dehydrated foods can be produced most economically, requiring the minimum amount of labor, fuel, containers, etc., for their production, as well as imposing a far lighter burden on transportation facilities. Consequently, dehydration offers a most dependable outlet for our horticultural products, and one destined to assume ever-increasing proportions. It is believed by those closely in touch with dehydration that it is at the beginning of a development which ultimately will rival the great canning industry.

The possibilities for the successful marketing of dehydrated foods has never been so promising as at the present time. The public demands cleanliness above all else in the production of its food products, and dehydrated fruits and vegetables can not be surpassed in this respect as the process is sanitary throughout and handling is reduced to a minimum. Dehydrated products are more attractive in appearance, flavor and general quality, and make a stronger appeal to the consumer. Fruits and vegetables, equal to the freshly picked article, are offered to the housewife at all seasons and in a form that makes them readily available for the preparation of varied and appetizing menus at reasonable cost.

In the drying plants are processed practically every kind of vegetable, fruit and berry suitable for dehydrating, and a vast superior quality of food is produced. The dried vegetables intended for use in the United States are packed in paper cartons, protected against moisture by waxed paper. California, with its long growing season, and climatic conditions conducive to large and superior crops, is admirably adapted to the growing and dehydration of vegetables.

PART VI.

HORTICULTURE.

ORCHARD FRUITS, GRAPES, TROPICAL FRUITS AND NUTS.

Apples; Pears; Peaches; Prunes and Apricots; Avocados; Grapes; Dried Fruits; Canned Fruits; Dates; Figs; Olives; Lemons; Oranges; Walnuts; Almonds.

APPLES.

Adverse weather conditions in 1920 caused California to drop from fifth to eleventh place among other states in the union in the production of apples. The unfavorable weather conditions which were experienced at blossom time and high temperatures caused a little sun burn and doubtless drouth conditions affected the quantity and size of the fruit.

The percentage of first grade fruit was smaller than in 1919, and the extremely low price of dried apples cut the tonnage sent to the evaporators to less than 50 per cent of the previous year. In some instances the cost of moving from the orchards was greater than the price received at the drier, and the fruit was left to rot under the trees. The production of dried apples is roughly estimated at about 5000 tons. Reports indicated a greater production than usual of cider and vinegar.

Carlot shipments to date, in comparison with last year, as reported by the Bureau of Markets, would indicate a decided decrease in the quantity of California apples in storage.

The Watsonville section of the Pajaro Valley is the principal apple producing section of the state, where out of a total of about 3,000,000 boxes approximately 2,500,000 came from that district.

California Apple Production, 1920.

District	Packed boxes	Average price to grower per packed box	Other uses
Watsonville Section, Pajaro Valley.....	2,500,000		
Bellflower		\$1 25	
Newtown Pippin		1 80	
Sebastopol—			
Gravenstein	412,500	2 40	} 2,000 tons dried
Other varieties	131,250	1 75	
Beaumont Section, Riverside County.....	41,650	1 20	220 tons vinegar
Humboldt County	25,000	1 65	500 tons vinegar 300 tons dried
Yucaipa District	13,324	1 20	45 tons vinegar
Ramona—Julian District	12,500	2 25	40 tons vinegar
Tuolumne County	8,000	2 45	50 tons vinegar
Paradise District (Butte County).....	7,000	1 50	1,000 tons vinegar or cider

PEARS.

California outranks all states of the Union in the production of pears. Its nearest competitor is New York, which produces but 13.7 per cent of the entire crop, or 7.1 per cent less than California. Figures show that California has lead in this industry for many years past, and it is a safe prediction that the lead always will be maintained.

Rank of the Five Leading States in Pear Production, 1920.

Rank and state	Production, bushels	Per cent of total production
United States	17,279,000	100
1. California	3,600,000	20.8
2. New York	2,375,000	13.7
3. Washington	2,246,000	13.0
4. Michigan	1,100,000	6.4
5. New Jersey	843,000	4.9
Total five states	10,164,000	58.8

PEAR CULTURE IN CALIFORNIA.*

Soil and Climate.—The best pear soil is deep and rather heavy, with plenty of moisture. Alluvial river bottoms and moist clay-loam foothill slopes characterize our chief pear sections. The tree will stand more drouth, moisture, and alkali than most fruits, however, and thus is often used to fill in low, wet or slightly alkali spots or sloughs in orchards of peaches or apricots where the latter trees would not live. Pears are not very particular as to climate, flourishing equally well near the coast, in the interior valleys, and among the foothills. Irrigation is usually needed.

Districts.—The greatest acreage of pears in California is to be found in the central coast valleys, the Sacramento Valley and adjacent regions and the Sierra foothills of El Dorado, Placer, Sacramento, Lake, and Nevada counties. San Jose, Sacramento, Placerville, Marysville, and Anderson are centers of production.

Culture.—The Bartlett is the principal and almost the exclusive variety grown in California. A few others like the Winter Nelis are sometimes quite profitable, but their culture is exceptional. French seedling has been the usual rootstock, but the Japanese pear is coming into use on account of some resistance to blight and woolly aphid. Pears are planted about 24 feet apart, or 75 trees per acre. The trees cost about 30 cents each in quantity. Five to eight years is required to commence commercial bearing. The trees are long-lived and very hardy. Other crops may be grown between while the trees are young. Orchards should be plowed in spring, irrigated from two to five times according to locality, and cultivated frequently. Severe pruning is practiced.† The tree when planted should be cut back to a height of 20 inches and each year's growth thereafter is usually shortened to a length of 12 to 18 inches, thinning also to a framework of three to five, frequently branched main limbs. Lateral branches should be

*By Ralph E. Smith, Professor of Plant Pathology, University of California.

†This is the standard method heretofore practiced. Experiments conducted by the University at Davis show that less severe pruning produces stockier trees which bear earlier and is being adopted by many orchardists.

headed in to produce fruit spurs. Fertilization is not much practiced and is often undesirable on account of making the trees more susceptible to blight. Spraying is necessary to control scab, codling worm and other pests. The usual practice is a late winter application of lime-sulphur as the buds are swelling, one combined spray of Bordeaux mixture and lead arsenate after blooming, and one or two later sprayings with lead arsenate.

Harvesting.—The fruit is picked carefully from the tree by hand when 'hard ripe.'

Marketing.—There are three principal uses for California pears: Canning, drying, and shipping fresh. The Bartlett is preeminent on account of its suitability for all of these purposes. The fruit is shipped to the canner in loose boxes. Drying is often done by the grower himself. For shipping, each pear is wrapped in paper and they are then packed carefully in standard sized boxes.

Cost of Production.—Production and harvesting expenses vary widely, but \$75 to \$100 per acre is a fairly liberal average of yearly expense with good care.

Returns.—Production of trees ten years of age and up varies from three to ten or more tons per acre, and the usual price from \$25 to \$60 per ton. The foothill districts of smaller yield per tree make up to some extent by high shipping quality of the fruit. Orchards average from 10 to 100 acres.

Cost of Groves and Land.—Good pear land, with water, can be bought at from \$60 to \$400 per acre, and producing groves are worth from \$300 to \$1000.

Troubles.—Two diseases, blight and scab; two insects, codling worm and thrips; and an occasional late frost are the chief obstacles to pear culture. Scab and worms can be controlled by spraying. Blight is a very serious enemy and has ruined thousands of acres of pears in California and elsewhere. Pear planting is somewhat hazardous on account of this disease, although it can be fairly well controlled by very careful work. Control is effected by very thorough removal of affected parts, especially during the winter. The disease is extremely infectious. Partially resistant trees are being developed. Special information should be sought in blight control."

PEACHES.

In the production of peaches, California leads all other states, producing more than one-third of the entire crop of the United States. Some indication as to the extent of the industry is shown by the fact that the total production for 1920 is set at 345,000 tons. The value of the crop was placed at the enormous figure of \$26,220,000.

Rank of the Five Leading States in Peach Production, 1920.

Rank and state	Production, bushels	Per cent of total production
United States	43,697,000	100.0
1. California	13,800,000	31.6
2. Georgia	3,799,000	8.7
3. New York	2,307,000	5.3
4. Ohio	2,241,000	5.1
5. North Carolina	1,969,000	4.4
Total five states.....	24,056,000	55.1

PROGRESS OF PEACH INDUSTRY A VERITABLE BUSINESS ROMANCE.*

"Although few people realize the fact, no section of the entire world has yet produced a peach that compares with the texture and size of the peaches grown in the San Joaquin Valley and have been able to dry it naturally in the sun as is done in this favored section of the State of California.

Whether this is due to different climatic conditions or whether to lack of initiative on the part of peoples living in sections having like conditions has not been established. But the fact remains.

The California dried peach is one of the rare peach products that is left on the tree until it attains its full degree of ripeness and is picked and processed under those conditions, retaining everything that nature provides in a truly ripe peach with the exception of the water, which is evaporated through the agency of the hot rays of the sun.

The progress of the California dried peach in the past five years has been a veritable business romance. In 1916 peach growing in California for the purpose of drying was looked upon as one of the most unfavorable forms of orcharding to engage in. Prices were below the cost of production and few were able to make ends meet. It became so serious that thousands abandoned the industry until the ratio of orchards destroyed to new plantings became as low as three to one.

At that time the peach growers of the state organized into what was known as the California Peach Growers, Inc., and in a space of five seasons made the California dried peach one of the most popular fruits on the market. With the expiration of contracts last fall, the association was reorganized, taking in the fig growers, and is known as the California Peach and Fig Growers.

The progress spoken of was made under the direction of Frank H. Wilson of Dinuba as president and J. F. Niswander of Fresno as vice president and general manager. These men by proper organization and careful business methods placed the dried peach business on its feet.

As a result today the California peach grower is in a position of independence and can secure for his product the best price paid in many years. While this progress has been noted for the grower, the consumer has also benefited, for the highest grade dried peach product in the history of the California industry has been evolved with the result it is in demand in the markets of the world.

The advance of the dried peach industry can be well visualized by its popularity in the markets of the country. The 1920 crop of dried peaches was a little below normal and it is estimated that 65 per cent of the output under the association brand will command a premium in the markets. In 1915 no peaches were disposed of at a premium as far as can be ascertained.

The early vicissitudes of the peach growers of the state have played an important part in the decrease in the dried peach output. In the years before the advent of the association, an orchardist found it next to impossible to secure enough to pay for the harvesting of his crop.

*By J. F. Niswander, Vice President and General Manager, California Peach and Fig Growers.

Those that were able to afford the luxury cut down and grubbed out their orchards and when an orchard ceased producing at the end of its allotted span of life, instead of replanting and preparing for a replenishment, it was invariably the rule in those times to plant to other fruits or to vines.

The after effects of those conditions are being felt more now than was the case a few years ago. The dried peach acreage has been on the decline and while the situation is not alarming, it is not without concern. Yet with the present prosperity, aside from the general slump in business, the outlook is very bright for the dried peach industry.

Intensive promotion work, which was considered foolhardy for an individual a few years ago, has been indulged in by the association and has resulted in the increased demand for the product until it is being universally used throughout the United States. The cooperative marketing corporation of the growers has been able in its comparatively short period of existence to standardize the product and eliminate speculation to the end of stabilizing the industry. In the period of violent fluctuations in price and demand through which the country has just passed, the dried peach industry has been particularly free from such conditions and is rated as one of the most stable industries of the state.

Over 80 per cent of the dried peach growers of California are enrolled in the association and have greatly benefited by the marketing system in vogue. The price to the grower at the orchard has steadily increased, the average advance being about two cents per pound during the last four seasons. This year, with the general decline in foodstuffs, the dried peach price is receding in proportion.

In view of the tremendous strides made in bringing to the attention of the housewives of the nation the economical advantages of the dried peach over other peach products, the progress made in the general campaign to acquaint the people with the food and general dietary superiorities of the fruit, the outlook for expansion in this particular industry is greater than ever before.

The experience of securing a sizeable premium for dried peaches of first quality such as characterizes the California product has added attractiveness to peach orcharding and it is believed that this feature will result in the planting of many new peach orchards for the purpose of drying the fruit in the next few years.

Research such as has featured the new fig industry is also in progress to develop new dried peach products and the outlook for a decided increase in demand is very bright. The machinery of the association is being utilized now for this purpose."

PRUNES AND APRICOTS.*

"In the prune and apricot crops of California we have two large items of our state deciduous fruit production. We have greater acreage and greater yield in prunes, possibly, than any other orchard product. Have now planted in California something in excess of one hundred and fifty thousand acres of prunes and fifty thousand acres of apricots. These industries had their small beginning something

*From California Prune and Apricot Growers, Inc.

over sixty years back, and have been a commercial consequence for almost fifty years. Both fruits are produced in California far in excess of any area in the world. The prune area of California is confined largely to French variety, although we have considerable production of Imperials, Sugar and other varieties of large sized fruit. The present acreage due to the material increased plantings over recent seasons. The root stock of prune orchards in heavier valley soil everywhere runs strong to the Myrobalan or French plum root and in lighter soil the peach and almond root used extensively. The prune is comparatively a vigorous and hearty semi-tropical tree. A thrifty grower and good producer in any of the valley districts of California with less than a twenty or twenty-five inch seasonal rainfall, irrigation is considered generally beneficial, although in many districts with a fifteen-inch average, most profitable properties are operated without irrigation.

The prune crop might be generally considered comparatively simple in the matter of propagation and harvest. Have but few serious pest enemies and complete failure in prune crop very rare. Whereas, through frost, pest and infection conditions, other deciduous fruit crops in some cases entirely destroyed, even the orchards wiped out.

Prunes are harvested almost exclusively for drying purposes and are possibly better known as a food product than any other fruit product, canned or fresh. California has many times the present acreage adaptable to the growing of prunes and as fast as markets can be developed, this industry will certainly make further growth. Apricots, like prunes, are adapted to valley districts of California, although a little more delicate and susceptible to extremes of weather, especially frosts. For this reason principal apricot developments extend from the Bay districts through southern California with a very light planting through the north. Principal variety commonly known as Blenheim. The large acreage in many districts of the so-called Royal apricot are very similar to the Blenheim, if not the same. Limited crops also in the Moorpark, Henskiirt, and Tilton varieties. Apricot is one of the early ripening of our deciduous fruits, and is not subject to the losses resulting in the harvest of late dried fruit, such as prunes and raisins, through early fall rain. The apricot harvest of the state goes into three distinct markets. Of late years about seventy-five per cent of the production has been sold green by the growers principally for canning, although in a large way for green shipping market. The remaining twenty-five per cent goes to drying purposes. These several outlets give advantage to the apricot producer. The apricot in any form, cured, canned or fresh, is most nearly a delicacy of any of California's deciduous fruits.

Both prunes and apricots as food have peculiar appeal to consumers as a health food. These two fruits are being produced now by upwards of fifteen thousand growers, and their crops have brought excellent profit over recent season. The growers of prunes and apricots have been jointly organized into a cooperative sales organization since 1917, and much of the profit to the industry has come as a result of this business step. In the years prior to our entry into the war in 1917,

statistics show a fifty per cent export of dried prune, and seventy per cent of dried apricot product. Since that date, however, and most particularly at the present time, we are entirely cut off from all export opportunity. Through sales organization, advertising, merchandising and development, work has been accomplished through developed and maintained domestic market to take care of increased production in the place of decrease in the world market opportunity. The industries are, of course, at the present time seriously affected by general merchandise slump. Prune and apricot market maintaining far better in proportion to late price schedules of other industries. With the resumption of normal trading conditions, prune and apricot industries should maintain in the position of leader among the profitable orchard industries of California."

PRUNE CULTURE IN CALIFORNIA.*

"All prunes are plums, but all plums are not prunes. A prune is a plum which can be dried without the removal of the pit without fermenting.' The prune belongs to the genus *Prunus*, of which there are a great many cultivated varieties. Some of the most common grown commercially are the Prune d'Agen, or French, Robe de Sergeant, Imperial and Sugar.

The culture of prunes constitutes a very large branch of California horticulture, because the prune is a standard article of diet and is marketed as fresh and dried fruit. More prunes are sold than any other dried fruit in California. The range of soil and climatic conditions for the prune is very large. They are grown successfully in the valleys near the coast (not on the coast), as in the Santa Clara Valley, Santa Rosa, Napa, and other of the smaller valleys. In the San Joaquin and Sacramento valleys, where conditions are quite different, we find prune orchards doing well, as in the vicinity of Hanford, Visalia, Vaca Valley, Yuba City, and Chico. Smaller areas are found in the foothills near Auburn and Newcastle, where they do well.

Soils.—The prune is grown generally in deep, fertile, well-drained soils, not too sandy nor too heavy like the clays and adobes. Because the tree is quite adaptable, a great many are planted on soils that are not suitable, such as the light sands, clays and adobes, and under these conditions the trees grow with varying degrees of success. In selecting a soil for prunes there are certain things one should observe very carefully before planting, and try to avoid. The soil should be deep, not underlaid with hardpan, standing water, strata of coarse gravel, or impervious clay near the surface. One may not always be able to get a soil where all these conditions are ideal, but should select as nearly this type as possible. The conditions to avoid named above are quite often improved by deep plowing, the use of explosives, drainage, barnyard manures, and green manure crops. These factors will have an important bearing on the value of the land. Unimproved land in sections of the state where the industry is highly developed, as in the Santa Clara Valley, sells for \$250 to \$500 an acre. Improved lands in these sections bring from \$600 to \$900 per acre. In the San Joaquin

*By Thomas Francis Hunt, Associate Professor of Agricultural Extension, University of California.

and Sacramento valleys unimproved land brings from \$125 to \$250 per acre and improved land brings from \$300 to \$500.

Developing.—There is quite a choice of locations and one should take into consideration climatic conditions in regard to one's personal comfort, price of land in various sections, returns from crop, amount of money to be invested, and income desired. The high priced land is found where the industry is highly developed and where living conditions are particularly desirable, as in the counties along the coast. Good prune land, not so high priced, can still be obtained along the streams in the San Joaquin and Sacramento valleys. Still cheaper lands adapted to prunes, usually in small tracts, can be obtained in the foothill sections of the state. In all of these three general sections prune growing is usually beyond the experimental stage, so that with a given type of soil selected and the local experience in regard to varieties for that locality, one can proceed. The trees can be propagated in several ways, but budded trees are universally used. Several stocks may be used for various soil conditions, but experience has taught that the Myrobalan root is generally used, particularly if the soil is heavy or drainage conditions are bad. The peach and almond root are used considerably on the lighter soils and where the drainage is good. It is usually better to obtain trees from some reliable nursery firm, of which there are a great many in the state. The trees are planted in squares, rectangles, or triangles. The usual distance is 22 to 26 feet, depending on local conditions, varieties, etc. The general practice is to cut the tree back to a single stock 20 to 24 inches high at the time of planting, then shape the tree, by pruning, the next two or three years. Others do not prune at all, but let the tree grow as it will. The cultural method will vary a little in different sections, but is not unlike the general care given other orchards in regard to plowing, cultivating, and irrigating.

Handling the Crop.—There are three general methods of handling the crop. These are governed usually by the size of the farm. The first and most common is the case of the owner who has 10 or 20 acres, and he and his family do all the work, with, perhaps, additional help at harvest time. The second class is of large tracts of from 20 to 100 acres, which are handled almost entirely with hired labor. Third, the renter. In this case the land is rented for a cash rental, or on a crop basis, which is usually one-fourth to one-half for the owner and one-half to three-fourths to the renter. The labor is supplied chiefly by white people who live in the community and by transients, mostly Orientals, who are employed during the rush season. The fruit ripens on the tree and falls to the ground, when it is gathered, hauled to the dipping shed, dipped in a solution of lye, and placed on trays in the sun to dry. After the fruit has been dried it is put in sacks and sold to the large packing concerns or handled by the farmers' cooperative organizations.

Insect Pests and Diseases.—The prune, like other fruit trees, is attacked by certain insects and diseases. The most serious insect pests are thrips, root borers, and red spider. The worst diseases are crown gall and gummosis."

THE AVOCADO.

This fruit has well been named the poor man's food. In the countries of South America, Mexico, and other tropical countries, where it grows wild, the very fact that the trees are such abundant bearers and that the fruits possess all the food ingredients to sustain the human body, are the combinations which have caused this fruit to be so designated. The fruit sells with us at very high prices, and it is more than likely it will continue to do so for many years to come.

Avocado growing in California is still in its infancy, but rapid advance is being made and the industry is expected soon to assume rather prominent proportions. According to estimates of the California Avocado Association there were approximately 26,000 budded trees planted in the state. Of this number probably 16,000 would be considered good, marketable varieties.

An interesting feature of the avocado is that it blooms and bears fruit at all seasons of the year and there is no doubt that its cultivation has a very great future in California where there are many localities possessing ideal climatic conditions for its culture.

The California Avocado Association of Altadena has the following to say of the avocado production in 1920:

"There are no figures to give an estimate of the avocado production for 1920. There were probably about 40,000 of the 'thick-skinned' fruits and something over 100,000 of the 'thin-skinned' small fruits. The prices ranged, to the grower, all the way from 60 cents per dozen for some of the small fruits to \$12 per dozen for the largest ones. Of the 1921 crop we have a better estimate. There will be about 100,000 of the thick-skinned kinds and probably about the same number of thin skins.

There are not as yet any avocado orchards in full bearing in California. Many of the orchards which were first planted out were not properly cared for, were of inferior varieties and are being worked over to the better kinds, or were of the slow bearing kinds which are just now beginning to bear fruit. From this time on the production of fruits should increase rapidly, and the prices adjust themselves to a fair value, both to the grower and the consumer. The fruit has been so scarce heretofore that the general public could not afford to buy it. The food value of the avocado is so high that as it comes in reach of the pocket of the people it will undoubtedly be in great demand.

During 1920 there were probably 200 acres of avocados planted in orchard form, and several thousand trees planted in home gardens. The planting this year will exceed this. Avocados can be successfully grown on a much more limited area in California than citrus trees, the trees are more difficult to propagate, and the seed supply limited, so it will not be possible to plant avocados in anything like the quantity that has been planted to citrus."

DECIDUOUS FRUIT GROWING IN CALIFORNIA.*

"In choosing the species or varieties of deciduous fruit to plant the new farmer should be guided by (1) the adaptability of his soil and conditions; (2) the purpose for which the fruit is grown; (3) the

*By J. C. Whitten, Professor of Pomology, University of California.

accumulated experience of the successful growers in the neighborhood; and (4) he should avail himself of what has been accomplished by organized effort in the establishment of grades, brands and market demands for the crop.

The best varieties of fruit for the new farmer to plant are those which have been found to be especially adapted to his neighborhood. This point may be determined by consulting the more successful fruit growers having soil and conditions similar to his own. In districts which are adapted to a wide range of species and varieties, a number of kinds of fruit may be planted if desired. This admits of a better distribution of labor, since different varieties need care and harvesting at different periods.

Certain districts have become widely known for their adaptability to a single kind of fruit which reaches the highest perfection. In such a district the new farmer should take advantage of this fact. It is an asset which the community has made for him.

Just why a given soil or surroundings may prove, upon extended trial, to develop a given fruit to perfection is not fully understood. Enough is known of the general requirements of the different species, however, to be very helpful in determining their best location. All deciduous fruits require a well-drained soil, though some are far more partial to thorough drainage and aeration than are others.

The pear requires a heavier, finer loam with more liberal admixture of clay than do the other deciduous fruits. Even the pear, however, will not endure a very wet, sticky soil, which is cold while wet and which bakes severely when dry. Often it may safely be planted on heavier land than is adapted to other fruits. It is more resistant to oak fungus and alkali and is often used for replanting in parts of orchards where other fruits have died out. The apple perhaps ranks next to the pear in respect to the above adaptations. The walnut requires a deep, moist soil, when worked on the California black walnut stock. The almond, cherry, and peach require deep, well-drained soil. Prunes, plums and apricots have an intermediate drainage requirement.

Spring frosts should be considered as a factor in determining the location of the different species. Since heavy cold air settles or drains into the low places, the latter are more likely to be frosty; while the higher elevations (not high altitudes) are freer from frost. The susceptibility to frost injury of a species depends mainly upon its season of blossoming; the later it blooms the safer it is from injury. The almond blooms first, while the nights are cold, and a first requisite for its success is an elevation above the frost line. Its blossoming season is followed by that of other species in the following order: Apricot, Japanese plum, peach, cherry, pear, apple, prune, quince.

Other things being equal, all fruits do better in rich soils; some, however, require much richer soils than others for profitable results. The relative requirement of the different species in this respect is based partly upon field observations of their growth and partly upon determinations which have been made, showing the relative amount of plant food annually removed from the soil by each species and not returned in their leaves when they fall. The walnut probably requires the rich-

est, deepest soil, followed in order by the peach, almond, prune, Japanese plum, apricot, apple, cherry, and pear.

Fruits which are to be sun dried require emphatically abundant sunlight and higher day temperatures. Abundant sunlight and warmth are essential to the development of the desirable sugar content, during their ripening period, and should be prolonged sufficiently to complete the drying process after the fruit is ripe. The dried fruit industry is, therefore, greatly favored by conditions prevailing in California fruit districts.

A limiting factor in pear production the country over is blight. Soft, succulent, rapid growing tissue favors, and slow growing, firm tissue opposes the entrance and spread of blight. For that reason blight is most serious in districts where high temperatures favor rank, succulent growth of the pear tree in early summer. In some of the cooler sections of California, such as the coastal valleys and to a degree in the cooler elevations of the foothills, blight is less serious. In these districts pear growing is favored to a degree not possible in any other part of the country.

A given community may be famous for its dessert fruit, shipped fresh, or for its dried or canned fruit. Usually definite grades or brands are established. Market demands usually have been created. One should plant to conform to the established industry of the neighborhood, using the varieties and methods upon which the business has been built up.

As a rule it is safest to advise the new farmer to be guided by the best local practices, employed by the more prosperous fruit growers, in producing, handling and marketing the fruit crop. The very fact that a successful fruit growing industry has been developed is evidence that it has been based upon sound practice and years of organized effort in building up the industry. One should not lightly discard established practice to adopt, indiscriminately, new varieties, new methods or alleged 'short cuts' to success, even when these are advised by the enthusiast. Innovations should be tested only on a small scale until their superior worth is proven beyond doubt.

If the farmer is in doubt as to the soundness of a given practice he may consult his local farm bureau, farm advisor, horticultural commissioner or the experiment station. These agencies are helpful in enabling the orchardist to determine whether, in a given case, he may more safely conform to standard practice or whether he may make progress by adopting the new.

In starting a deciduous orchard, moderate sized, one year old trees are preferable to large, strongly branched, older trees, because (1) the smaller trees suffer less back-set in transplanting, and (2) they may be given the desired form, or distribution of branches.

At the time of planting the young fruit tree should be pruned to a single whip and cut back to about two feet in height.

The tree should be whitewashed as soon as possible after planting to prevent sunscald and drying out before it starts growth in spring. The whitewash reflects the heat of the sun, keeping the tree at atmospheric temperature. A tree not protected by whitewash warms up to 15 to 25 degrees above atmospheric temperature during the sunny part

of the day and cools to atmospheric temperature (freezing or sometimes below) at night.

As soon as new shoots two or three inches long start on the tree in March attention should be given to spacing properly the main, permanent branches. About three main limbs should arise from the stem. These should be spaced six or eight inches apart, up and down the trunk, and spread about equally in different directions. If the main limbs form opposite each other, in a single whorl, they form bad forks, later crowd at the base and result in diseased trunks.

The strongest shoot at the top should be selected for the upper main limb. Another bud or shoot fifteen or sixteen inches lower down, and eight or ten inches from the ground, should be selected for the lower main limb. A bud or shoot about midway between these two should form the third limb. These three main limbs may be encouraged to outgrow all the others by pinching back the remaining shoots that push out between them.

Do not remove any of the shoots that start. Pinch them back so as to leave two or three leaves at the base of each shoot. The leaves on these short twigs up and down the stem shade the trunk, cool it by evaporation and digest plant food to nourish the trunk of the tree and the root system. They result in a larger, stronger tree. They also may become the first fruiting branches.

The following winter, when the young tree has completed its first summer's growth, the three main limbs should be headed back to where they should divide into two branches each. They should be cut to about a uniform height. Usually the lower one will be cut to about two feet and the upper one to about fifteen inches in length.

In March or early April two main shoots near the top of each of these main limbs should be encouraged to develop, thus establishing six main limbs. Superior growth of these six branches is secured by pinching back any additional shoots that tend to outgrow them. Again, do not prune off the surplus shoots; keep them short by pinching them back.

By May of the second spring these six strong, growing branches will have reached a height where most of them should divide again. At this time they should be cut back, about breast high. With this May heading about eight or ten permanent main branches will be secured.

No subsequent heading back should be done, except with meager branching sorts like cherries. The eight or ten main limbs, when once established, should be left to make and retain their normal length growth annually.

Except for heading back the three primary limbs the first winter and heading back the six limbs that arise from these the following May, winter pruning should consist of thinning out limbs that grow too close together; removing strong, outside branches, low down, which may get in the way of cultivation; of removing any strong water sprouts that start in the center of the tree, and shortening inner branches that tend to cross or interfere.

A broad, spreading tree should be maintained with open center to admit filtered sunlight from above. Small branches and fruiting twigs

should be preserved throughout the length of the main limbs. They protect from sunscald, nourish the tree, and become the first fruiting branches.

If thinning out at the top is practised, fruiting twigs may be maintained throughout the body of the tree, from the trunk upward. The tree will reach bearing age one or two years earlier and will carry heavier crops. Main limbs not headed back spread outward, droop with a gradual curve that does not break and admit of pruning and handling most of the crop from the ground.

Trees annually headed back make numerous rank sprouts just at the point where the limbs are headed. These rank, late growing sprouts rob the twigs on the branches below and shade them out, resulting in long, bare, unfruitful lower limbs which are subject to sunscald, gumming, borers or other injury."

Table Showing Number of Cars of Deciduous Fruit Shipped, 1908-1920.

	Apricots	Cherries	Grapes	Peaches	Pears	Plums	Miscellaneous	Total
1908 -----	232	208	3,819	1,980	2,702	1,763	15	12,920
1909 -----	210	250	5,880	2,569	2,638	1,526	19	15,280
1910 -----	290	250	4,948	2,518	2,361	1,552	17	14,072
1911 -----	215	216	6,374	2,027	2,325	1,366	16	12,539
1912 -----	196	244	6,357	1,621	3,135	1,776	15	13,344
1913 -----	158	231	6,363	2,359	2,496	1,706	19	13,332
1914 -----	382	163	8,773	2,144	2,725	1,907	49	16,146
1915 -----	392	205	9,563	1,689	2,646	2,225	58	16,778
1916 -----	290	164	9,722	1,909	3,701	1,999	106	17,891
1917 -----	403	330	13,944	2,432	4,802	2,651	66	24,628
1918 -----	441	351	16,358	3,137	4,570	2,463	77	27,417
1919 -----	420	335	19,228	2,773	4,248	2,918	49	29,971
1920 -----	287	494	24,152	3,148	4,391	2,564	210	35,246

(Courtesy California Fruit Distributors.)

GRAPE GROWING IN CALIFORNIA.*

"Grapes are grown commercially in every county in California, except one or two in the extreme north and two or three in the higher mountain regions.

Varieties and Localities.—Raisin grapes are grown principally in the San Joaquin Valley, with Fresno as the center. Here the Muscat and Sultanina develop the necessary sugar early enough to be dried in the sun while the weather is still hot and dry. Minor centers where good raisins are made occur in the central part of the Sacramento Valley and even near the coast in the extreme south, but drying the fruit is often uncertain and dipping or artificial driers must sometimes be resorted to.

The earliest shipping grapes are Sultanina and Malaga from the Coachella and Imperial valleys. The next, principally of the same varieties, come from the foothills of Tulare County and the neighborhoods of Winters and Vacaville. Malaga is the principal white shipping grape and is grown most largely in the San Joaquin Valley south of Modesto. The Flame Tokay, which constitutes the main bulk shipped, is grown principally in San Joaquin County, with Lodi as a center, and in Sacramento County along the American River. Farther

*By F. T. Bioletti, Professor of Viticulture and Enology, University of California.

south it fails to develop sufficient color. The next most important shipping grape is the Emperor, grown principally in Tulare and Fresno counties. The latest shipping grapes are grown in Contra Costa and Santa Cruz counties principally. In general, shipping grapes can be grown profitably only in localities where packing and transportation facilities have been established. Rich soil and abundant water are necessary.

Grapes for dry wine have been grown most profitably in the coast counties from Mendocino to San Diego, where the acidity of the fruit and the cool weather of the vintage are suitable; sweet wine grapes in the great interior valleys from Shasta to Kern and also in parts of the San Gabriel Valley in southern California, where rich soil insures large crops and the climate promotes low acidity and high sugar content in the grapes.

On a twenty-acre vineyard most of the work except harvesting can be done by the owner himself. Unless he has had considerable experience, it would be unwise to attempt to handle more.

In starting a vineyard great care should be used in choosing the planting stock. As a rule one year old rooted vines grown from cuttings carefully selected from healthy, profitable vines should be used. In rich, moist, sandy loam the cuttings may often be planted directly in the field with considerable saving in expense and some in time. In most of the coast regions phylloxera resistant bench grafts must be used.

The soil should be cleared, leveled where irrigation is needed, and plowed or subsoiled at least twelve inches deep before planting. Great care in training and pruning the young vines for the first three years before they come into bearing is necessary. Stakes must be used from the end of the first year until the vines can support themselves. Some varieties, such as Sultanina, require trellising. Pruning must be done by expert hands and must be adapted to the particular variety. Sulfuring once, twice or three times during the season is needed to control the Oidium. Special methods of thinning and harvesting are needed for some table grapes.

A well-managed vineyard on suitable soil in a suitable locality may yield a net profit of from \$75 to \$300 per acre when in full bearing. One planted on poor soil or in an unfavorable locality, or one which is neglected or improperly handled, will often fail to pay running expenses.

Suitable land can be obtained for from \$225 to \$375 per acre in small tracts. The cost of planting and care of an ordinary vineyard for the first three years will be about \$200. Where resistant vines are used about \$60 per acre must be added to this. If the vines are to be trellised like Sultaninas from \$30 to \$40 per acre must be added.

The average cultural expenses of a bearing vineyard will seldom be less than \$20 per acre per annum and the fixed charges for taxes, depreciation, and interest on the investment will usually exceed \$40.

It should be recognized by the planter that the land suitable for grape growing of all kinds in California is practically unlimited. When prices are high most vineyards are profitable and new plantings rapidly increase the crop of the state with a consequent drop in prices. Under

these conditions the poorer vineyards become unprofitable. Any vineyard, however, which has some peculiar advantage of soil, location or management that enables it to produce more than the average crop will pass safely through the period of depression and be very profitable when the reaction of high prices recurs.*

California Dried Fruits—Comparative Packs, 1915-1920.

	Yearly average for five-year periods			1915 Tons	1916 Tons	1917 Tons
	1903-1907 Tons	1908-1912 Tons	1913-1917 Tons			
Apricots -----	8,200	15,900	14,280	15,800	11,100	15,000
Apples -----	2,500	3,530	4,760	4,500	5,200	8,000
Figs -----	3,000	4,035	8,075	8,500	9,000	2,000
Peaches -----	14,500	21,800	29,912	31,500	28,000	5,000
Prunes -----	67,500	68,600	75,400	85,000	75,000	115,000
Raisins -----	54,000	71,100	115,000	125,000	126,000	160,000
Pears -----				2,000	1,200	2,000
Grapes -----						
Totals -----	148,720	184,965	247,427	272,300	255,500	345,000

	1918 Tons	1919 Tons	1920 Tons	Yearly average		
				1914-1918 Tons	1915-1919 Tons	1916-1920 Tons
Apricots -----	18,000	14,500	10,750	15,930	14,880	13,870
Apples -----	5,600	10,500	5,000	5,510	6,760	6,860
Figs -----	8,750	11,000	11,500	8,925	9,850	10,450
Peaches -----	20,000	35,000	25,000	29,412	29,900	28,600
Prunes -----	37,500	135,000	95,000	73,600	89,500	91,500
Raisins -----	170,000	184,000	185,000	135,000	153,000	165,000
Pears -----	1,750	5,000	2,500	2,000	2,190	2,490
Grapes -----			25,000			
Totals -----	261,600	395,000	359,750	270,467	306,280	318,770

(Courtesy Western Canner and Packer.)

SEMI-TROPICAL FRUITS IN CALIFORNIA.*

"In addition to citrus fruits, olives and figs, the following semi-tropical fruits are now being grown in California and are of sufficient importance to warrant commercial plantings: Pomegranate, feijoa, loquat, Japanese persimmon, avocado, carob, and date. All these crops require irrigation.

The pomegranate thrives in all the interior valleys of California, there being at present over 150 acres. The Wonderful is by far the best variety for market. The pomegranate bushes are resistant to alkali, but they can not be expected to produce the best quality fruit on soils strongly alkaline. On account of the common habit of splitting, the fruit of most varieties of pomegranates must be picked before it is fully mature. The fruits continue to ripen well if placed in cold storage, and there they will keep in excellent condition for several months, becoming richer and more vinous in flavor and better in quality. Growers should pay especial attention to such products as bottled juice and syrup.

*By I. J. Condit, Assistant Professor of Citriculture, University of California.

The feijoa is closely related to the guava, being sometimes known as the pineapple guava. The plants are hardy, not being injured by a temperature as low as 5° Fahrenheit. The greatest obstacle in the way of extension of feijoa plantings at present is the lack of good stock. Seedlings are variable in productiveness and in shape, size, and quality of fruit. Grafted stock should be more plentiful in a few more seasons.

The loquat is one of our neglected fruits. Experience in the last few years has shown that the fruit can be profitably grown if the right varieties are planted in a protected situation. The Thales, Champagne, and Advance are all good varieties for market on account of large size and uniformity of fruit. The tree blooms during the late fall and early winter, and must therefore be planted where the blossoms and fruit will escape frost injury. If carefully handled the fruit keeps and ships well even to distant markets, the wholesale prices ranging from a few cents up to 25 or even 30 cents a pound.

The kaki, or Oriental persimmon, is a deciduous tree and is therefore not so liable to frost injury. Experience has shown that California grown trees are preferable to those imported from Japan on account of the former having a better root system. Trees propagated on the lotus stock (*Diospyros lotus*) are showing excellent results in the orchard; those on the American persimmon root are vigorous, but the stock has a tendency to sucker. Persimmon trees fruit well except in the very coldest sections of the state. The crop is earliest in the hot interior valleys, but later fruits grown along the coast are of excellent quality and are marketable to good advantage during November and December when other fresh fruits are not so plentiful. The Hachiya is leading in popularity for commercial plantings, while the Tanenashi is a close second.

The avocado industry is passing from the experimental stage into that of an assured success, at least in parts of southern California. Large orchards are in bearing and fruits are being marketed in quantity. The question of varieties is still a critical one, but the list has been shortened to six or eight approved by the California Avocado Association. Avocado trees are not particular as to soil as long as drainage is good. They vary in their climatic requirements according to the race to which they belong. In general, it can be said that so far as minimum temperatures are concerned trees of the Mexican race should thrive wherever the orange tree thrives, trees of the Guatemalan race wherever the lemon thrives, while trees of the tropical West Indian race can be grown only in the most protected and frost-free localities.

The carob, or St. Johns Bread, like the loquat, blooms and sets fruit during the fall and winter. In order to insure a profitable crop, therefore, planting should be restricted to the foothill sections where frosts are not severe. Most carob trees produce male or female flowers only. Some varieties, however, bear perfect flowers, and such are preferable for commercial planting. The pods, produced in September and October, are rich in sugar and make excellent cattle feed.

Date growing in a commercial way is restricted to parts of the Imperial and the Coachella valleys. The growth of the industry has been hampered by scarcity of desirable offshoots for planting. The

variety Deglet Nur is in greatest demand as a confectionery date, while Thuri is being planted for a dry or bread date."

California Canned Fruits—Comparative Packs, 1915-20.

Figures for 1918 and 1920, furnished by Secretary Preston McKinney of the Cannerymen's League of California.

	Cases *1915	Cases *1916	Cases *1917
Apples	110,672	215,000	260,000
Apricots	1,005,234	1,163,885	1,700,000
Blackberries	142,138	118,000	145,000
Cherries, Royal Anne	82,688	55,000	115,000
Cherries, Black	22,000	12,000	30,000
Cherries, White	26,282	14,000	35,000
Grapes	68,697	83,100	90,000
Loganberries	20,000	38,000	90,000
Pears	672,782	871,400	830,000
Peaches, Free	818,338	1,286,910	1,555,000
Peaches, Cling	2,075,192	2,615,000	3,650,000
Peaches, W. H.	29,127	35,000	140,000
Plums	150,216	112,375	235,000
Raspberries	3,445	9,835	19,000
Strawberries	19,615	16,000	24,000
Other fruits	86,850	67,500	205,000
Total fruits	5,328,456	6,713,005	9,123,000

*Pie fruits were included.

	Cases, 1918		All grades and sizes		
	2½, 3 and smaller	Gallons 6 to case	Cases 1918	Cases 1919	Cases 1920
Apples	11,140	156,565	167,705	134,245	9,041
Apricots	1,574,557	658,757	2,233,314	4,395,204	2,312,020
Blackberries	57,327	61,784	119,111	114,349	161,359
Cherries, Royal Anne					
Cherries, Black	† 319,094	†40,996	360,090	460,614	647,977
Cherries, White					
Grapes	79,853	19,215	99,608	104,446	114,886
Loganberries	19,779	29,213	48,992	11,708	14,237
Pears	690,458	121,492	811,950	1,071,687	1,184,288
Peaches, Free	825,702	567,893	1,398,595	1,962,700	1,547,687
Peaches, Cling	2,568,860	553,598	3,122,458	5,096,249	5,205,511
Peaches, W. H.					
Plums	117,879	30,698	148,577	280,261	164,740
Raspberries	569	3,446	4,015	233	
Strawberries	766	1,236	2,002	22,123	5,525
Other fruits	329,588	103,272	432,860	42,584	15,562
Total fruits	6,595,572	2,348,165	8,943,737	13,696,403	11,382,863

†All varieties. (Courtesy Western Canner and Packer.)

DATES.

The following data on the date industry is offered by Paul Popenoe, manager of the Tropical Date Company of Thermal, Riverside County: "Production of dates by counties for 1920: Riverside, 100,000 lbs.; Imperial, 5,000 lbs.

The principal varieties commercially grown are:

Early-maturing dates: Khadhrawi, Halawi, Khustawi, Ghars, Tazaut.

Mid-season dates: Zahidi, Maktum, Dubaini, Yatimeh, Asharasi.

Late-ripening dates: Thuri, Deglet Nur, Tafazwin.

Other varieties grown to a slight extent commercially: Barhi, Kasbeh, Kanta, Halwa, Khalaseh, Hurra, Tabirzal, Tantabusht, Rishti, Fursi.

There is no available data on the proportionate yield of any of these varieties, but those mentioned in the three classes named above probably comprise more than 95 per cent of the acreage planted to imported varieties.

It is estimated that there were in 1920 about 400 acres planted to dates of imported varieties. In addition there are thousands of seedlings, most of which have been neglected, and in some cases abandoned. There are probably about 50 acres of seedling dates set in orchard form and well cared for as a commercial proposition.

Of the 400 acres of standard varieties mentioned, 320 would be in Riverside County (Coachella Valley) and 80 in Imperial. Practically all of the commercial seedling orchards are in Riverside County.

According to H. H. Laughlin, who has recently made a study of the subject, there are, scattered over the San Joaquin Valley, about 4,000 female date palms (all seedlings), of which about 100 have borne fruit. Of the total acreage in the state probably one-half has reached an age where it is beginning to bear fruit.

Prices for the 1920 crop showed extreme variation. A few of the best dates, put in a fancy 15-oz. confectionery pack, were sold at \$1.50 per pound wholesale. Thousands of pounds of seedlings were sold at 20 or 30 cents per pound. Broadly speaking, it might be said that the grower received anywhere from 20 to 60 cents per pound for standard varieties, and from 7 to 30 cents per pound for seedlings.

Thousands of pounds of seedlings and culls were seeded, ground up, and sold as "shredded dates," particularly to bakers and confectioners.

Practically all of the crop in Imperial Valley was grown and packed by one corporation. In Riverside County there were two associations packing dates. The California Date Association handled 33,000 pounds, and the Deglet Nur Date Growers' Association 4,000 pounds. The rest of the crop was handled by individual growers.

The date industry in the state is being increased as rapidly as offshoots are available, importation of offshoots from the Orient now being prohibited by the Federal Horticultural Board's quarantine. Offshoots grown in California on palms of imported varieties sell for \$8 to \$25 each.

At present the culture of suitable varieties of dates in selected localities in the Coachella, Imperial and Palo Verde valleys is recommended. Eventually varieties may be found adapted to the San Joaquin and Sacramento valleys. Seedlings are not recommended as a commercial venture, but offer a cheap source of fresh fruit for local use."

The Possibilities in California for a New Date, Highly Productive, Found by Scientists.

One of the romances which mark the history of the United States Department of Agriculture's plant-exploration work has resulted in bringing to this country 2,800 date-palm offshoots of the choicest varieties of the Nile Valley and Libyan Desert.

These offshoots, mainly from the Saidy, or Wahi, and the Sewi varieties, were shipped from Alexandria to New York by Professor S. C. Mason, arboriculturist of the Bureau of Plant Industry, who first discovered their sources in 1913, and are now at the bureau's date garden at Indio, southern California. This is the headquarters for the date work in the Salton Basin, comprising the Coachella Valley north of the Salton Sea and the Imperial Valley on the south, the one region in the United States combining the climatic features necessary to the successful cultivation of the choicest Old World varieties of dates.

For nearly 20 years the United States Department of Agriculture has been seeking offshoots of a large date known to commerce as the Wahi. These were regarded as the choicest dates obtained in Egypt, ranking next to the famous Deglet Noor of Algeria and Tunis, and with this difference—that while the Deglet Noor produces few offshoots from which young trees can be grown, the Wahi is prolific in this respect, producing from 20 to 30 offshoots in the lifetime of a tree. However, all efforts to find the source from which the Wahi came failed year after year.

When Professor Mason went to Dakhla in 1913, the first representative of the United States Department of Agriculture to visit that historic "inner oasis," he arrived in the time of the date harvest. When asked about the dates which they were sending out in large quantities, for Dakhla has nearly 200,000 date palms, his desert host replied: "This is the one commodity we have for export in all five of these oases. This date packs so well that we can send it on the long journey to the valley." Professor Mason asked the name.

"We desert people call it the Saidy," said the sheik, "but when these Bedouin traders get over to the valley with it they call it the Wahi."

To this friendly sheik was due the discovery of the true name of this valuable variety of date, and the whereabouts of a quarter of a million trees in their home in the fastnesses of the Libyan Desert.

Professor Mason was able to obtain only 108 Saidy offshoots on his expedition in 1913. These, with a very few obtained from an unknown origin a few years previously, were the only sources for the introduction of the variety in the United States up to the time of the recent visit.

Professor Mason sailed from New York in March, 1920, and landed at Alexandria in April. With an expert Egyptian gardener from the Horticultural Experiment Station at Giza contracts were made in the best localities for 1,000 offshoots of the Sewi date from upper Giza, to be delivered at the horticultural packing sheds. Another contract was made with a reliable Arab sheik whose friendship had been won on the former journey, at Kharga Oasis, for 1,000 offshoots of the Saidy variety to be placed on the cars of the narrow-gauge branch railway running from the Nile over the plateau to that oasis.

FIGS.

The fig crop is one that is very hard to estimate, though conservatively the output for 1920 in California has been placed at 12,000 tons, divided as follows: Adriatics, 8,500 tons; Calimyrnas, 1,200 tons; Black Missions, 2,000 tons. Of the total production Fresno County

produced about 10,500 tons. The great number of independent packers and growers who pack their own makes it impossible to accurately estimate the production.

FIG CULTURE IN CALIFORNIA.*

“The fig acreage in California in 1917 was reported as follows: Six thousand and twenty-two acres in bearing and 3,655 acres non-bearing. This does not include over 4,300 acres planted in Fresno County during 1917 and 1918. The estimated production of dried figs in California in 1916 was as follows:

	State	Fresno County
Adriatic -----	5000 tons	3800 tons
Smyrnas -----	600 tons	400 tons
Mission -----	300 tons	100 tons

In 1917 the crop amounted to about 12,000 tons. In normal years the imports of dried figs into the United States total about 20,000,000 pounds, valued at \$1,000,000.

Fig trees flourish and produce fresh fruit in practically all parts of California where the temperature does not fall below 15° Fahrenheit. Young fig trees are tender and in exposed valley locations should be protected with cornstalks to avoid severe frost injury. The production of dried figs on a commercial scale is largely limited to the Sacramento and San Joaquin valleys, where the fruit can be dried out of doors.

Foothill soils and mesas or tablelands are most suitable for fig orchards. Sandy soils should be avoided on account of the difficulty of maintaining a uniform moisture content and because of the susceptibility of fig roots in sandy soil to the attacks of nematode worms which weaken the tree and limit the crop. Irrigation may or may not be necessary, depending upon the soil conditions and the depth of the water table. Hardpan land is being utilized in many localities for fig culture. The measure of success upon such land depends upon the depth and the thickness of the hardpan layer and the extent to which it can be shattered before planting the trees. Soils in which the water table is near the surface should be avoided.

The cost of good fig land will vary from \$75 to \$300 an acre, depending upon the location and the water supply. Fig trees come into bearing at from three to five years of age, and should be in full bearing at 12 to 15 years. The cost of the trees varies from \$18 to \$30 per hundred and the cost of bringing an orchard into bearing will vary from \$50 up to \$200 an acre, depending upon the necessity and expense of leveling land, blasting tree holes and development of an irrigation system. Some annual inter-crops may be profitably grown between the rows; grapevines, however, which are sometimes used as an inter-crop, seriously injure and stunt fig trees. The cost of operating a bearing fig orchard, including harvesting, taxes, interest, etc., will vary from \$75 to \$100 per acre per year. It is not the custom to rent fig properties in California.

The yields to be expected vary widely, but averaging the good and poor seasons together they may be expected to be somewhat as follows: Mission, 2½ to 3½ tons per acre; Adriatic and Smyrna, 2½ to 3 tons per

*By I. J. Condit, Assistant Professor of Citriculture, University of California.

acre. The prices received vary in different years, depending upon the supply and demand. Under pre-war conditions the grower received about 2 cents per pound for the Mission, $3\frac{1}{2}$ cents for the Adriatic and from 5 to 6 cents for the Smyrna. For the 1918 season the California Fig Growers' Association, a cooperative organization, decided that the following prices were reasonable, although many tons of dried figs were sold at much higher figures: Smyrna, 15 cents; Adriatic and Kadota, 10 cents; Black Mission, 8 cents. The testimony of a large number of growers is to the effect that at present (aside from shipping fresh figs) there is most money in the Adriatic, after that the Smyrna, and, lastly, the Mission.

The business of packing and shipping fresh figs is growing steadily both for local and Eastern markets. For a number of years Eastern shipments of fresh figs packed in pony refrigerators have been profitably made from the Coachella Valley and a few other points. The so-called Kadota fig is an excellent fresh fig for distant markets on account of its thick skin or rind, which insures good keeping qualities. This thick skin is, however, inimical to the production of a superior dried fig. The Kadota is being largely used for preserving and candying, to which purpose it is well adapted.

Fig trees are singularly free from insect pests and fungous diseases. Smyrna figs are liable to split whenever moisture conditions in soil or atmosphere are not uniform. Adriatic figs are inclined to sour and ferment during the latter part of the drying season when nights are cool and atmospheric humidity increases. In isolated orchards birds often damage a considerable percentage of the crop.

A well-established and well-cared-for fig orchard should bear profitable crops for an indefinite period.

The artificial process of caprification is necessary only with Smyrna varieties."

SUPERIOR FIG NATIVE TO CALIFORNIA.*

"Although the fig tree has lived and thrived in California for over a century, having been first introduced on the Pacific Coast by the Franciscan padres, the year 1921 marks the first big concerted drive to bring to the attention of the nation the fact that a superior fig is now native to this land.

The task of notifying the world that the California fig is of the best has been assumed by the California Peach and Fig Growers, originally an association of peach growers, banded together for the purpose of marketing cooperatively the California dried peach, and now composed of the allied forces of peach and fig growers of the state with a membership of over 8,000 growers.

For many years the fig has been grown successfully in the state. So well entrenched, however, has been the foreign fig that the California varieties for a great number of years were practically all consumed locally, few packers caring to assume the tremendous task of advertising and popularizing the American product in face of overwhelming odds.

*By J. F. Niswander, Vice President and General Manager, California Peach and Fig Growers.

The first variety known on the coast was the so-called Black Mission, a delectable confection in itself, even to this day hardly known outside of the state. As the years rolled by orchardists interested in the business began to import numerous other varieties, until today in some corner or other of the state hundreds of varieties of figs can be found.

There are four varieties, however, which have outstripped all others in popularity. They are the Calimyrna, White Adriatic, Black Mission and Kadota. The Calimyrna is the true Smyrna type of fig, the luscious sugary type which has featured the markets of the world for untold centuries. The White Adriatic was imported from Italy, it is believed, in the '50s and today provides the greatest tonnage of dried figs. The Black Mission was the original importation by the Franciscan friars and flourished in the vicinity of the Missions. It is thought that it was brought from Spain or Portugal by way of Mexico. The Kadota, as far as is known, was brought from Italy in 1889 under the name of "Dottato." It is only within the last few years that extensive plantings of the Kadota have been made.

The California fig saw its first great expansion in the early days of the World War, when the importations from Europe and Asia Minor were cut off. The demand for figs was great and the American product was pressed into service.

At the close of the war the importation of foreign figs was resumed and it was through increased consumption that the American fig was able to compete on account of the handicap of a lower production cost working to the advantage of a foreign product.

For centuries the fig has been handicapped by a ready sale which has invariably caused the fig growers to follow the line of least resistance and pack them in an indifferent manner. The entry of the California fig into the commercial arena has a tendency to change conditions and cause the fig to be put up in far more attractive form.

Last fall it was seen that the salvation of the American fig would be reached through cooperative marketing and coordinated endeavor to standardize the pack and steps were taken to organize. It was decided to join forces with the peach growers and the organization spoken of was the outcome.

In the first six months of its existence it has probably progressed farther in raising the quality and opening new avenues for the use of figs than has featured the history of the fruit over a period of many centuries. Research work has started in earnest with the result that already fig products suitable for use in bread, cakes, puddings, pastry, and a host of other delicacies; jams, conserves, preserved figs, and a number of different varieties of packs have been perfected. A building program will give the association up-to-date equipment to handle the year's tonnage and sanitary appointments have been given special attention in the campaign for quality.

In addition to progress in preparing the fig for the market, a program of assisting orchardists to secure the maximum quality at the orchard has been mapped out which calls for "growers classes," field assistance and investigation along horticultural lines, all of which will benefit association members.

The fig industry of the state has a wonderful outlook for the future. Everything indicates that the California fig will reach a point of quality within a few years never before attained in the history of the industry. The fact that California figs have been shipped back to Smyrna and native orchardists have insisted that they were grown in Asia Minor, some going so far as to attempt to name the particular district, leaves no room for doubt as to the adaptability of the California soil and climate for the successful growing of the fruit.

That the field for figs is broadening yearly is very evident. The perfection of a score of new fig products which connoisseurs agree are almost certain to prove sensations when marketing begins next fall will do much to popularize the fig. Already missionary work by association representatives indicates a healthy demand.

Although the fig is the oldest fruit known to mankind, its use has been confined to holiday seasons and the rank and file of the American people have not been steady consumers of figs. It is believed that once the American taste is cultivated, the fig industry of California will grow to undreamed of proportions, and the belief is based on the rapid growth in the past four years which has brought new plantings, it is estimated, to over 30,000 acres.

For the first time in the history of the fig industry, concerted action will be taken this year to ship to Eastern markets the ripe fig, which is really unknown in a majority of Eastern cities. It has long been a California delicacy and it is believed will occupy a prominent place in the markets of the nation once the fruit is properly handled.

The fig industry of California presents an unlimited field of opportunity for progress. It is in reality a virgin field offering splendid chances for the building up of a great and prosperous business in a fruit that has never been surpassed in food value. The research work which is now under way in the laboratories of the California Peach and Fig Growers will undoubtedly do much to gain recognition for the qualities of the fig.

California is the only state in the Union perfectly adapted to the culture and drying of the fig. In a belt north of Bakersfield, in the San Joaquin Valley, extending up into the Sacramento Valley, the soil and climate has been found to be well adapted to its growth. The extremities of the belt are less adapted to the drying process so that the San Joaquin Valley is accepted as the ideal place for the fig industry in all its phases. The center is the thriving city of Fresno, where the California Peach and Fig Growers main offices are located. Experts connected with the United States Department of Agriculture state that conditions in the San Joaquin Valley are almost identical with those of the best fig-growing localities of the Old World."

OLIVE CULTURE IN CALIFORNIA.*

Regions.—Olives may be grown in most of the foothill sections of the interior valleys as far north as Redding and in the warmer sections out on the floor of these valleys. They may, also, be grown in favored spots in all the coast valleys south of Mendocino County, although the

*By W. F. Oglesby, Former Assistant in Viticulture, University of California.

cooler atmosphere retards somewhat the development and ripening of the fruit, and black scale is often troublesome and hard to control. It would be well for those who contemplate the planting of olive orchards to visit such places as Oroville, Fresno, San Bernardino, Los Angeles and San Diego, as the factors in these places and the districts around them will give some idea of conditions required. If the visit be made in late summer the disadvantages of shallow, leachy, heavy or poorly drained soils, as well as close planting, poor pruning, poor cultivation and poor drainage, will be readily seen.

Climate.—Olive trees will grow wherever the temperature does not go below 15° Fahrenheit in winter, but for fruit the latest killing frost in spring should be in April and the earliest killing frost in the fall late in November. From blossoming time to frost or for at least six and one-half months the mean daily temperature should not be less than 66° Fahrenheit. A higher mean would be better.

Soil.—A deep, rich, well-drained, sandy loam is the ideal soil for olives. They will do fairly well, however, on any well-drained soil. Very heavy or poorly-drained soils, as well as those too coarse or gravelly to hold moisture, should be avoided.

Irrigation.—No olive orchard should be planted without making provision for irrigation. The trees may do well and an occasional crop may be obtained, but an unirrigated olive orchard will prove of little commercial value. An olive orchard should be irrigated from three to twelve times per year, according to the character and depth of the soil. An equivalent of one miner's inch continuous flow during the growing season should be provided for each five acres of orchard as a minimum.

Cultivation.—Olive orchards should be plowed deeply at least once a year and thoroughly cultivated after each irrigation.

Pruning.—Annual pruning is necessary if annual crops are to be expected. If the pruning is neglected the tree will produce crops biennially or less frequently. Pruning should keep the head of the tree low and open and should regulate the amount of fruiting brush left from year to year.

Harvesting.—All olives should be hand-picked. The degree of ripeness depends on the use to which the fruit is intended. If for green pickles, fruit should be full grown but still green in color. For ripe pickles and oil, fruit should be well colored, color varying according to variety. Varieties grown should be confined to those that grow large enough fruit for pickling. Mission, Manzanillo, Sevillano, and Ascalano are the most favored at present.

Labor.—Price of labor will vary from \$3 to \$4.50 per day, according to the work done, expert growers and grafters getting the higher price. The picking of the fruit by hand will cost from \$30 to \$60 per ton. One man may care for from ten to forty acres. In any case he will need help at picking and pruning time.

Lands Still Available.—The lower foothills, bench lands, and alluvial fans and, in the warmer sections, the well-drained bottom lands of situations mentioned under 'Regions.'

Commercial Value of Developed and Undeveloped Land.—Developed land is valued at from \$300 to \$600 per acre; undeveloped land at from

\$25 to \$300 per acre, price depending on location, character of the land, cost of leveling, etc.

Marketing.—For the most part olives are sold directly to the canners and oil makers. Some growers have their own plants for pickling, but oil making requires such expensive machinery that very few individuals have them. There is little money in oil, so that the present tendency is to grow only such varieties as are good for pickling. Oil is a by-product. Only the undersized and frosted olives are now turned into oil."

California Olive Acreage and Factories, 1920.

County	Total acreage	Bearing	Non-bearing	Planted 1920	5-year average	Unplanted	Factories
Tulare	5,460	3,292	2,168	164	725	50,000	2
Butte	5,210	3,839	1,371	---	610	30,000	5
Los Angeles	3,047	2,776	271	---	59	14,000	5
Tehama	3,074	2,194	880	34	188	20,000	2
Riverside	2,499	1,994	505	39	172	10,000	1
Sacramento	2,147	1,169	978	150	143	20,000	2
San Diego	1,773	1,547	226	7	26	15,000	4
San Bernardino	1,413	1,047	366	10	146	20,000	3
Ventura	1,234	1,234	---	---	---	30,000	---
Shasta	1,192	715	497	80	116	10,000	---
Madera	1,164	731	433	31	173	12,000	---
Kern	1,227	646	581	62	202	100,000	---
Yuba	1,139	734	405	20	148	7,000	---
Fresno	1,098	741	357	---	112	8,000	---
Glenn	1,021	505	516	76	150	10,000	---
San Joaquin	840	588	252	15	50	20,000	1
Santa Barbara	555	513	42	---	21	5,000	1
Orange	250	250	---	---	---	20,000	---
Merced	460	349	111	---	48	20,000	---
Placer	480	357	73	17	14	4,000	2
Stanislaus	413	240	173	8	38	10,000	---
Kings	310	150	160	---	50	5,000	---
Mariposa	235	235	---	---	---	---	---
Imperial	192	135	57	---	27	25,000	---
Yolo	215	121	94	5	6	20,000	---
Contra Costa	86	86	---	---	---	---	---
Sutter	90	65	25	---	5	10,000	---
Santa Clara	1,551	1,530	21	---	10	---	---
Sonoma	650	650	---	---	---	---	---
Napa	202	202	---	---	---	---	---
Lake	55	45	10	---	5	---	---
Alameda	41	41	---	---	---	---	---
Solano	20	20	---	---	---	---	---
Nevada	5	5	---	---	---	---	---
El Dorado	16	16	---	---	---	---	---
Marin	25	25	---	---	---	---	---
Calaveras	35	28	7	---	---	---	---
Total	39,374	28,815	10,479	718	3,324	495,000	28

(Courtesy Fig & Olive Journal.)

CITRUS.

The following statements are taken from the annual report of the California Fruit Growers' Exchange: "During the year ending August 31, 1920, the Exchange shipped 12,144,964 boxes of oranges, 226,266 boxes of grapefruit, and 3,452,534 boxes of lemons, an aggregate of 34,461 carloads. Total shipments from the state, 38,077 carloads of oranges and grapefruit and 8,680 carloads of lemons, total of 46,757 carloads. Returns f.o.b. cars California for fruit shipped through the Exchange, including the estimated value of cars yet unsold, will be approximately \$59,221,329. Using the Exchange returns as a basis, returns to California for the total crop of 1919-20, including the portion of the 1919 Valencia crop which sold after August 31st, will

approximate \$81,200,000, representing a delivered value in wholesale markets of \$106,600,000, including \$25,400,000 of freight and refrigeration charges. The retail dealer paid approximately \$121,100,000 and the consumer \$166,000,000 for the fruit. The Exchange shipments represent 73.7 per cent of the total citrus fruit movement from California, an increase of 1.4 per cent over the preceding year."

In volume of shipments Riverside District led with 2,830 cars, averaging 470 boxes per car, due to heavy loading during the car shortage, which averaged \$4 per box to grower and brought over \$5,300,000 f.o.b. Riverside. Terra Bella District, in Tulare County, is a new producing district, shipping about 50 carloads, while about 1,200 carloads went from the neighboring Lindsay District.

Imperial Valley grapefruit was on eastern markets the first week of November, a month ahead of last year. About 40 cars shipped.

LEMONS.

The losses suffered by the wheat grower of the East and the Middle West, the disaster confronting the wool and mutton producer of the range country, even the economic conditions confronting the cotton and rice growers of the South and Southwest, do not compare with the tragedy of the lemon.

For six or eight years the grower has been living on the savings of other days and bringing into bearing a lemon orchard. Each year has brought him that much closer to an independence and to return for his long waiting and hard work—and instead of return he faces ruin.

The worst of it is that while the live stock producer, the cotton, the rice grower and other producers of food staples realize that they may have an opportunity in the future to recover, the lemon grower, on the other hand, at the present moment is faced by a situation that could hardly be darker.

The Upland Lemon Growers Association members express it in this way:

"Do you realize that we have 20,000 acres more lemon trees planted in California than is needed to supply all the fresh lemons consumed in the United States, and that unless we find some other market besides the fresh lemon market we must pull out, bud over, or destroy at least that amount of our lemon groves? Twenty thousand acres of lemon trees means seven or eight years of the business career of the three or four thousand owners thereof. It means the loss of \$50,000,000, including, in a great many cases, the savings of a life time."

But the members are not entirely hopeless, for while they look at the failure of the effort made to secure recognition of the industry by the national congress and the administration, they still feel the new administration and congress may realize the situation and afford relief, this not simply through protection by tariff on the fruit, but also on such by-products as citric acid and oil. Quoting again a letter from the Association: "Disaster can be avoided by the levying of an adequate protective tariff on lemon products, meaning citric acid and lemon oil. Is there any reason why the duty on the manufactured products of a ton of lemons should not be as great or greater than the tariff on a ton of fresh lemons?"

Lemon growers are a plucky bunch, but they are rapidly approaching a situation where even pluck makes impossible longer existence of the industry unless some relief is secured.

The 1919-20 production amounted to about 3,900,000 boxes.

ORANGES.

It looks like the 1920-21 orange crop will be the second largest in the history of the state, the 1916-17 crop carrying off first honors.

The orange crop is one of the most difficult to estimate because at the time when such estimates must be prepared only from two to three per cent of the crop has been harvested. Valencias will not be picked for four or five months and are barely half grown. The December 1 estimate is nothing more than a forecast of probable production, and should be called the preliminary estimate, leaving the final until about May 1 of the following year when the Valencia harvest has been fairly started.

For the 1920-21 crop the California Cooperative Crop Reporting Service makes a preliminary estimate of 18,700,000 boxes compared to a revised estimate of production last year of 15,075,000 boxes. Shipments the past year, that is, November 1, 1919, to October 31, 1920, were 35,547 cars, of which at least 2,000 cars were Valencias carried over from the previous year, thus leaving total shipments of the 1919-20 crop at about 33,500 cars, or 15,075,000 boxes. The Navel crop of the present year was reported of excellent quality, but in some districts running to small sizes, and small sizes would tend to reduce the number of packed boxes.

Grapefruit is included in the foregoing estimate of oranges, and will probably amount to about 325,000 boxes.

Comparative Production Table of California and Florida Orange Crops, 1918-20.

	1920	1919	1918
Production (boxes)—			
Florida	8,500,000	7,000,000	5,700,000
California	18,700,000	15,075,000	18,500,000
Total of above.....	27,200,000	22,075,000	24,200,000
Price per box December 1—			
Florida	\$2.20	\$2.50	\$2.65
California	2.75	2.75	3.75
Total of above.....	\$2.58	\$2.67	\$3.49
Total farm value, basis December 1 price—			
Florida	\$18,700,000	\$17,500,000	\$15,105,000
California	51,425,000	41,456,000	69,375,000
Total of above	\$70,125,000	\$58,956,000	\$84,480,000

CITRUS FRUIT CULTURE IN CALIFORNIA.*

"There are about 200,000 acres planted to citrus fruits in California, the proportion of lemons to oranges being as 1 to 4. There are about 10,000 citrus growers, the average holding being therefore about twenty acres. The annual shipments are now about 50,000 cars, or 21,500,000 boxes, being approximately one-sixth of the world's supply.

Citrus fruits are grown in favorable localities from San Diego County to Shasta County. The localities are in the order of present importance: (1) the area enclosed in and adjacent to a triangle drawn through Pasadena, Redlands, and Santa Ana; (2) the eastern foothills of Tulare County; (3) Ventura and Santa Barbara counties; (4) San Diego County; (5) Butte County. There are a great many smaller areas scattered through the state which are well suited to citrus fruits. The industry is older in southern California and there the lands and water have been further developed and prices of land and water are much higher than in the central and northern parts of the state. The cost of land varies from \$150 to \$500 an acre and water rights from \$75 to \$300 or more. It costs to establish an orchard and care for it through the first five years from \$800 to \$1,200 per acre in southern California and from \$500 to \$900 per acre in other parts of the state.

It is not the custom to rent citrus properties in California. The labor in California citrus groves is done principally by Americans, although a good many Mexicans, Italians, and Orientals are employed. Foremen receive from \$75 to \$125 per month, teamsters from \$65 to \$80, irrigators from \$3 to \$3.50 per day, pruners from \$3 to \$4.50 per day, picking foreman from \$3 to \$4.50, pickers from \$2.50 to \$3.50, and fumigators from 25 to 50 cents per hour. Ordinary labor is paid \$2.50 to \$3.50 per day.

Orange trees which have been properly grown should yield 350 to 400 packed boxes, or a car per acre after twelve years old. Lemons will yield about one-third to one-half more tonnage per acre than oranges.

About 75 per cent of the fruit is sold through a very well organized cooperative selling agency known as the California Fruit Growers' Exchange. The grower buys stock in proportion to his acreage in a local packing-house which is owned and operated by an association of growers. Several associations together form a district exchange, which orders cars, ships the fruit, and distributes the returns. All of the district exchanges belong to the central exchange, which furnishes facilities for marketing the fruit in the shape of bonded agents working under salary in the principal markets. The central exchange also furnishes daily market reports and other information. Grower-members are prohibited from selling and delivering fruit outside of the association. Growers may withdraw from the association at the end of any year.

There are about forty cooperative marketing associations outside of the Exchange and a number of independent grower-shippers. Very little fruit is shipped on consignment.

Some persons have made fortunes in citrus fruit while many others have lost money. Others would have lost money had it not been for the timely advance in the value of the land for residence or other purposes.

*By J. Eliot Coit, Professor of Citriculture, University of California.

Any person, however, with sufficient capital, a reasonable knowledge of horticultural operations, and ordinarily good business judgment, who is industrious and persevering, may expect to make a good profit by raising citrus fruits, provided he or she pays attention to the following points:

1. Select a location in a proved citrus district reasonably free from frosts and winds and within hauling distance of a packing-house.

2. Select a deep soil, easy to work, fertile, well drained, and drive a good bargain for it.

3. Be sure of an ample supply of good water to which the land has an inalienable right. For full bearing trees near the coast on a retentive soil about $1\frac{1}{2}$ miner's inches of water is needed for ten acres. The same trees in interior valleys and especially on gravelly soils need not less than three miner's inches to ten acres. When buying a young grove bear in mind that only a small amount of water is needed for small trees and that some people develop groves with insufficient water rights with the intention of selling to an inexperienced person at the critical time. Beware of a citrus development based on surplus water.

4. Secure good, strong trees, free from scale, which have been propagated from carefully selected buds of standard varieties. The standard varieties in California are few in number. They are: Navel and Valencia oranges, Eureka and Lisbon lemons, Marsh seedless pomelo, and Dancy tangerine.

5. Plant the trees properly, using great care not to let the sun strike the bare roots. Inexperienced planters should purchase balled trees, as there is less danger of losing them during transplantation.

6. Care for the trees personally and conscientiously in regard to cultivation, irrigation, fertilization, and pruning.

7. Prevent scale insects and diseases from gaining a foothold. Remember that the average cost of fumigation is \$30 per acre every alternate year, and this is 6 per cent on \$500, consequently in a scale-infested locality land is worth less for citrus production, other things being equal.

8. Join a local marketing association and cooperate with the neighbors in frost fighting, insect and disease control, and in other ways for the general good of the neighborhood.

9. Write freely to the California College of Agriculture for advice and enroll for the Correspondence Course on Citrus Fruits."

WALNUTS.*

"Walnut growing has become one of the principal horticultural industries of California, the output having increased from 18,700,000 pounds in 1909 to 56,500,000 pounds in 1919. Thus it is seen that the production is normally doubling about every three years, but through the aggressive sales work, the highly perfected marketing organization, and the generous national advertising carried on by the California Walnut Growers Association, the principal marketing agency of the California walnut, the consumption and demand has fully kept apace with the rapidly increasing production, and it is thought that a reasonably

*By C. Thorpe, General Manager, California Walnut Growers Association.

profitable market can be obtained for this excellent product of the Golden State almost indefinitely, even though the production continues to increase at the same rate as in the past.

In California walnuts can only be profitably grown on the best soils, those being free from hardpan and alkali, and that are well drained. The surface water table should be at least fifteen feet below the ground level, and in most sections irrigation is essential to profitable production. The water used in irrigating must be comparatively free from alkali or other injurious salts, and prospective purchasers should make it a point to carefully investigate all of these points before definitely deciding upon a location. In a deep, rich and fairly heavy soil walnuts thrive best, although adobe soil should be eliminated.

Climatic conditions are another important factor in deciding upon location, for either severe early spring or late fall frosts will injure both trees and crop. Therefore the most adaptable regions for the production of walnuts are fairly near the coast, where the temperature is rather mild and even, although in certain locations towards the interior of the state some varieties of walnuts have proved successful and profitable.

The principal varieties grown in Southern California are the Santa Barbara Soft Shell, the Placentia Perfection (budded), and the Eureka, but within the past eight or ten years practically all of the plantings have been of the Placentia Perfection variety, as this nut is more popular with the trade than the Soft Shell, commands a higher price, the trees come into bearing earlier, and are generally considered to be more profitable. The Eureka is about the highest priced walnut produced in the state, although the tree is a slow grower, needs more irrigation than other varieties, and takes considerably longer to come into profitable bearing.

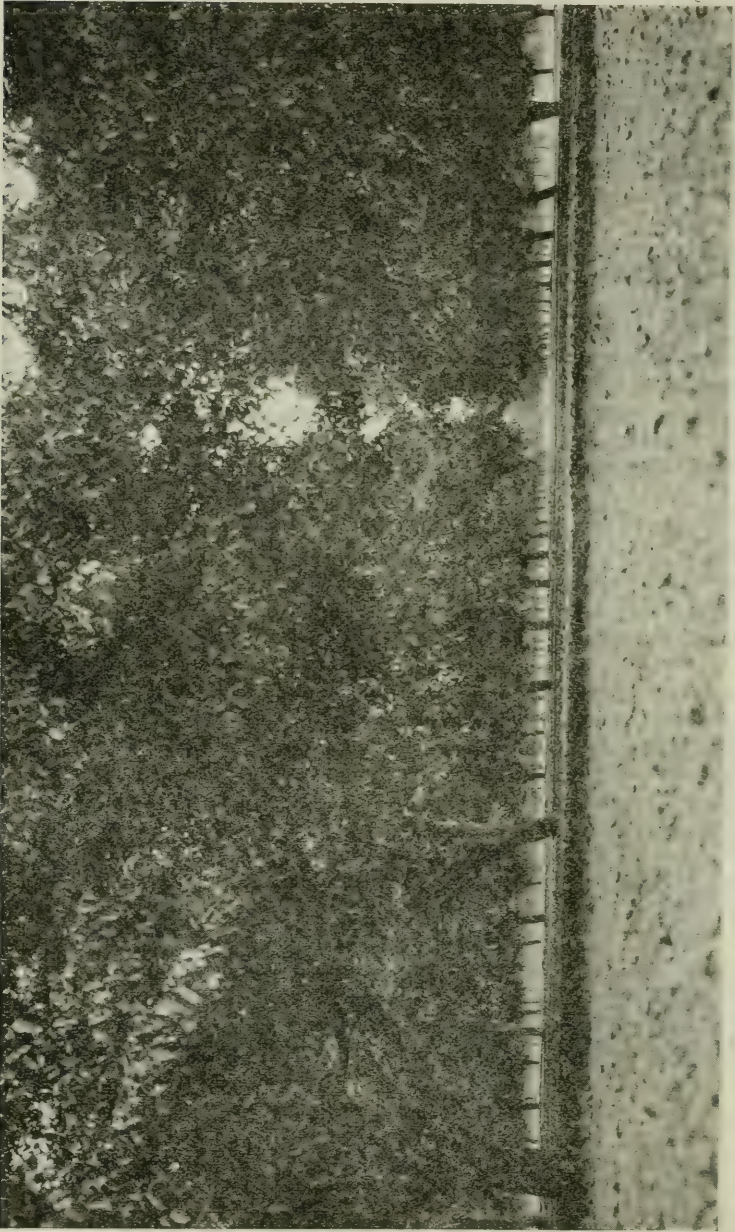
In the central and northern part of the state the output is fairly evenly divided between Franquettes, Mayettes, Concords, and Paynes. The Franquette is the most popular of these varieties with the trade and when grown under proper cultural and climatic conditions rivals the Eureka in price. This variety of walnut is rather a slow grower and not a very prolific bearer. For central and northern California planting the Payne is the quickest grower and most prolific bearer, its drawback being its susceptibility to blight. The Concord and Mayette do fairly well in the central and northern California sections but are not as good sellers as the Franquette and Payne.

Over 90 per cent of the state's output is at present produced in five southern California counties, Los Angeles, Orange, Ventura, Santa Barbara, and Riverside, although the future will undoubtedly see considerably heavier plantings in the central and northern California sections."

State Production of Walnuts, 1920.

County and district	Total of district, tons	Total of county, tons	County and district	Total of district, tons	Total of county, tons
Los Angeles County—			San Bernardino County—		
El Monte	1,062		Chino	155	155
Florence	88				
Leffingwell	59		Santa Barbara County—		
Puente	1,288		Carpinteria	472	
Rivera	533		Coromar	126	
Walnut	405		Goleta	1,310	
Whittier	1,133		Santa Barbara	111	2,019
Los Angeles	252				
Lankershim	257	5,077	Ventura County—		
Orange County—			Fillmore	29	
Anaheim	606		Limeco	180	
Capistrano	283		Moorpark	266	
Des Moines	167		Oxnard	327	
Fullerton	1,511		Santa Paula	1,275	
Francis	557		Santa Susana	193	
Garden Grove	398		Simi	75	
Orange	570		Saticoy	2,641	4,993
Santa Ana	2,445	6,537	North of the Tehachapi.....		1,044
Riverside County—			Total state production.....		19,977
Hemet	149	149			

(Courtesy California Walnut Growers Association.)



"A Full Grown California Walnut Grove."

WALNUT CULTURE IN CALIFORNIA.*

Soil and Climate.—Fairly heavy soil is needed and walnut culture is not advisable on that which is of coarse sand, dry, shallow, or 'alkali.' The best soils are six feet or more in depth to water, hardpan, sand, or other unfavorable strata, and well drained.

Climatic disadvantages are late spring frosts and extreme summer heat. Different varieties are adapted to various conditions in these respects, if not too extreme. Walnuts require a considerable amount of water. They can be grown without irrigation in some places, but it is usually better to have water.

Districts.—The principal walnut orchards of the state are located between Santa Barbara and Santa Ana. The industry is now developing in some of the northern counties. Santa Ana, El Monte, and Santa Barbara are important centers of production, while San Jose, Walnut Creek, Stockton, and Santa Rosa represent the northern districts.

Culture.—The first essential is a proper choice of variety for a given locality; the beginner should seek reliable advice from the Agricultural Experiment Station. The northern California black walnut is the usual root. The older groves of the state are of seedling trees, but these are no longer planted. Franquette, Concord, Placentia, and Eureka are the best varieties. Promising new varieties are appearing. Trees cost from 75 cents to \$2 each. Some plant black walnuts in orchard form to top graft later; this method is of advantage where no irrigation can be practiced. Planting distances average 50×50 feet, requiring seventeen trees per acre. Young orchards may be interplanted with alfalfa, tree or small fruits, vegetables, or other crops, provided plenty of water is available. Producing orchards are usually plowed in spring, irrigated in June, August, and in winter if the rainfall is short, cultivated after irrigation and occasionally between. Little pruning or fertilization is practiced, although desirable in older orchards. Spraying is commencing to be practiced in some sections against two pests, the blight and aphid. Walnuts should pay expenses by the fifth year after planting and reach good bearing at ten. The production should continue to increase for many years; the tree is long-lived and fairly hardy.

Harvesting.—The nuts ripen in September and October and are picked from the ground after light shaking of the trees. They are then dried in the sun, bleached and graded. In the south most of the growers belong to cooperative associations with central packing houses, where the nuts are bleached, graded and shipped.

Marketing.—The demand for walnuts is greater than the supply. Prices are established by the association and the crop sold through brokers. Independent growers easily sell to private customers.

Cost of Production.—Production expenses vary from \$25 to \$75 per acre, averaging between these figures. Taxes and interest on the investment must be added.

Returns.—Groves average 1,000 pounds of nuts per acre per year, with an average selling price of 18 cents per pound for all grades and sizes. The better groves frequently produce 2,000 pounds per acre and average 25 cents per pound. Greater returns are exceptional. This

*By Professor E. Smith, Professor of Plant Pathology, University of California.

gives a net income of say \$80 to \$200 per acre. Orchards average from ten to forty acres.

Cost of Orchards and Land.—Walnut orchards in Southern California can be bought for \$700 to \$2,000 per acre. One thousand dollars is an average price. In this section good bare land with water costs at least \$400 per acre and usually more. In the central or northern portion of the state \$150 to \$300 per acre are average prices for desirable land with irrigation possibilities.

Labor.—The crop is well adapted to a working family. Father or sons can do the heavy work, while women and children can pick up the nuts.

Troubles.—These are due principally to sandy or shallow soil, lack of water, improper varieties, bad treatment, injurious climatic conditions, and the disease called blight. These conditions can be largely avoided by proper choice of locality and varieties, and good culture."

ALMONDS.

Adverse weather conditions at blossom time and the drouth had more or less influence on the production of almonds the past year. Conditions were very spotted, some counties reporting practically a normal crop while in others not over twenty per cent of the normal crop was harvested. A final check on production in 1919 indicated a crop of about 7,000 tons. Production in 1920 was hardly 80 per cent of the 1919 crop, or about 5,600 tons.

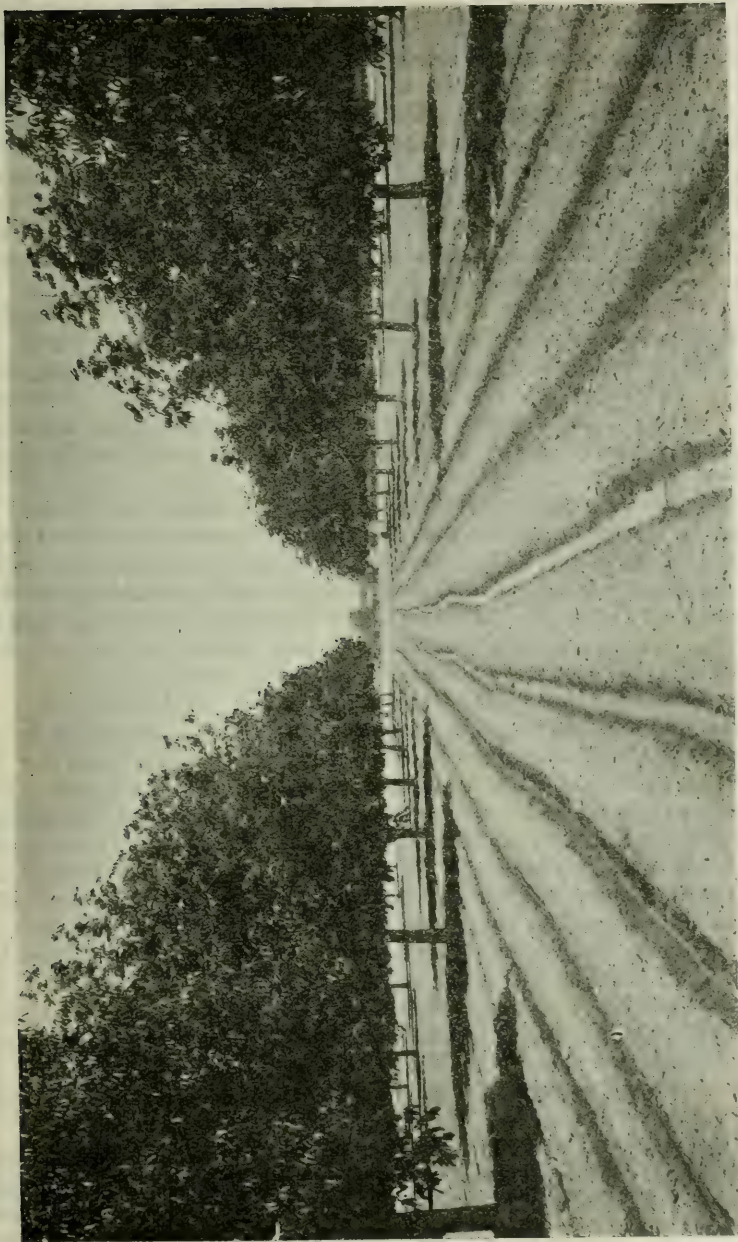
The net opening prices of the California Almond Growers Exchange on the 1920 crop were:

Nonpareils	24 cents
I. X. L.	24 cents
Neplus	22 cents
Drakes, Texas and similar seedings.....	15 cents

From these prices the expense of selling, preparation for market, advertising, bags, must be deducted.

The following statement of T. C. Toker, manager of the California Almond Growers Exchange, gives some facts regarding the future of the almond industry:

"The crop of California almonds will annually increase, as there is at least two times as much nonbearing acreage as bearing. It is the belief of the manager of the Exchange that the United States can consume, at a price which will justify a fair return to the grower, the entire future crop of California almonds, providing a readjustment of tariff is obtained, which, if granted, will enable the California growers to shell almonds and enjoy the market for shelled almonds, which, at the present time, represents 80 per cent of the money spent by the consuming public for almonds as a whole."



"Irrigating a California Walnut Grove."

ALMOND CULTURE IN CALIFORNIA.*

“The almond can be grown only in limited areas, owing to its susceptibility to frost. This is not due, as often supposed, to any greater tenderness of the blossoms or young fruit, but to the fact that this tree is the earliest of all our tree fruits to bloom in the spring, thus rendering it liable to more severe frosts than fruits which bloom later.

The localities where the almond succeeds best are where there are no late spring frosts. Lowlands should be avoided because of the settling of cold air in these spots, causing later and more severe frosts than in adjacent higher land. Rolling hills just back from the lower levels of our large interior valleys and the alluvial fans projecting out from the hills furnish the larger portions of our safe almond localities. Where large streams have built up the general level along their banks far out into the main valleys freedom from frosts is again marked.

The soil best suited to the almond is a deep loam which is free from hardpan, or gravelly substrata, and at all times well drained. The almond will not endure standing water around its roots for any length of time and especially during its long growing season. The lighter soils, therefore, are the ones which should be sought. Too light a soil is equally undesirable, in being unable to retain a sufficiently uniform moisture content.

In the most favorable soils the almond is grown on the almond root. Where the soil is inclined to be variable in character at different depths, where it is less than eight to twelve feet deep, where irrigation is practiced, or wherever the water content in the soil is noticeably variable, the peach root is used. The Myrobalan plum root is not satisfactory as a stock. Plantings on heavy soils do not ordinarily do well unless surface and sub-surface drainage is unusually satisfactory.

Almonds should be planted thirty feet apart for best results.

After planting, the tree is generally headed to eighteen to twenty-four inches above the surface of the ground, leaving three or four branches well spaced up and down and around the trunk. These branches are then headed back moderately to serve as a foundation for the branching framework of the future tree. If thoroughly satisfactory branches can not be found, prune to a whip and during the first summer, about May, choose main framework branches and thin out or cut back all the others to a subordinate place. At the end of the first year head the main framework branches moderately heavy and then head these lightly during the second summer, about May, when they have made from eighteen to twenty-four inches growth. After this limit all pruning to winter, thinning out to secure well shaped, reasonably open trees. Encourage fruiting well down to the center of the tree.

The trees should come into profitable bearing about the fifth or sixth year.

Harvesting, which commences a little before the middle of August and continues in the various varieties until the middle of September, is done by knocking with long poles on to sheets spread under the trees. From here the nuts go to the huller, where they are separated from the hulls, then dried, bleached and sacked for shipment.

*By R. H. Taylor, Assistant Professor of Pomology, University of California.

Late ripening varieties will not do in regions subject to early rains or where fogs are prevalent, as the shells are darkened too much. In choosing varieties plant several varieties together to secure cross-pollination. All varieties are self-sterile, and a few others, like the Nonpareil and I. X. L., Languedoc and Texas, and possibly others, are inter-sterile. Ne Plus Ultra and Drake make thoroughly practical pollenizers for Nonpareil, I. X. L., etc.

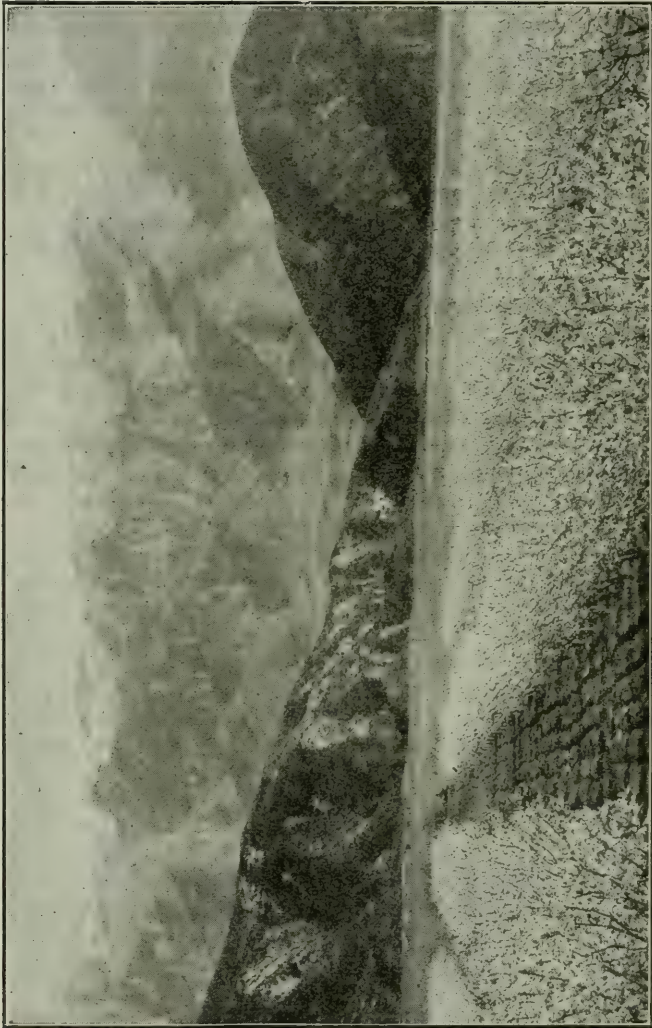
The most important pest of the almond is the red spider, of which there are two kinds. One kind spends its entire life on the trees and may be controlled largely with a winter spray of lime-sulphur or crude oil emulsion. The other spends only the summer on the trees and may be controlled by spraying with "Atomic Sulphur" or with dry sulphur dusted on the trees late in June or early in July.

Root knot and oak fungus (*Armillaria*) must also be guarded against when the trees are being planted.

The almond is grown on farms ranging from an acre or two up to one hundred or more acres. The average orchard is not over thirty acres.

Good unimproved land for almond culture which is not subject to spring frosts may be purchased for from \$150 to \$500 per acre. Land with trees in bearing runs from \$200 to \$600 per acre and over.

Marketing of the crop has been stabilized and greatly improved by the California Almond Growers Exchange, with offices in San Francisco. This is a purely cooperative, nonprofit organization of over 2,000 growers, representing well over 75 per cent of the growers of the state."



"A California Almond Grove in Full Bloom."

Comparative Crops of California Nuts, 1915-1920.

	Yearly average for five-year-periods				1915 Tons	1916 Tons	1917 Tons
	1898-1902 Tons	1903-1907 Tons	1908-1912 Tons	1913-1917 Tons			
Almonds -----	1,500	1,520	2,300	3,040	3,800	3,600	3,800
Walnuts -----	4,180	6,758	9,400	12,170	13,250	13,600	13,000
Totals -----	5,680	8,278	11,720	15,210	17,050	17,200	16,800

	Yearly average					
	1918 Tons	1919 Tons	1920 Tons	1914-1918 Tons	1915-1919 Tons	1916-1920 Tons
Almonds -----	5,100	7,000	5,600	3,710	4,660	5,020
Walnuts -----	18,000	26,000	20,000	13,370	16,770	18,120
Totals -----	23,100	33,000	25,600	17,080	21,430	23,140

(Courtesy Western Packer and Canner.)

California Commercial Orchard Crops.

Fruit	State production	Value of crop	Five leading counties*	No. of trees 1920	
				Bearing	Non- bearing
Almonds -----	5,500 tons	\$1,980,000	Stanislaus -----	513,200	71,000
			Butte -----	393,120	57,040
			Yolo -----	336,800	
			San Joaquin -----	330,675	112,744
			San Luis Obispo -----	245,000	†875,000
Apples -----	3,000,000 boxes	9,605,000	Santa Cruz -----	666,401	25,302
			Sonoma -----	292,766	20,740
			Riverside -----	193,400	117,300
			San Bernardino -----	135,210	†694,800
			Napa -----	102,370	69,747
Apricots -----	115,000 tons	9,775,000	Santa Clara -----	627,500	44,400
			Riverside -----	455,500	†412,500
			Ventura -----	417,514	243,113
			Solano -----	246,100	
			Alameda -----	242,600	3,000
Cherries -----	15,000 tons	3,000,000	Santa Clara -----	135,000	22,700
			San Joaquin -----	108,286	†83,422
			Solano -----	99,500	
			Alameda -----	91,500	2,210
			Napa -----	64,020	35,273
Figs -----	10,000 tons	800,000	Fresno -----	162,320	†131,840
			Tulare -----	75,000	
			Merced -----	72,000	78,000
			San Bernardino -----	61,520	75,350
			Stanislaus -----	39,300	40,400
Grapefruit -----	About 328,000 boxes	984,000	San Bernardino -----	44,310	†91,700
			Tulare -----	44,000	
			Riverside -----	32,880	14,040
			Los Angeles -----	7,098	2,358
			Imperial -----	4,120	38,640
Lemons -----	4,500,000 boxes	2,700,000	Ventura -----	467,119	†276,410
			Orange -----	360,000	
			Riverside -----	327,750	86,550
			San Bernardino -----	298,560	28,650
			Los Angeles -----	228,747	78,521
Olives -----	10,000 tons	800,000	Placer -----	285,280	6,894
			Butte -----	184,880	†202,400
			Riverside -----	146,080	74,290
			Tulare -----	120,000	
			Tehama -----	90,720	12,500

*From State Board of Equalization, 1920.

†Indicates rank 1 in that particular commercial orchard crop.

California Commercial Orchard Crops—Continued.

Fruit	State production	Value of crop	Five leading counties*	No. of trees 1920	
				Bearing	Non-bearing
Oranges -----	18,700,000 boxes	51,425,000	San Bernardino -----	298,500	28,650
			Tulare -----	1,900,000	-----
			Riverside -----	1,720,100	150,850
			Orange -----	1,100,000	-----
			Los Angeles -----	1,010,406	162,019
Peaches -----	345,000 tons	26,220,000	Fresno -----	3,750,720	10,940
			Placer -----	1,530,200	114,036
			Tehama -----	432,697	6,300
			Merced -----	560,000	80,000
			Solano -----	500,000	-----
Pears -----	90,000 tons	8,100,000	Solano -----	330,000	-----
			Santa Clara -----	198,700	53,700
			Placer -----	173,650	160,596
			Sacramento -----	164,000	61,000
			El Dorado -----	160,000	40,000
Plums -----	35,000 tons	3,150,000	Lake -----	ranks 17th	1233,191
			Placer -----	372,570	192,032
			Solano -----	195,000	-----
			San Joaquin -----	110,256	40,823
			Napa -----	103,424	45,234
Prunes -----	95,000 tons	19,000,000	Sacramento -----	60,000	28,000
			Santa Clara -----	7,429,500	599,000
			Napa -----	987,342	185,629
			Solano -----	575,000	-----
			Sonoma -----	441,360	517,860
Walnuts -----	20,000 tons	8,600,000	Tulare -----	410,000	-----
			Orange -----	210,000	-----
			Ventura -----	203,733	-----
			Los Angeles -----	177,048	53,051
			San Joaquin -----	101,552	44,574
			Santa Barbara -----	70,000	-----
			San Bernardino -----	ranks 7th	1101,120
Grapes— Raisin -----	180,000 tons	55,800,000	Acres		
			Fresno -----	80,120	19,280
Table -----	160,000 tons	12,000,000	Tulare -----	23,000	-----
			Kings -----	10,240	557
			Sutter -----	5,073	480
			Madera -----	3,519	968
			San Joaquin -----	15,594	507
			Fresno -----	9,530	4,950
			Sacramento -----	9,500	250
Wine -----	380,000 tons	24,700,000	Tulare -----	5,200	-----
			Placer -----	4,350	15,751
			Fresno -----	22,320	-----
			Napa -----	20,300	17,000
			Sonoma -----	15,840	-----
			San Bernardino -----	14,150	-----
San Joaquin -----	13,091	119			

*From State Board of Equalization, 1920.

†Indicates rank 1 in that particular commercial orchard crop.

PART VII.

SUMMARY OF THE AGRICULTURAL
RESOURCES

OF THE

STATE OF CALIFORNIA

BY COUNTIES

The brief description of each county which follows has been greatly condensed in order to keep it within the space available.

County statistics were first obtained under an act passed in 1905, under which county statisticians were appointed, but the result was a failure, as many counties omitted to supply the figures required, and therefore no complete statistics for the state as a whole could be published. In 1910 eleven counties failed to make any report, and in other years the number was even greater.

In 1911 county statisticians were abolished, and the present system established by Chapter 584, which appropriates \$5,000 per annum for that purpose, a sum, however, which is quite inadequate to give entirely satisfactory results.

The size of farms, and the figures relating to crops, fruit trees, by counties are those given in the last census.

The source of the statistics contained in this report is the most trustworthy that can be obtained, and when estimated, the figures are strictly conservative.

ALAMEDA COUNTY.

Date of creation, March 25, 1853.		1900	1910	1920
Land area, 732 square miles.	Population.....	130,197	246,131	344,127
County seat, Oakland.	Population.....	66,960	150,174	216,361
Population per square mile, 470.2.				
	Highest	Lowest	Inches	Inches
Elevation, 36 feet.	1917: Temperature... 95	30	Rainfall...11.16	Snow... 0
	1918: Temperature... 87	34	Rainfall...23.39	Snow... 0
	1920: Temperature... 91	31		

Alameda County fronts on the bay of San Francisco for a distance of 38 miles, with an average width of 25 miles, extending to and beyond the summit of the Contra Costa hills, comprising numerous beautiful valleys, besides the broad Alameda Valley, which last is bounded by the waters of the bay on the one side and the Contra Costa hills on the other, and is one of the richest and most fertile valleys in the state. The principal stream is Alameda Creek. There are other creeks crossing the county and emptying into the bay, two of which furnish water for the city of Oakland. The country around Hayward is one of the great fruit-raising regions, many millions of pounds being shipped annually.

The soils immediately along the bay in Alameda County and the marshes formed by the overflow are heavy, but very fertile when reclaimed. Then comes a broad belt of rich, clay loams that is crossed by deposits of alluvium made by shifting channels of streams running down from the Coast Range. In the Niles region are lighter loams. About Livermore are uplands, bench, and valley lands. The Pleasanton section consists of agricultural and grazing lands. The soil is a very rich sediment, producing hay, grain, potatoes, alfalfa, of which there is 5,000 acres, and beets in abundance. At Alvarado the surrounding country is a fine farming and fruit region, and gardening and dairying are largely carried on.

Alameda County was among the first to begin the planting of orchards and vineyards. The county is divisible into three sections—the cherry district, containing about 757 acres, the apricot district of about 5,000 acres, and the vineyard district.

Alameda is *par excellence* a vegetable-producing county, since the profit in peas, potatoes, rhubarb, asparagus, and several other vegetables is large. About 4,000 acres in this county are planted in tomatoes, which prove to be a most profitable crop. There is also 4,183 acres in sugar beets.

The growing of peas for canning has assumed importance. The output of the San Leandro cannery, located in this county, has reached as high as 1,200 cases per day, and 3½ tons of peas have been grown upon a single acre.

The average annual output of salt recovered from San Francisco Bay, in Alameda County, is very large, including both coarse and fine salt.

From information furnished by Alameda County Development Association, pigeon raising is quite an extensive industry, and it is claimed that Alameda County ships more pigeons than any other in the state, having a total of 500,000 birds, of value of \$587,000.

ALAMEDA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	2,422		
Total in 1920.....	2,778		
Land and Farm Areas.			
Approximate land, acres.....	468,480		
Land in farms in 1910.....	311,327		
Land in farms in 1920.....	359,742		
Improved land in farms in 1910.....	177,314		
Improved land in farms in 1920.....	185,324		
Woodland in farms in 1920.....	21,200		
Other unimproved land in farms.....	153,218		
Value of All Farm Property.			
Total value in 1910.....	\$36,840,669		
Total value in 1920.....	57,341,179		
Land in 1910.....	29,537,208		
Land in 1920.....	43,864,634		
Buildings in 1910.....	4,463,555		
Buildings in 1920.....	7,133,683		
Implements and machinery in 1910.....	817,861		
Implements and machinery in 1920.....	2,004,942		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	19,347		
Dairy.....	17,434		
Total.....	36,781		
Value.....	\$2,548,776		
Horses—			
Number.....	8,841		
Value.....	\$868,301		
Mules—			
Number.....	131		
Value.....	\$13,205		
Asses and burrows—			
Number.....	5		
Value.....	\$75		
Swine—			
Number.....	9,171		
Value.....	\$155,672		
Sheep—			
Number.....	25,812		
Value.....	\$291,231		
Goats—			
Number.....	467		
Value.....	\$6,152		
Total value all domestic animals.....	\$3,883,412		
Total value of dairy products.....	1,473,896		
Poultry and bees—			
Poultry of all kinds.....	324,903		
Value.....	\$450,329		
Colonies of bees.....	586		
Value.....	\$4,179		
Poultry products—			
Poultry raised, number.....	284,902		
Eggs produced, dozen.....	2,392,395		
Value poultry and eggs produced.....	\$1,260,047		
		Honey and wax—	
		Honey produced, pounds.....	7,269
		Wax produced, pounds.....	90
		Value of honey and wax produced.....	\$1,489
		Wool—	
		Wool, fleeces shorn.....	25,117
		Value of wool produced.....	\$62,119
Principal Crops.			
		Acres	Bushels
Corn.....	1,322	33,162	
Oats.....	2,719	72,524	
Wheat.....	11,825	201,153	
Barley.....	19,045	569,352	
Dry edible beans.....	145	2,797	
Potatoes.....	899	109,752	
		Acres	Tons
Hay and forage—			
Timothy and clover mixed.....	206	434	
Clover alone.....	3,003	4,448	
Alfalfa.....	5,227	24,337	
Other tame and cultivated grasses.....		515	728
Wild, salt, or prairie grasses.....	454	476	
Grains cut green.....	48,268	68,826	
Totals.....	60,061	103,680	
		Special crops—	
		Potatoes, acres.....	899
		All other vegetables, acres.....	9,628
		Sugar beets, acres.....	2,604
		Number	
Orchard fruits—		bearing trees	
Apples.....		27,061	
Apricots.....		292,345	
Peaches.....		11,257	
Pears.....		66,949	
Prunes and plums.....		145,114	
Total.....		599,231	
		Number	
Subtropical fruits—		bearing trees	
Lemons.....		678	
Oranges.....		1,100	
Grapevines—			
Number in bearing.....		2,214,505	
Small fruits—			
Total acres.....		493	
		Number	
Nuts—		bearing trees	
Walnuts.....		7,635	
Total.....		28,140	
Irrigation.			
		Acres irrigated in 1919.....	9,351
		Acreage enterprises were capable of irrigating in 1920.....	13,050
		Acreage included in projects.....	16,527

ALPINE COUNTY.

Date of creation, March 16, 1864; reorganized in 1900.

Land area, 776 square miles.	1910	1920
County seat, Markleeville. Township No. 1. Population-----	309	243
Population per square mile, 0.3.		

Tamarack (Station):	Highest	Lowest	Inches	Inches
Elevation, 8,000 feet.	1916: Temperature... 81	22	Rainfall... 60.27	Snow... 538.0
	1917: Temperature... 82	16	Rainfall... 27.82	Snow... 259.0
	1918: Station discontinued.			

Alpine County is one of the counties on the eastern border, and out of the way, as far as her means of communication with the other counties of the state is concerned, there being no public road maintained to the border, thereby rendering it necessary to turn to the state of Nevada for a route to reach the capital at Sacramento, or any other part of the state. All transportation is by wagon or mule back, and this condition militates against the development of the county's many natural resources, as intending investors or purchasers are not afforded a convenient route of reaching the county.

The resources of Alpine County are great, especially in mineral, timber, and water power, the latter offering a field of immediate development to enterprising capital.

ALPINE COUNTY SUMMARY

(Census Figures.)

Number of Farms.		Goats—	
Total in 1910.....	42	Number	5
Total in 1920.....	21	Value	\$20
Land and Farm Areas.		Total value all domestic animals	
Approximate land acres.....	496,640	\$95,160	
Land in farms in 1910.....	32,001	Poultry and bees—	
Land in farms in 1920.....	10,042	Poultry of all kinds.....	
Improved land in farms in 1910.....	7,579	Value	
Improved land in farms in 1920.....	4,306	Colonies of bees.....	
Woodland in farms.....	1,030	Value	
Other unimproved land in farms.....	4,706	Poultry products—	
Value of All Farm Property.		Poultry raised, number.....	
Total value in 1910.....	\$811,442	Eggs produced, dozen.....	
Total value in 1920.....	584,524	Value poultry and eggs produced.....	
Land in 1910.....	530,968	Wool—	
Land in 1920.....	416,525	Wool, fleeces shorn.....	
Buildings in 1910.....	88,475	Value wool produced.....	
Buildings in 1920.....	52,275	\$1,081	
Implements and machinery in 1910.....	30,405	Principal Crops.	
Implements and machinery in 1920.....	19,685	Acres Bushels	
Domestic animals, poultry and bees in 1910.....	161,504	Oats	21 460
Domestic animals, poultry and bees in 1920.....	96,039	Wheat	184 4,970
Domestic Animals on Farms and Ranges.		Barley	10 420
Cattle—		Hay and forage—	
Beef	1,147	Acres Tons	
Dairy	310	Timothy alone	
Total		146 240	
Value		Timothy and clover mixed.....	
\$95,160		400 739	
Horses—		Clover alone	
Number	169	184 288	
Value	\$13,450	Alfalfa	
Mules—		414 911	
Mature mules	6	Wild, salt, or prairie grasses.....	
Value	\$115	665 1,194	
Swine—		Totals	
Number	128	1,809 3,372	
Value	\$1,686	Special crops—	
Sheep—		Potatoes, acres.....	
Number	355	All other vegetables, acres.....	
Value	\$2,809	9 1	
		Number	
		bearing trees	
		Orchard fruits—	
		Apples	
		5 793	
		Peaches and nectarines.....	
		75 5	
		Pears	
		140 75	
		Prunes and plums.....	
		140 75	
		Total	
		1,058 1,058	
		Irrigation.	
		Acres irrigated in 1919.....	
		4,459 4,459	
		Acreage enterprises were capable of irrigating in 1920.....	
		4,819 4,819	
		Acreage included in projects.....	
		7,027 7,027	

AMADOR COUNTY.

Date of creation, May 11, 1854.

	1900	1910	1920
Land area, 601 square miles.	Population..... 11,116	9,086	7,793
County seat, Jackson City.	Population.....	2,035	1,601
Population per square mile, 13.0.			

Electra (Station):	Highest	Lowest	Inches	Inches
Elevation, 725 feet.	1916: Temperature...103	28	Rainfall...38.63	Snow... 2
	1917: Temperature...106	20	Rainfall...18.75	Snow... 0
	1918: Station discontinued.			

Amador adjoins El Dorado County on the south, Alpine on the west, Calaveras on the north and Sacramento and San Joaquin counties on the east. It is inland and occupies the east central portion of the state. It has no navigable rivers. The Cosumnes forms a part of its northern boundary and the Mokelumne forms its entire southern boundary. Both of the rivers are tributaries of the Sacramento. Varying, in main, in altitude from 30 feet to 1,500 feet, and having a most productive soil, and the great portion of the county being a rolling, or foothill region, it is adapted to the cultivation of any kind of a farm, of horticultural, or of viticultural product.

Grain and hay are cultivated to a considerable extent. In many parts of the western portion of the county a great variety of vegetables is grown throughout the year. Yielding, as the county does, an abundance of the best natural grasses, it offers inducements to stockmen.

Distinctively, the county is a region of mineral deposits. The one resource, however, that is paramount, is gold, which makes up over 96 per cent of the entire total of minerals.

That the gold quartz vein or ledge does not deteriorate in either quality or quantity with the increasing depth to which the vein has been explored, has long since passed the theoretical state. So that this fact affords greater stability to the mining industry and thus quartz mining on the "mother lode" makes a vastly stronger appeal to capital lying idle, awaiting greater and safer inducements to enter this fascinating and legitimate industrial field.*

Mountain lakes and valleys and river canyons furnish abundant opportunity for those needing recreation, or for those that enjoy hunting and fishing. Mineral springs, having medicinal properties that are prescribed in certain cases, are found in different parts of the county.

*George A. Gordon, deputy county assessor.

BUTTE COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,722 square miles.	Population-- 17,939	17,117	27,301	30,000
County seat, Oroville.	Population-- -----	-----	3,859	3,340
Population per square mile, 17.7.				

	Highest	Lowest	Inches	Inches
Elevation, 250 feet.	1917: Temperature...109	21	Rainfall...17.31	Snow... 0
	1918: Temperature...110	24	Rainfall...22.84	Snow... 0

Butte County is situated in the northern and eastern Sacramento Valley, and embodies within its confines both mountain, foothill, and valley land. Its climate is most diverse, and in its confines are grown all the products to be found in the temperate and semi-tropical zones. In the higher altitudes, apples thrive, while in the lowest stretches of the rolling foothills, oranges and olives reach perfection. On the broad plains great rice fields are now being planted, and the industry promises to rival that of alfalfa and dairy farming and the more extensive grain farming that has hitherto prevailed. Deciduous fruits of every kind are grown. Large olive pickling works are located in Oroville. The county ranks first in the state in the production of olives. There are also a number of orange packing houses in the county.

The county is exceptionally well watered. Through it runs the Feather River, with a large number of tributary streams. On one boundary is the great Sacramento River. As a result of the abundance of water, increased attention is being given to irrigation. The Butte County canal covers thousands of acres around Gridley, where the utmost prosperity prevails. The U. S. Department of Agriculture maintains an experiment station of 210 acres at Chico, where large numbers of many varieties of fruit trees are tested, and the best selections distributed. The Bidwell National Park contains 2,300 acres. A small acreage of tobacco was grown in 1917, but was destroyed by fire. None was grown in 1918, but about 40 acres has been planted recently. In 1918 about 1,400 acres of cotton were planted near Durham, and 800 to 1,000 bales were expected, but rains rotted the cotton and only 75 bales were ginned at the Durham gin. The first land settlement was established in this county in 1918.

Butte County is also the third largest gold-producing county of the state. The chief gold-dredging field lies around Oroville.

The county was the first to grow rice on a commercial scale, at Biggs and Gridley, and it is now the largest rice-growing county in the state.

BUTTE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	1,500		
Total in 1920.....	2,219		
Land and Farm Areas.			
Approximate land, acres.....	1,102,080		
Land in farms in 1910.....	490,777		
Land in farms in 1920.....	464,625		
Improved land in farms in 1910.....	247,097		
Improved land in farms in 1920.....	253,745		
Woodland in farms.....	70,815		
Other unimproved land.....	140,065		
Value of All Farm Property.			
Total value in 1910.....	\$24,086,440		
Total value in 1920.....	53,399,133		
Land in 1910.....	19,404,863		
Land in 1920.....	42,421,970		
Buildings in 1910.....	2,281,132		
Buildings in 1920.....	4,990,352		
Implements and machinery in 1910.....	532,320		
Implements and machinery in 1920.....	2,668,795		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	21,879		
Dairy.....	9,530		
Total.....	31,409		
Value.....	\$1,657,456		
Horses—			
Number.....	6,253		
Value.....	\$550,792		
Mules—			
Number.....	1,220		
Value.....	\$149,776		
Asses and burros—			
Number.....	49		
Value.....	\$3,201		
Swine—			
Number.....	21,040		
Value.....	\$311,879		
Sheep—			
Number.....	46,686		
Value.....	\$464,092		
Goats—			
Number.....	875		
Value.....	\$8,627		
Total value all domestic animals.....	\$3,145,825		
Poultry and bees—			
Poultry of all kinds.....	116,718		
Value.....	\$146,886		
Colonies of bees.....	2,789		
Value.....	\$25,305		
Poultry products—			
Poultry raised, number.....	118,718		
Eggs produced, dozen.....	523,764		
Value poultry and eggs produced.....	\$322,445		
		Honey and wax—	
		Honey produced, pounds.....	146,167
		Wax produced, pounds.....	2,214
		Value of honey and wax produced.....	\$30,096
		Wool—	
		Wool, fleeces shorn.....	42,194
		Value of wool produced.....	\$101,492
		Principal Crops.	
			Acres Bushels
		Corn.....	656 18,158
		Oats.....	3,987 86,970
		Wheat.....	44,177 750,679
		Barley.....	17,546 465,219
		Kafir corn and milo maize.....	1,093 19,209
		Dry edible beans.....	2,177 31,928
		Potatoes.....	81 4,294
		Rice.....	24,007 1,468,786
		Hay and forage—	
			Acres Tons
		Timothy alone.....	52 45
		Timothy and clover mixed.....	47 82
		Clover alone.....	274 505
		Alfalfa.....	9,994 31,449
		Other tame and cultivated	
		grasses.....	550 739
		Wild, salt, or prairie grasses.....	1,468 1,411
		Grains cut green.....	20,880 22,840
		Totals.....	34,294 60,184
		Special crops—	
		Potatoes, acres.....	81
		All other vegetables, acres.....	553
		Orchard fruits—	
			Number bearing trees
		Apples.....	44,451
		Apricots.....	3,108
		Peaches.....	196,716
		Pears.....	31,563
		Prunes and plums.....	268,270
		Total bearing trees.....	548,762
		Subtropical fruits—	
			Number bearing trees
		Lemons.....	2,157
		Oranges.....	77,721
		Total.....	79,878
		Grapevines—	
		Number in bearing.....	74,081
		Small fruits—	
		Total acres.....	46
		Nuts—	
			Number bearing trees
		Almonds, etc.....	265,258
		Walnuts.....	4,114
		Total.....	269,372
		Irrigation.	
		Acres, irrigated in 1919.....	93,581
		Acreage enterprises were capable of irrigating in 1920.....	114,774
		Acreage included in projects.....	123,544

CALAVERAS COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,027 square miles.	Population... 8,882	11,200	9,171	6,183
County seat, San Andreas.	Population... 1,640	1,683	1,120	941
Population per square mile, 6.0.				

Mokelumne Hill (Station):	Highest	Lowest	Inches	Inches
Elevation, 1,550 feet. 1917: Temperature...	104	19	Rainfall...15.22	Snow... 7.0
Ranger Sta., 3,400 ft. 1918: Temperature...	96	17	Rainfall...45.87	Snow...36.0

Calaveras is located on the long, gradual western slope of the Sierra Nevada, a little above the center of the state north and south. The Sierra on the east is an abrupt wall plunging down 10,000 feet in ten miles, while the westward side is a long, grand sweep, full seventy miles from foothill to summit. On the east is the great desert basin of Nevada and Utah; on the west the exuberance of California valleys, rich in meadows, grain fields and orchards. Above the level plain rise the foothills in waves or ripples, hardly distinguishable from the plains at first, but more rolling as you go upward, with long swells of hill and little dales and scattering growth of oak and pine and patches of chaparral.

The elevation rises gradually from about 150 feet to table lands lying 4,000 feet and peaks of 7,500 feet.

In several parts of the county Angora goats are kept. They are profitable, are hardy, and increase rapidly. The young make excellent "mutton."

Alfalfa is a staple crop wherever it can be irrigated.

CALAVERAS COUNTY SUMMARY

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	632	Number	2,458
Total in 1920.....	606	Value	\$133,365
Land and Farm Areas.		Mules—	
Approximate land, acres.....	657,280	Number	91
Land in farms in 1910.....	271,401	Value	\$4,445
Land in farms in 1920.....	366,195	Asses and burros—	
Improved land in farms in 1910.....	59,104	Number	37
Improved land in farms in 1920.....	58,957	Value	\$510
Woodland in farms.....	170,685	Swine—	
Other unimproved land.....	136,553	Number	4,711
Value of All Farm Property.		Value	\$68,328
Total in 1910.....	\$3,973,409	Sheep—	
Total in 1920.....	8,064,798	Number	24,792
Land in 1910.....	2,376,303	Value	\$258,309
Land in 1920.....	6,124,432	Goats—	
Buildings in 1910.....	634,000	Number	5,788
Buildings in 1920.....	936,210	Value	\$43,040
Implements and machinery in 1910.....	138,905	Total value all domestic animals	\$1,560,700
Implements and machinery in 1920.....	311,975	Poultry and bees—	
Domestic Animals on Farms and Ranges.		Poultry of all kinds.....	25,708
Cattle—		Value	\$29,660
Beef	21,214	Colonies of bees.....	415
Dairy	1,327	Value	\$1,821
Total	22,541		
Value	\$1,052,703		

CALAVERAS COUNTY SUMMARY.—Continued.

Poultry products—		Special crops—	
Poultry raised, number.....	25,798	Potatoes, acres.....	170
Eggs produced, dozen.....	77,766	All other vegetables, acres.....	87
Value poultry and eggs produced..	\$40,558		Number
Honey and wax—		Orchard fruits—	
Honey produced, pounds.....	3,630	Apples.....	bearing trees 12,596
Wax produced, pounds.....	90	Apricots.....	655
Value of honey and wax produced	\$761	Peaches.....	8,286
		Pears.....	2,065
		Prunes and plums.....	7,785
		Total.....	31,407
Wool—		Number	
Wool, fleeces shorn.....	17,303	bearing trees	
Goat, fleeces shorn.....	4,408	Lemons.....	32
Value wool and mohair produced..	\$40,338	Oranges.....	274
		Total.....	306
Principal Crops.		Subtropical fruits—	
	Acres	Bushels	Lemons.....
Corn.....	153	2,902	Oranges.....
Oats.....	773	14,403	Total.....
Wheat.....	1,257	14,198	306
Barley.....	700	13,864	Grapevines—
Kafir corn and milo maize....	27	513	Number in bearing.....
Dry edible beans.....	33	464	153,097
Potatoes.....	170	14,146	Small fruits—
			Total acres.....
			23
			Number
Hay and forage—		Acres	
Timothy and clover mixed..	101	Tons	bearing trees
Clover alone.....	91	191	Almonds.....
Alfalfa.....	1,159	163	Walnuts.....
Other tame and cultivated		2,917	1,329
grasses.....	572	1,037	Total.....
Wild, salt, or prairie grasses	4,614	3,706	8,900
Grains cut green.....	5,544	5,723	
Totals.....	12,263	14,020	
			Irrigation.
			Acres irrigated in 1919.....
			2,859
			Acres enterprises were capable of
			irrigating in 1920.....
			33,828
			Acres included in projects.....
			42,093

COLUSA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,140 square miles.	Population-- 14,640	7,364	7,732	9,250
County seat, Colusa (town).	Population-- 1,336	1,441	1,582	1,846
Population per square mile, 8.1.				
East Park (Station):	Highest	Lowest	Inches	Inches
Elevation, — feet.	1916: Temperature--109	10	Rainfall--18.69	Snow--26.5
Colusa, 60 feet.	1917: Temperature--109	24	Rainfall-- 7.53	Snow-- 0
	1918: Station discontinued.			

Colusa County is situated in the heart of the great Sacramento Valley. The fertile soil, the temperate climate, the extreme dryness of the atmosphere during two-thirds of the year, and, lastly, a sufficient rainfall, make possible the production of great wealth from the fertile acres of this county.

The western portion of the county is principally mountainous, with some very productive valleys intervening. Cattle and live stock interests prevail. Several mineral springs are located in this portion of the county, and thousands of bottles of mineral water are shipped annually. At Sites two quarries take out stone, known as the famous Colusa sandstone, from which many prominent buildings in San Francisco are built.

Colusa County was one of the first to grow rice, and now has a considerable acreage.

Almonds now form an important crop in this county, and in the Arbuckle district about 7,000 acres are planted, which average about 60 trees to the acre, but many are still non-bearing. The crop of 1916 amounted to 100 tons, of first-grade quality, and the prices were about 25 per cent higher than the previous year.

COLUSA COUNTY SUMMARY

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	667	Number	3,812
Total in 1920.....	816	Value	293,773
Land and Farm Areas.		Mules—	
Approximate land, acres.....	729,660	Number	2,378
Land in farms in 1910.....	522,376	Value	\$288,413
Land in farms in 1920.....	438,417	Asses and burros—	
Improved land in farms in 1910.....	336,000	Number	9
Improved land in farms in 1920.....	302,429	Value	\$450
Woodland in farms.....	30,132	Swine—	
Other unimproved land.....	105,459	Number	23,511
		Value	\$296,491
Value of All Farm Property.		Sheep—	
Total in 1910.....	\$19,602,208	Number	51,948
Total in 1920.....	41,101,229	Value	\$577,889
Land in 1910.....	16,066,035	Goats—	
Land in 1920.....	33,903,750	Number	133
Buildings in 1910.....	1,204,780	Value	\$4,482
Buildings in 1920.....	2,834,503	Total value all domestic animals	
Implements and machinery in 1910...	419,557		\$2,218,252
Implements and machinery in 1920...	2,039,783	Poultry and bees—	
		Poultry of all kinds.....	68,520
Domestic Animals on Farms and Ranges.		Value	\$93,228
Cattle—		Colonies of bees.....	1,324
Beef	10,484	Value	\$11,713
Dairy	4,521		
Total	15,005		
Value	\$776,754		

COLUSA COUNTY SUMMARY.—Continued.

Poultry products—			Special crops—		
Poultry raised, number.....		27,508	Potatoes, acres		51
Eggs produced, dozen.....		77,763	All other vegetables, acres.....		82
Value poultry and eggs produced..		\$49,558	Sugar beets, acres.....		2
Honey and wax—			Orchard fruits—		
Honey produced, pounds.....		59,501		Number	
Wax produced, pounds.....		1,401		bearing trees	
Value of honey and wax produced		\$12,446	Apples		1,175
Wool—			Apricots		3,210
Wool, fleeces shorn.....		38,692	Peaches		7,401
Value of wool produced.....		\$158,683	Pears		4,386
			Prunes and plums.....		101,709
Principal Crops.			Total		117,977
	Acres	Bushels	Subtropical fruits—		
Corn	2,245	57,463		Number	
Oats	229	5,146		bearing trees	
Wheat	29,787	586,347	Lemons		44,233
Barley	74,490	1,803,879	Oranges		4,982
Kafir corn and milo maize.....	883	35,160	Grapevines—		
Dry edible beans	529	8,975	Number in bearing.....		752,779
Potatoes	51	4,017	Small fruits—		
Rice	44,842	2,268,267	Total acres		11
Hay and forage—			Nuts—		
	Acres	Tons		Number	
Timothy alone	43	72		bearing trees	
Timothy and clover mixed..	369	375	Almonds, etc.		82,098
Clover alone	79	88	Walnuts		4,117
Alfalfa	8,924	22,360	Total		86,215
Other tame and cultivated			Irrigation.		
grasses	101	167	Acres irrigated in 1919.....		46,022
Wild, salt, or prairie grasses	83	70	Acres enterprises were capable of		
Grains cut green	7,065	9,193	irrigating in 1920.....		71,274
All other hay and forage.....	387	630	Acreage included in proj. cts.....		91,073
Total	17,051	32,960			

CONTRA COSTA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 714 square miles.	Population.. 13,515	18,046	31,674	53,889
County seat, Martinez (town).	Population.. 1,600	1,380	2,115	3,858
Population per square mile, 75.5.				

Antioch (Station):	Highest	Lowest	Inches	Inches
Elevation, 46 feet.	1917: Temperature...107	30	Rainfall... 5.46	Snow... 0
	1918: Temperature...104	27	Rainfall...16.46	Snow... 0

Contra Costa is one of the central counties, its shore line being within fourteen miles of San Francisco. It possesses unusually good traveling facilities both by rail and by steamer. The county has seventy miles of water front, nearly all of which is upon deep water, navigable by all vessels engaged in commerce. Over three-fourths of its area is cultivated, the balance being used for grazing. The only mountain of any size is Mount Diablo, which is 3,849 feet in height, and almost in the geographical center of the county.

The farming lands in the eastern section are between the foothills and the San Joaquin River. The soil is of a rich, alluvial nature, and produces wheat, barley, alfalfa, fruit, and vines. To the northward and between the uplands and the San Joaquin River is a body of the tule lands, a large portion of which has been reclaimed, and is some of the most productive land in the state, being a rich deposit of sediment and decomposed vegetation. Alfalfa, asparagus, potatoes, beans, etc., are produced on the largest scale on such lands.

Grain raising is very important in this county. A large acreage is planted to barley and hay. The raising of sugar beets is a growing industry. Vegetables of all kinds are raised profitably.

Stock raising is a leading industry, and the reclaimed lowlands for summer grazing and the rolling hills for winter, close together, create conditions whereby a failure is impossible. The stock farms have produced some of the most famous trotting and pacing horses. Port Costa, the shipping point for the bulk of the grain raised in California, has extensive warehouses. Near Vallejo Junction is the largest smelting works in the state; at Bay Point and Pittsburgh are extensive lumber yards, where ships from Oregon and Puget Sound discharge; at Crockett are flouring mills, also the refinery of the California and Hawaiian Sugar Company. At Richmond one of the largest oil refining plants in the state is situated and during the last two years very extensive oil plants have been established at Martinez.

CONTRA COSTA COUNTY SUMMARY.

(Census Figures.)

Land and Farm Areas.		
Approximate land, acres.....	456,960	
Land in farms in 1910.....	406,433	
Land in farms in 1920.....	375,065	
Improved land in farms in 1910.....	262,152	
Improved land in farms in 1920.....	238,369	
Woodland in farms.....	31,265	
Other unimproved land.....	105,431	
Value of All Farm Property.		
Total in 1910.....	\$31,812,192	
Total in 1920.....	47,930,387	
Land in 1910.....	26,586,160	
Land in 1920.....	38,373,973	
Buildings in 1910.....	2,493,375	
Buildings in 1920.....	4,406,950	
Implements and machinery in 1910.....	680,520	
Implements and machinery in 1920.....	1,783,859	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	12,772	
Dairy.....	15,792	
Total.....	28,564	
Value.....	\$1,815,094	
Horses—		
Number.....	8,418	
Value.....	\$781,574	
Mules—		
Number.....	423	
Value.....	\$43,918	
Asses and burros—		
Number.....	3	
Value.....	\$910	
Swine—		
Number.....	14,415	
Value.....	\$233,514	
Sheep—		
Number.....	27,068	
Value.....	\$303,728	
Goats—		
Number.....	210	
Value.....	\$3,023	
Total value all domestic animals.....	\$3,181,791	
Poultry and bees—		
Poultry of all kinds.....	134,528	
Value.....	\$178,615	
Colonies of bees.....	725	
Value.....	\$5,201	
Poultry products—		
Poultry raised, number.....	134,528	
Eggs produced, dozen.....	808,819	
Value poultry and eggs produced.....	\$396,517	
Honey and wax—		
Honey produced, pounds.....	13,500	
Wax produced, pounds.....	259	
Value of honey and wax produced.....	\$2,791	
Wool—		
Wool, fleeces shorn.....	27,205	
Value wool and mohair produced.....	\$71,389	
Principal Crops.		
	Acres	Bushels
Corn.....	8,513	287,222
Oats.....	3,100	84,730
Wheat.....	17,259	357,728
Barley.....	20,181	611,139
Dry edible beans.....	5,426	82,907
Potatoes.....	6,671	1,144,914
	Acres	Tons
Hay and forage—		
Clover alone.....	330	478
Alfalfa.....	6,040	20,711
Other tame and cultivated grasses.....		
Wild, salt, or prairie grasses.....	4,472	6,562
Grains cut green.....	5,229	6,362
All other hay and forage.....	44,347	70,693
	232	759
Totals.....	60,904	105,970
Special crops—		
Potatoes, acres.....	6,671	
All other vegetables, acres.....	4,336	
Orchard fruits—		
	Number	bearing trees
Apples.....	21,489	
Apricots.....	21,314	
Peaches.....	43,364	
Pears.....	87,138	
Prunes and plums.....	61,497	
Total.....	255,396	
Subtropical fruits—		
	Number	bearing trees
Lemons.....	110	
Oranges.....	453	
Grapevines—		
Total acres.....	5	
Nuts—		
	Number	bearing trees
Almonds, etc.....	232,413	
Walnuts.....	39,493	
Total.....	271,906	
Irrigation.		
Acres irrigated in 1919.....	44,833	
Acres enterprise were capable of irrigating in 1920.....	46,472	
Acres included in projects.....	49,125	

DEL NORTE COUNTY.

Date of creation, March 2, 1857.

	1890	1900	1910	1920
Land area, 1,024 square miles.	Population--- 2,592	2,408	2,417	2,759
County seat, Crescent City.	Population--- 907	699	1,114	955
Population per square mile, 2.7.				

	Highest	Lowest	Inches	Inches
Elevation, 125 feet.	1917: Temperature--- 93	26	Rainfall---69.60	Snow--- T
	1918: Temperature---102	27	Rainfall---59.58	Snow---0.1

Del Norte is the extreme northwestern county of California and has a coast line of about 35 miles. Crescent City, the county seat and principal harbor, is 280 miles from San Francisco.

Smith and Klamath are the principal streams, the former in the northern and the latter in the southern part of the county. Both are navigable near their mouths to the small ocean-going steamers. Dairying and lumbering are the principal industries. The mountains of the county prospect well in copper and gold-bearing formations.

Crescent City is the chief shipping point. Products usually are sent to the San Francisco market. The county is rich in undeveloped mineral resources.

Del Norte rivals Alpine County in regard to inaccessibility, transportation being by wagon and mule back, with one or two stage lines to Crescent City. Its chief mineral resources, largely untouched, are chromite, copper, gems, gold, graphite, iron, platinum and silver.

DEL NORTE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	114	Number	435
Total in 1920.....	130	Value	\$41,880
Land and Farm Areas.		Mules—	
Approximate land, acres.....	655,360	Number	7
Land in farms in 1910.....	35,947	Value	\$750
Land in farms in 1920.....	43,830	Swine—	
Improved land in farms in 1910.....	12,439	Number	805
Improved land in farms in 1920.....	13,252	Value	\$0,059
Woodland in farms.....	19,207	Sheep—	
Other unimproved land.....	11,371	Number	655
		Value	\$4,221
Value of All Farm Property.		Total value of domestic animals	
Total in 1910.....	\$1,770,222	\$412,540	
Total in 1920.....	3,452,392	Poultry and bees—	
Land in 1910.....	1,358,300	Poultry of all kinds.....	4,794
Land in 1920.....	2,592,503	Value	\$3,788
Buildings in 1910.....	171,380	Colonies of bees.....	147
Buildings in 1920.....	314,647	Value	\$531
Implements and machinery in 1910...	48,265	Poultry products—	
Implements and machinery in 1920...	128,383	Poultry raised, number.....	3,178
Domestic animals, poultry and bees		Eggs produced, dozen.....	16,050
in 1910.....	192,277	Value poultry and eggs produced..	\$8,040
Domestic animals, poultry and bees		Honey—	
in 1920.....	416,859	Honey produced, pounds.....	787
		Value	\$161
Domestic Animals on Farms and Ranges.		Wool—	
Cattle—		Wool, fleeces shorn.....	636
Beef	785	Value wool produced.....	\$1,850
Dairy cows	6,302		
Total	7,087		
Value	\$356,125		

DEL NORTE COUNTY SUMMARY.—Continued.

Principal Crops.			Special crops—	
	Acres	Bushels	Potatoes, acres	85
Corn	3	110	All other vegetables, acres.....	11
Oats	222	8,253		
Barley	89	3,451		
Dry edible beans.....	3	33		
Potatoes	85	8,944		
Hay and forage—	Acres	Tons	Orchard fruits—	Number bearing trees
Timothy and clover mixed..	3	7	Apples	3,246
Clover alone	72	231	Peaches	19
Alfalfa	42	113	Pears	138
Other tame and cultivated			Prunes and plums.....	170
grasses	1,130	2,178		
Wild, salt, or prairie grasses	142	183	Total	3,607
Grains cut green.....	1,747	4,547		
All other hay and forage...	894	10,546		
Totals	4,030	17,807	Small fruits—	
			Strawberries, acre	1

EL DORADO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,737 square miles.	Population... 9,232	8,986	7,492	6,426
County seat, Placerville.	Population... 1,690	1,748	1,914	1,650
Population per square mile, 4.3.				

	Highest	Lowest	Inches	Inches
Elevation, 1,875 feet.	1917: Temperature...105	18	Rainfall...20.58	Snow...15.0
	1918: Temperature...103	17	Rainfall...37.62	Snow... 1.8

El Dorado County is situated on the western slope of the Sierra Nevada Mountains, in the eastern portion of the state. The county is about 75 miles long and about 30 miles in width. The western portion of the county borders the Sacramento Valley, and is used principally for grazing, stock raising, also grape and fruit growing. The central portion of the county includes the great mineral belt, known as the "mother lode," from which millions of dollars have been extracted on and near the surface in its infancy. It was in this county that gold was first discovered in California. There is also a large quantity of limestone in the county which is shipped for use in the manufacture of cement. In the foothills can be found some of the best fruit lands in the state.

The eastern portion, being at an altitude of from 3,000 to 7,000 feet, supplies summer pasturage for a number of cattle, sheep, and horses. In this region water is abundant, awaiting capital and labor to harness the everflowing streams. Most of this area is covered by a virgin growth of sugar and white pine, fir, and cedar timber.

While fruit growing has been found to be more profitable here than in most parts of the state, potatoes are now attracting much attention. There will probably be 20,000 sacks or over raised in the vicinity of Placerville during this season. They are beautiful, smooth skinned, perfectly shaped, and, on account of the high dry altitude, are extremely mealy.

Several hundred acres of young pear trees have been planted in the last five or six years and in another year or two the output of Bartlett pears will have been doubled. In 1918, 295 cars of deciduous fruits were shipped east.

EL DORADO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910.....	750	Total in 1910.....	\$3,775,358
Total in 1920.....	729	Total in 1920.....	8,028,401
Land and Farm Areas.		Land in 1910.....	2,343,931
Approximate land, acres.....	1,111,650	Land in 1920.....	5,280,290
Land in farms in 1910.....	210,881	Buildings in 1910.....	749,745
Land in farms in 1920.....	240,267	Buildings in 1920.....	1,241,931
Improved land in farms in 1910.....	41,682	Implements and machinery in 1910...	162,185
Improved land in farms in 1920.....	43,413	Implements and machinery in 1920...	387,190
Woodland in farms.....	72,023	Domestic animals, poultry, and bees	
Other unimproved land.....	124,829	in 1910.....	519,497
		Domestic animals, poultry, and bees	
		in 1920.....	1,169,160

EL DORADO COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.		Principal Crops.	
Cattle—			
Beef	12,097	Corn	65 1,575
Dairy	3,880	Oats	732 15,051
Total	15,977	Wheat	704 8,382
Value	\$770,535	Barley	275 3,687
		Potatoes	89 15,592
Horses—		Hay and forage—	Acres Tons
Number	2,103	Timothy alone	5 6
Value	\$150,290	Timothy and clover mixed..	91 219
		Clover alone	165 294
Mules—		Alfalfa	303 707
Number	106	Other tame and cultivated	
Value	\$9,265	grasses	1,150 1,063
		Wild, salt, or prairie grasses	2,855 2,258
Asses and burros—		Grains cut green	5,022 6,219
Number	21	All other hay and forage....	126 254
Value	\$295	Totals	9,717 11,025
Swine—		Special crops—	
Number	3,163	Potatoes, acres	89
Value	\$55,438	All other other vegetables, acres...	33
Sheep—		Orchard fruits—	Number
Number	10,985	bearing trees	
Value	\$103,553	Apples	26,461
		Apricots	21
Goats—		Peaches and nectarines.....	51,011
Number	8,139	Pears	108,375
Value	\$40,050	Prunes and plums.....	47,211
Total value all domestic animals	\$1,129,426	Total	239,242
Poultry and bees—		Subtropical fruits—	Number
Poultry of all kinds.....	27,906	bearing trees	
Value	\$33,222	Oranges	78
Colonies of bees	881	Grapesvines—	
Value	\$6,462	Number in bearing.....	181,067
Poultry products—		Small fruits—	Acres
Poultry raised, number.....	24,707		15
Eggs produced, dozen.....	123,853	Nuts—	Number
Value poultry and eggs produced..	\$74,132	bearing trees	
Honey and wax—		Almonds	194
Honey produced, pounds.....	22,673	Walnuts	1,894
Wax produced, pounds.....	502	Total	1,988
Value of honey and wax produced..	\$4,731	Irrigation.	
Wool—		Acres irrigated in 1919.....	6,724
Wool, fleeces shorn.....	6,065	Acresage cut 'prises were capable of	
Goat fleeces shorn.....	5,454	irrigating in 1920.....	9,823
Value wool and mohair produced..	26,059	Acresage included in projects.....	65,848

FRESNO COUNTY.

Date of creation, April 19, 1856.

		1900	1910	1920
Land area, 5,950 square miles.	Population.....	37,862	75,657	128,779
County seat, Fresno (city).	Population.....	12,470	24,892	45,086
Population per square mile, 21.6.				

		Highest	Lowest		Inches
Elevation, 293 feet.	1918: Temperature...	107	25	Rainfall.....	13.68
	1920: Temperature...	110	26	Rainfall.....	10.64

Including vineyards, Fresno County is the greatest fruit producer. It is situated in the center of the state and in the middle of the fertile San Joaquin Valley. There are only five counties which exceed Fresno in size—San Bernardino, Inyo, Kern, Riverside and Siskiyou, in the order named. When Fresno was first formed it was considerably larger, but on the eleventh of March, 1893, a large slice, consisting of 2,121 square miles, was carved out of the northern part of the county and formed into Madera County; and still more recently Fresno County was again reduced in size by 202 square miles of the southeast portion being transferred to Kings County by an act of the legislature approved April 12, 1909. Before being partitioned Fresno County comprised 8,214 square miles, but although the land area has been thus reduced to 5,950 square miles, the county ranks sixth of the fifty-eight in the state, and is one of the most productive. It is also the fourth largest in population, being only exceeded by San Francisco, Los Angeles and Alameda. The word "Fresno" in Spanish signifies ash tree, and it was because of the abundance of mountain ash in the mountains of this county that it received its name.

Fresno County is naturally subdivided into two portions—plains and mountains. The plains are the bottom of the San Joaquin Valley, extending from the foot of the Coast Range on the west to the foothills of the Sierra Nevadas on the east. From the first foothills the rise is rapid, the mountains culminating in peaks rising 10,000 to 12,000 feet, Mount Lyell being 13,218 feet high. The country about Fresno is a vast plain intersected by the San Joaquin and Kings rivers and their tributaries. Four natural soil divisions have been recognized—the foothill region, where agriculture was formerly confined to grazing; the plains of the valley, with red soils lying near the hills; the "white ash" soil found farther out in the plain, and the bottoms, or alluvial lands, along the Kings River.

There is a dry and a wet season, the former from about May to September, and the latter from the middle of October or early part of November. The rains, which are at irregular intervals during the winter, seldom last more than two or three days at a time. There are about 242 days of sunshine in the year. The atmosphere during the summer months is dry, and the heat not nearly so oppressive as in the East and other places where the humidity is great. Sunstroke is unknown.

The county has passed through four stages of development. First, came mining in the early days before it was organized as a county, and this period extended to about 1860-64. Secondly, came the stock-raising period, which arose from the gradual disappearance of placer mining, and lasted until 1874, although sheep raising still continued on

a large scale. Thirdly, about 1868, the farming interests sprang up, although prior to the advent of a railroad in 1870, agriculture amounted to very little. The fourth, and most important, may be called the viticultural and fruit era, which began to come into prominence early in the '80s, and has now become the leading feature of the county.

As California holds the first place among all the states in the Union in irrigation, so Fresno is the leading county in the state, both in number and extent of its canals and ditches, having more than double the acreage under irrigation than has any other county.

During the last decade the dairy industry has made great progress, except in the manufacture of cheese, which, however, was never produced on a very large scale.

Including grapes, Fresno produces more fruit than any other county in the state. Fresno County holds the first place in the production of grapes, raisins, peaches, and figs, and is one of the leading counties of the state in the production of apricots and olives, and the acreage in figs and citrus fruits is rapidly increasing.

Fresno County is noted for the extent of development of farmers' marketing associations. The California Associated Raisin Company is one of the largest growers' organizations in the United States, as well as one of the oldest in California. The California Peach and Fig Growers' Association comprises a membership of more than 6000 growers, and is patterned along the same lines as the raisin company.

Estimates for the 1920 production have been made by the Fresno County Chamber of Commerce as follows:

Raisins	\$12,000,000	Wool and Mohair.....	\$800,000
Peaches	12,000,000	Olives and Olive Oil.....	200,000
Grapes	14,000,000	Honey	600,000
Oil	20,885	Apples	40,000
Manufacturing	8,000,000	Berries	70,000
Dairying	6,000,000	Beef	4,000,000
Horses	2,500,000	Canning	6,000,000
Hay	4,000,000	Mining	500,000
Nursery Stock.....	3,500,000	Cotton	750,000
Citrus	2,000,000	Grain Hay.....	700,000
Figs	1,800,000	Grain	6,000,000

In Fresno County the canning and preserving industry has increased very rapidly. There are six large canning establishments and many preserving and processing plants. It is estimated that one-fifth of the total value of this industry in California is produced in Fresno.

Fresno stands fourth in the production of minerals in the State of California. The California State Mining Bureau in its report for 1919 places the total value of all minerals at \$21,843,898.

The mineral resources of this county are many, and, aside from crude oil, are in the main not yet fully developed. They include asbestos, barytes, brick, chromite, copper, gems, gold, graphite, gypsum, magnesite, natural gas, petroleum, quicksilver, and miscellaneous stone.

Commercial production for 1919 was as follows:

Substance	Value	Substance	Value
Gold	\$5,000*	Silver	\$40†
Granite	34,500	Stone, miscellaneous.....	241,243
Magnesite (630 tons).....	5,856	Other minerals.....	140,128
Natural gas (5,191,287 M cu. ft.).....	411,356		
Petroleum (16,091,037 bbls.).....	20,805,711	Total value.....	\$21,643,898

*Includes chromite and brick

†Estimated.

Fresno County ranks second in the number of farms, having a total of 8917 in 1920, as compared with 6245 in 1910. The total value of farm products in Fresno County is greater than in any other county in the state, except Los Angeles.*

FRESNO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Wool—	
Total in 1910.....	6,245	Wool fleeces shorn.....	190,128
Total in 1920.....	8,917	Value of wool produced.....	\$357,991
Land and Farm Areas.		Principal Crops.	
Approximate land, acres.....	3,808,000		
Land in farms in 1910.....	1,106,616	Acres	Bushels
Land in farms in 1920.....	1,319,531	Corn.....	3,965 76,279
Improved land in farms in 1910.....	590,205	Oats.....	1,282 26,698
Improved land in farms in 1920.....	672,591	Wheat.....	27,476 406,619
Woodland in farms.....	107,456	Barley.....	36,252 592,486
Other unimproved land.....	539,484	Kafir corn and milo maize.....	5,255 152,252
		Dry edible beans.....	161 2,356
		Potatoes.....	185 9,705
Value of All Farm Property.			
Total value in 1910.....	\$92,583,058	Hay and forage—	Acres Tons
Total value in 1920.....	303,094,622	Timothy and clover mixed..	59 73
Land in 1910.....	75,136,654	Clover alone.....	14 22
Land in 1920.....	269,496,470	Alfalfa.....	64,056 255,322
Buildings in 1910.....	6,861,289	Other tame and cultivated	
Buildings in 1920.....	19,364,721	grasses.....	641 663
Implements and machinery in 1910.....	3,228,706	Wild, salt, or prairie grasses	431 553
Implements and machinery in 1920.....	12,116,265	Grains cut green.....	23,619 31,643
Domestic animals, poultry and bees		All other hay and forage.....	4,141 12,849
in 1910.....	7,356,409	Totals.....	94,921 303,790
Domestic animals, poultry and bees			
in 1920.....	11,117,166	Special crops—	
Domestic Animals on Farms and Ranges.		Potatoes, acres.....	185
Cattle—		All other vegetables, acres.....	450
Beef.....	44,103	Cotton, acres.....	5,551
Dairy.....	37,073		
Total.....	81,176		Number
Value.....	\$4,382,957	Subtropical fruits—	bearing trees
Horses—		Figs.....	162,320
Number.....	24,829	Lemons.....	25,285
Value.....	\$2,255,144	Oranges.....	140,280
Mules—		Olives.....	50,140
Number.....	5,139	Total.....	378,025
Value.....	\$664,549		Number
Asses and burros—		Orchard fruits—	bearing trees
Number.....	112	Apples.....	77,364
Value.....	\$10,216	Apricots.....	176,838
Swine—		Peaches and nectarines.....	2,515,288
Number.....	46,451	Pears.....	17,112
Value.....	\$686,440	Prunes and plums.....	120,963
Sheep—		Total.....	2,914,642
Number.....	232,612		
Value.....	\$2,644,262	Grapevines—	
Goats—		Number in bearing.....	59,868,677
Number.....	1,333		
Value.....	\$14,967	Small fruits—	
Total value all domestic animals	\$10,658,535	Strawberries, acres.....	720
Poultry and bees—		All others, acres.....	240
Poultry of all kinds.....	318,786	Total acres.....	960
Value.....	\$380,750		Number
Colonies of bees.....	11,064	Nuts—	bearing trees
Value.....	\$77,851	Walnuts.....	3,837
Poultry products—		Total.....	10,712
Poultry raised, number.....	273,398		
Eggs produced, dozen.....	1,388,220		
Value poultry and eggs produced	\$796,516		
Honey and wax—			
Honey produced, pounds.....	271,370	Irrigation.	
Wax produced, pounds.....	4,079	Acres irrigated in 1919.....	517,876
Value of honey and wax produced	\$5,865	Acraege enterprises were capable of	
		irrigating in 1920.....	758,943
		Acraege included in projects.....	957,780

*Information furnished by the Fresno Chamber of Commerce.

GLENN COUNTY.

Date of creation, March 11, 1891.

		1890	1900	1910	1920
Land area, 1,337 square miles.	Population	-----	5,150	7,172	11,853
County seat, Willows (town).	Population	1,176	893	1,139	2,190
Population per square mile, 8.9.					
		Highest	Lowest	Inches	Inches
Elevation, 136 feet.	1917: Temperature	112	25	Rainfall... 8.82	Snow... 0
	1918: Temperature	112	20	Rainfall... 14.85	Snow... 0

Glenn County occupies a central position in the Sacramento Valley, extending from the summit of the Coast Range across the Sacramento eastward, one-third being mountainous, but affording good summer pasturage for stock. About the same area is in the foothills, with many fertile ranches, and the remaining third practically a level valley floor of wonderfully fertile soil, which has for the past forty years been continuously cropped to grain and still continues to produce good crops.

The United States Reclamation Service has installed a system to irrigate 25,000 acres of the fertile lands about the town of Orland. This project is designed as a model irrigation system, and was undertaken by the reclamation service to demonstrate the benefits of irrigation under perfect conditions of soil and climate. The works consist of an impounding dam, situated at East Park in Colusa County, a diversion dam at the Buttes in Tehama County, and 99 miles of canals and main laterals, about 100 miles of small field ditches.

"The average sized farm under the Orland Project is about 19 acres. A very wide range of crops are grown under irrigation, including besides the common crops of alfalfa and grains, special crops such as citrus, almonds, prunes, olives, figs and the more common deciduous fruits. The county has 15,000 acres of young orchards.

Another extensive irrigation system in the county comprises 150,000 acres along the Sacramento River, extending westward to the town of Willows. Much of the land under this project is as yet not in intensive crops. In the Ord, Hamilton, and Monroeville sections of this project, orchard industry is rapidly advancing. About 30,000 acres under this project is in rice production.

Extensive areas in the county are cropped to dry land grain. About 80,000 acres of barley and 20,000 acres of wheat are grown annually. The grain area is being decreased annually by irrigation development with wells and pumping plants, there being about 12,000 acres under pumps in the county at the present time.

The county has come forward rapidly in the production of pure bred live stock. The Orland district is the largest Jersey cattle section in the state. The county is in the first rank in the production of pure bred Berkshire and Duroc hogs."*

The county roads are excellent. They are graded, graveled, and kept in splendid condition, the gravel in all parts of the county being particularly adapted to road making.

Glenn County is the hunter's paradise. Black bass, striped bass, salmon, perch, catfish, trout, and many other varieties abound in the

*W. H. Heileman, County Agent.

Sacramento River, and the mountain streams are full of speckled trout, while the heavy growth of brush along the river banks and in the foothills is full of quail, deer, squirrels, and other game, whereas from the middle of November to the first of March, when the wild geese and ducks come into winter quarters, good sport is enjoyed, the hunters killing them by the hundreds.

GLENN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—		
Total in 1910.....	663	Honey produced, pounds.....	39,131	
Total in 1920.....	1,320	Wax produced, pounds.....	379	
Land and Farm Areas.		Value of honey and wax produced	\$7,974	
Approximate land, acres.....	855,680	Wool—		
Land in farms in 1910.....	491,198	Wool, fleeces shorn.....	106,892	
Land in farms in 1920.....	524,407	Mohair and goat, fleeces shorn....	1,842	
Improved land in farms in 1910....	309,765	Value wool and mohair produced..	\$311,919	
Improved land in farms in 1920....	336,482	Principal Crops.		
Woodland in farms.....	36,461			
Other unimproved land.....	151,464			
Value of All Farm Property.				
Total value in 1910.....	\$16,581,419			
Total value in 1920.....	45,474,611			
Land in 1910.....	13,425,220			
Land in 1920.....	35,157,244			
Buildings in 1910.....	1,110,215			
Buildings in 1920.....	3,781,758			
Implements and machinery in 1910..	390,333			
Implements and machinery in 1920..	2,534,632			
Domestic animals, poultry and bees				
in 1910.....	1,655,651			
in 1920.....	4,000,977			
Domestic Animals on Farms and Ranges.				
Cattle—				
Beef.....	14,781			
Dairy.....	8,628			
Total.....	23,412			
Value.....	\$1,451,473			
Horses—				
Number.....	4,776			
Value.....	\$396,272			
Mules—				
Number.....	2,028			
Value.....	\$213,129			
Asses and burros—				
Number.....	16			
Value.....	\$4,155			
Swine—				
Number.....	22,844			
Value.....	\$361,036			
Sheep—				
Number.....	136,852			
Value.....	\$1,340,020			
Goats—				
Number.....	2,076			
Value.....	\$26,434			
Total value all domestic animals	\$3,792,519			
Poultry and bees—				
Poultry of all kinds.....	132,988			
Value.....	\$195,709			
Colonies of bees.....	1,397			
Value.....	\$12,749			
Poultry products—				
Poultry raised, number.....	100,141			
Eggs produced, dozen.....	377,844			
Value poultry and eggs produced..	292,067			
		Acres	Bushels	
		Corn.....	415	8,609
		Oats.....	528	9,516
		Wheat.....	30,851	529,751
		Barley.....	54,631	1,191,313
		Kafir corn and milo maize.....	3,630	117,909
		Potat. etc.....	4	291
		Hay and forage—	Acres	Tons
		Timothy alone.....	208	268
		Timothy and clover mixed.....	59	73
		Alfalfa.....	14,026	43,646
		Other tame and cultivated		
		grasses.....	1,841	1,921
		Wild, salt, or prairie grasses	813	792
		Grains cut green.....	12,139	14,043
		All other hay and forage.....	789	2,914
		Totals.....	29,875	64,201
		Special crops—		
		Potatoes, acres.....		4
		All other vegetables, acres.....		85
		Orchard fruits—	Number	bearing trees
		Apples.....		3,773
		Apricots.....		6,546
		Peaches and nectarines.....		37,353
		Pears.....		17,411
		Prunes and plums.....		34,342
		Total.....		83,131
		Subtropical fruits—	Number	bearing trees
		Lemons.....		1,172
		Oranges.....		40,699
		Grapevines—		
		Number in bearing.....		22,547
		Small fruits—		
		Total acres.....		17
		Nuts—	Number	bearing trees
		Almonds.....		99,355
		Walnuts.....		876
		Total.....		100,231
		Irrigation.		
		Acres irrigated in 1919.....		100,284
		Acreege enterprises were capable of		
		irrigating in 1920.....		120,577
		Acreege included in projects.....		195,839

HUMBOLDT COUNTY.

Date of creation, May 2, 1853.

		1890	1900	1910	1920
Land area, 3,575 square miles.	Population--	23,469	27,101	33,857	37,413
County seat, Eureka.	Population--	4,858	7,327	11,845	12,923
Population per square mile, 10.5.					

		Highest	Lowest	Inches	Inches
Elevation, 65 feet.	1917: Temperature---	82	27	Rainfall---28.73	Snow-- 0
	1918: Temperature---	79	28	Rainfall---27.94	Snow-- T

Humboldt County has long laid virtually undisturbed in the north-western part of California. There is no section of the state today where natural resources give so great an opportunity for development.

While the greater portion of the county's surface is hilly, there is considerable level land around Humboldt Bay and along the numerous rivers which flow down from the mountains to the ocean. All of this land, both hill and dale, is very fertile and productive.

The abundant streams and springs throughout the county furnish plenty of pure water to its inhabitants the year round and render irrigation absolutely unnecessary.

“There is more redwood timber standing in Humboldt County today than in any other county of the state. Lumbering is the chief industry of the people. The output of the lumber and shingle mills and sash and door factories is greater than that of any other county in the state.

Dairying is the chief agricultural industry of the county. State-wide competition has demonstrated that there are more high producing dairy herds in Humboldt County than in any other county of the state. The Cow Testing Association in the county has shown that the production of the dairy cows is far above the average. The average production per year per cow will reach nearly 200 pounds of butter fat. Humboldt stands second among the counties of the state in the production of butter.

Fruit growing in Humboldt County has long ago passed out of the experimental stage. The apples of this county possess an exceptionally fine flavor and for the most part are very highly colored. Apple orchards in Humboldt County when properly cared for can be made to produce an abundance of fruit of the finest quality, which will command the highest prices on any of the important markets of the state. The codling moth, or any of the other pests which are so ruinous to the apple business in some of the other apple growing sections of the state, have not yet made their appearance in the county to any appreciable extent.

The production of strawberries, loganberries and blackberries is destined to be one of the foremost pursuits of the people in the county. The soil of the cutover redwood land is particularly adapted to the production of small fruits and imparts to them a flavor of a very superior quality.

Stock raising is carried on to quite a considerable extent, especially in the mountainous districts of the county. The breeding of sheep both for wool and mutton, is a very profitable industry and one gaining favor among the farmers throughout the county. Beef cattle can be found in large numbers in some sections.

Gold mining is one of the minor industries which is carried on along the Klamath and Trinity rivers. Commercial fishing is another important industry in the county and during the last few years has been a very profitable one."

The railway from San Francisco has been extended through the county to Eureka and on to Trinidad, which will greatly help its development.

Eureka, the county seat and principal city, has many shipping and lumber manufactures, and during 1917 and 1918 the ship building industry was largely extended.

Arcaata is the town next in size, having a population of 1486. It depends chiefly upon the farming and dairying region surrounding it, and also has a barrel stove factory, a tannery, and minor manufactures. The Humboldt State Normal School is located here.

Ferndale, population 919, is in the heart of the Eel River dairying section. Farming and dairying are the leading industries.

Fortuna, population 488, also in the Eel River Valley, depends upon farming, dairying and lumber manufacturing.

Blue Lake, population 441, in the Mad River farming district, depends upon farming and dairying.

Loleta,* population 600, depends upon dairying and farming, and has a condensed milk plant.

Fields Landing,* population 400, depends upon shipping and has the workshops of the Northern Pacific Railroad Company.

Scotia,* 1,300; Samoa,* 1,000, and Korbel,* 700, are each sawmill towns, devoted almost wholly to lumber manufacturing.

HUMBOLDT COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	1,534	Cattle—	
Total in 1920.....	1,756	Beef	29,818
		Dairy	34,495
		Total	64,313
		Value	\$4,774,949
		Horses—	
		Number	5,928
		Value	\$614,105
		Mules—	
		Number	336
		Value	\$25,289
		Asses and burros—	
		Number	73
		Value	\$2,295
		Swine—	
		Number	13,524
		Value	\$185,364
		Sheep—	
		Number	56,153
		Value	\$639,188
Land and Farm Areas.			
Approximate land, acres.....	2,288,000		
Land in farms in 1910.....	642,536		
Land in farms in 1920.....	717,174		
Improved land in farms in 1910.....	105,248		
Improved land in farms in 1920.....	98,061		
Wo. dland in farms.....	225,857		
Other unimproved land.....	393,253		
Value of All Farm Property.			
Total value in 1910.....	\$21,230,881		
Total value in 1920.....	40,672,483		
Land in 1910.....	16,378,032		
Land in 1920.....	28,603,345		
Buildings in 1910.....	2,054,525		
Buildings in 1920.....	4,079,309		
Implements and machinery in 1910.....	444,289		
Implements and machinery in 1920.....	1,590,802		
Domestic animals, poultry, and bees in 1910.....	2,354,044		
Domestic animals, poultry, and bees in 1920.....	6,398,937		

*Estimated.

HUMBOLDT COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.—		Hay and forage—		Acres	Tons
Continued.		Timothy alone		252	323
Goats—		Timothy and clover mixed		2,312	4,302
Number	6,470	Clover alone		2,312	7,147
Value	\$64,630	Alfalfa		2,266	9,122
Total value all domestic animals		Other tame and cultivated			
	\$6,305,820	grasses		5,374	10,816
Poultry and bees—		Wild, salt, or prairie grasses		407	403
Poultry of all kinds	71,502	Grains cut green		17,697	30,409
Value	\$84,572	All other hay and forage		5,439	102,503
Colonies of bees	1,683	Totals		36,059	164,030
Value	\$8,545	Special crops—			
Poultry products—		Potatoes, acres			962
Poultry raised, number	44,224	All other vegetables, acres			181
Eggs produced, dozen	377,841				
Value poultry and eggs produced	\$227,397	Orchard fruits—			Number
Dairy products—		Apples			bearing trees
Value	\$4,381,129	Apricots			51,575
Honey and wax—		Peaches and nectarines			12
Honey produced, pounds	94,980	Pears			7,749
Wax produced, pounds	624	Prunes and plums			5,066
Value of honey and wax produced	\$19,239	Total			11,938
Wool—		Total			78,982
Wool, fleeces shorn	55,881	Grapevines—			
Goat hair, fleeces shorn	4,634	Number in bearing			4,527
Value wool and mohair produced	\$200,713	Small fruits—			
Principal Crops.		Total acres			105
	Acres	Bushels	Nuts—		Number
Corn	418	8,650	Walnuts		bearing trees
Oats	1,486	50,301	Total		2,102
Wheat	967	18,343	Irrigation.		
Barley	812	31,708	Acres irrigated in 1919		391
Dry edible beans	303	4,266	Acreage enterprises were capable of		
Potatoes	992	141,324	irrigating in 1920		572
			Acreage included in projects, 1920		664

IMPERIAL COUNTY.

Date of creation, August 15, 1907.

(Organized from part of San Diego County.)

	1890	1900	1910	1920
Land area, 4,089 square miles.	Population--	-----	13,591	43,453
County seat, El Centro (city).	Population--	-----	1,610	5,464
Population per square mile, 10.6.				

Station:	Highest	Lowest	Inches	Inches
Brawley, 105 feet.	1917: Temperature...118	30	Rainfall... 1.84	Snow... 0
	1918: Temperature...115	25	Rainfall... 1.94	Snow... 0

Imperial is the youngest county in the state, having been formed in 1907, from the eastern part of San Diego County, formerly known as the "Colorado Desert, or Imperial Valley." The progress of the county is practically confined to the central part of the valley. The irrigable area all lies below sea level, from one foot below at the south end, to nearly two hundred feet at the north end. Imperial County has nine growing towns, viz.: Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, Niland, Seeley, and Westmoreland. Imperial County is well known as the largest producer of cotton in California. There are twenty-nine cotton gins, four cottonseed oil mills and two compressors—one in Imperial and one in Calexico.

The cultivation of cotton holds an important part in the industrial development of Imperial County.

Imperial Valley is 110 miles long by 40 miles wide, half in California, half in Mexico. The present irrigated area is 40 by 25 miles in California. Irrigated from the Colorado River, from which 50,000 miners' inches are available. The surface appears to be perfectly level, but slopes gradually northward, affording a sufficient fall for the waters of the irrigation system.

About 100,000 acres in the valley is in alfalfa, and is the basis of its livestock farming.

Imperial Valley is one of the best stock, hog and poultry producing counties.

Dairying is very profitable, owing to the fact that alfalfa grows throughout the winter, furnishing an abundant supply of green pasturage. Modern creameries, with latest appliances, are located in different sections. In the production of butter the county ranks third, the output being only exceeded by Stanislaus and Humboldt counties.

The irrigation system, which supplies the valley with water from the Colorado River, is the largest unit project in the United States, and is operated by the people of the valley themselves. Approximately 600,000 acres are in cultivation in the valley. The chief engineer of the system says the present supply of water is safe for 120,000 acres, and that with the construction of one or two reservoirs which will store 200,000 acre-feet of water, the supply will be adequate for every acre of land susceptible of irrigation, from the Colorado River.

At El Centro and Imperial plants have been established for the manufacture of cottonseed oil and cottonseed cake on which a large number of cattle are fattened.

There is sixty miles of paved road built and under construction in the valley. The state will build shortly a paved road from the north

end to the south end, and the county is now building a paved road from El Centro to Calexico, and one from Imperial to Holtville, and Calipatria to Brawley. When the roads under construction are completed it will give the valley a good system of paved highways.

The crops consist mostly of alfalfa, barley, corn, cotton, and all kinds of live stock and vegetables, grapes and grapefruit. At Imperial there is a packing house, one of the finest in the country, for the Barbara Worth Grapefruit. The grapefruit industry is growing larger every year; more acres are being put in all the time. There are 450 acres planted to grapefruit in the valley. Owing to the particular kind of soil in this locality the fruit has a more delicious, sweet flavor than any that is grown anywhere in the country.

On account of the extremely long hot season, fruit ripens very early, going on the market the first of the season with no competition, the producers thereby receive very attractive returns. Grapes are one of the best and leading fruits of the valley, the early varieties, Persians, begin ripening the first of June, followed closely by the Thompson seedless, then the Malagas, which continue through the shipping season to about the last of July. Many other varieties do well here that have not been successfully grown in other sections of the state. Experiments are being made with many other varieties and there are now some very promising varieties that may take the place of the present commercial varieties. There are 4,000 acres of old bearing vines and several hundred acres of new plantings. About 247 cars of the fruit crop are shipped East each year.

Lemons do very well, growing a very juicy fruit, with thin skin and full of acid.

Many varieties of oranges have been tried out, the seedlings producing the best quality of fruit. However, the Washington navels ripen the first of November and should be picked as soon as ripe for best results.

There are many olive trees planted in different sections of the valley, the largest orchard consisting of 40 acres. Of the deciduous fruit, the apricot is in the lead. The early varieties ripen by April 20th, and shipments continue until the last of May. Newcastle and Royal are the principal varieties. It is almost unbelievable how fast apricot trees grow in this valley. With good care a year old tree is the size of a tree in other districts three years old.

Nearly all varieties of peaches have been tried, and the Chinese and Southern varieties have proven to be the most profitable. However, peaches are not considered commercially.

Pears are being tried out on quite a large scale, one orchard consisting of 60 acres and is reported as successful.

This is a natural country for the fig which produces large, firm, quality fruit.

This county produces more cantaloupes than any one state in the Union.

Asparagus is one of the products of this valley that brings the greatest returns to the owners of any of the present crops. The season opens about the fifth of February and continues for two months. Early in the season it is not uncommon to receive one dollar and twenty-five cents a pound in the East.

The commercial berry is the strawberry, and they do well, producing a fine fruit and netting the grower a handsome profit. In 1920 eight cars were shipped and it is estimated for 1921 that there will be four-teen carloads.

Imperial County is in the southeast corner of the state. In 16 years it has been reclaimed from a desert waste and developed until the population today is 45,000, and has an actual property valuation of \$90,000,000. It is sometimes referred to as "Barbara Worth's country," being the locale of a novel of similar name.

IMPERIAL COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,322	Poultry raised, number.....	154,179
Total in 1920.....	2,843	Eggs produced, dozen.....	766,949
Land and Farm Areas.		Value poultry and eggs produced	\$447,043
Approximate land, acres.....	2,616,960	Honey and wax—	
Land in farms in 1910.....	223,662	Honey produced, pounds.....	667,676
Land in farms in 1920.....	347,485	Wax produced, pounds.....	13,447
Improved land in farms in 1910.....	176,069	Value of honey and wax produced	\$138,779
Improved land in farms in 1920.....	310,708	Wool—	
Woodland in farms.....	1,365	Wool, fleeces shorn.....	38,176
Other unimproved farms.....	35,412	Value of wool produced.....	\$93,322
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$23,646,067	Corn.....	Acres 1,682 Bushels 51,111
Total value in 1920.....	69,171,454	Oats.....	544 16,805
Land in 1910.....	19,832,060	Wheat.....	25,711 543,776
Land in 1920.....	54,999,817	Barley.....	18,225 478,051
Buildings in 1910.....	764,675	Kafir corn and milo maize.....	65,421 1,672,089
Buildings in 1920.....	3,118,447	Potatoes.....	8 228
Implements and machinery in 1910.....	459,535	Hay and forage—	Acres Tons
Implements and machinery in 1920.....	2,954,548	Alfalfa.....	48,508 96,430
Domestic animals, poultry and bees in 1910.....	2,589,207	Other tame and cultivated grasses.....	381 583
Domestic animals, poultry and bees in 1920.....	8,102,733	Wild, salt, or prairie grasses.....	20 10
Domestic Animals on Farms and Ranges.		Grains cut green.....	7,362 6,634
Cattle—		All other hay and forage.....	5,191 18,773
Beef.....	23,212	Totals.....	61,452 123,430
Dairy.....	43,165	Special crops—	
Total.....	66,377	Potatoes, acres.....	8
Value.....	\$4,785,582	All other vegetables, acres.....	14,039
Horses—		Number bearing trees	
Number.....	11,627	Orchard fruits—	
Value.....	\$1,106,512	Apples.....	148
Mules—		Apricots.....	1,888
Number.....	3,941	Peaches and nectarines.....	688
Value.....	\$485,893	Prunes and plums.....	190
Asses and burros—		Pears.....	779
Number.....	22	Number bearing trees	
Value.....	2,121	Subtropical fruits—	
Swine—		Lemons.....	478
Number.....	44,839	Oranges.....	2,512
Value.....	\$709,282	Grapevines—	
Sheep—		Number in bearing.....	246,684
Number.....	60,176	Small fruits—	
Value.....	\$487,352	Total acres.....	8
Goats—		Number bearing trees	
Number.....	252	Nuts—	
Value.....	\$2,969	Almonds.....	90
Total value all domestic animals	\$7,579,711	Walnuts.....	400
Poultry and bees—		Total.....	490
Poultry of all kinds.....	277,154	Cotton—	
Value.....	\$365,927	Acres.....	56,938
Colonies of bees.....	14,988	Bales.....	26,343
Value.....	\$157,095	Irrigation.	
		Acres irrigated in 1919.....	402,671
		Acres irrigated in 1920.....	442,740
		Acres included in projects.....	512,960

INYO COUNTY.

Date of creation, March 22, 1863.

	1900	1910	1920	
Land area, 9,991 square miles.	Population-----	4,377	6,974	7,031
County seat, Independence (township).	Population-----	820	701	-----
Population per square mile, 0.7.				
	Highest	Lowest	Inches	Inches
Elevation, 3,907 feet.	1917: Temperature...102	-1	Rainfall... 2.11	Snow... 6.0
	1918: Temperature...101	14	Rainfall... 4.02	Snow... 5.9

"Inyo County lies on the eastern side of the Sierras adjoining Nevada. The western boundary of the county is the saw-toothed range of the Sierras, rising to altitudes of nearly 15,000 feet and covered with eternal snows. Flowing out of these mountains down into Owens Valley are numerous streams. Many of them have been utilized by the power companies and the energy derived from these power plants is used in many of the mining operations of western Nevada and even in Mexico power from Inyo County is used. These streams are abundantly stocked with trout and here is the real paradise of the angler. The golden trout is one of the species that does exceptionally well in this section. The Whitney state hatchery, near Independence, one of the finest propagation plants in the world, annually supplies the necessary plantings of trout fry.

In the central section of the county lies the fertile Owens Valley. It varies in width from 2 to 15 miles, and is over 100 miles in length. Cattle and sheep are raised in large numbers. Alfalfa is a staple crop, but fruit and berry raising is coming to the front, particularly in the Bishop, Fish Springs and Manzanar districts. Cattle raising and sheep raising are big enterprises in Owens Valley, as the forest reserves furnish splendid ranges in summer. The winter feeding season is short. The support that is being given the Inyo County Pear Growers Association, recently organized, will, within a few years, make Owens Valley one of the best developed, most progressive and most prosperous valleys in the state.

In borax, the Death Valley (290 feet below sea level) plant furnishes the major portion of that produced in California. Soda is produced in large quantities at various plants on Owens Lake. Salt is extensively produced in Saline Valley. Tungsten is mined at several large properties near Bishop. Large undeveloped holdings of potash are being prospected in the vicinity of Deep Springs and it is said they will supply the needs of the United States for that important mineral when developed. More lead and zinc are produced in Inyo County than in any other county in the state.

Inyo has a diversified topography, claiming Mt. Whitney, the highest mountain in the United States, and the lowest depression, Death Valley.

The city of Los Angeles has an aqueduct connecting that city with the Owens River, and all the surplus waters of that stream are taken by this means to Los Angeles. Immense storage plants are in contemplation for the storage of all the flood waters of the valley for agricultural and power purposes.

The tourists have found the high altitudes, the mountain lakes and streams, the delightful climate and the fertile valley to their liking,

and with the advent of better highways, their business promises to be increased. Thousands, as it is, motor to this country every summer for their recreation.

Inyo County is one of few that is free from indebtedness and in addition thereto has \$500,000 loaned out, the interest thereon being sufficient to pay the salaries of all of its county officers. A \$160,000 courthouse has just been completed and paid for out of funds in the treasury.

Sugar beets are a proved success and attempts are being made this season to raise rice, with every prospect of making good.

Bishop is the largest town in the valley. Big Pine, Lone Pine, Keeler and Manzanar are thriving towns.*

INYO COUNTY SUMMARY

(Census Figures.)

Number of Farms.			
Total in 1910.....	438		
Total in 1920.....	424		
Land and Farm Areas.			
Approximate land, acres.....	6,394,240		
Land in farms in 1910.....	116,142		
Land in farms in 1920.....	140,029		
Improved land in farms in 1910.....	38,698		
Improved land in farms in 1920.....	39,924		
Woodland in farms.....	20,158		
Other unimproved land.....	79,967		
Value of All Farm Property.			
Total value in 1910.....	\$7,112,903		
Total value in 1920.....	14,945,798		
Land in 1910.....	5,210,583		
Land in 1920.....	10,621,080		
Buildings in 1910.....	558,740		
Buildings in 1920.....	1,235,175		
Implements and machinery in 1910.....	189,810		
Implements and machinery in 1920.....	492,558		
Domestic animals, poultry and bees in 1910.....	1,153,767		
Domestic animals, poultry and bees in 1920.....	2,596,985		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	21,760		
Dairy.....	3,693		
Total.....	25,453		
Value.....	\$1,579,523		
Horses—			
Number.....	3,682		
Value.....	300,277		
Mules—			
Number.....	448		
Value.....	\$35,874		
Asses and burros—			
Number.....	41		
Value.....	\$1,425		
Swine—			
Number.....	4,357		
Value.....	\$80,457		
Sheep—			
Number.....	43,542		
Value.....	515,521		
Goats—			
Number.....	95		
Value.....	\$1,069		
Total value all domestic animals.....	\$2,523,140		
Poultry and bees—			
Poultry of all kinds.....	22,344		
Value.....	\$29,829		
Colonies of bees.....	4,602		
Value.....	\$43,956		
Poultry products—			
Poultry raised, number.....	7,250		
Eggs produced, dozen.....	95,514		
Value poultry and eggs produced.....	\$55,515		
Honey and wax—			
Honey produced, pounds.....	197,451		
Wax produced, pounds.....	2,055		
Value honey and wax produced.....	\$40,291		
Wool—			
Wool, fleeces shorn.....	24,755		
Value wool produced.....	\$78,479		
Principal Crops.		Acres	Bushels
Corn.....	3,252	92,604	
Oats.....	314	8,078	
Wheat.....	2,161	57,667	
Barley.....	270	5,595	
Dry edible beans.....	20	183	
Potatoes.....	182	19,101	
Hay and forage—	Acres	Tons	
Timothy alone.....	168	311	
Timothy and clover mixed.....	1,071	2,075	
Clover alone.....	163	318	
Alfalfa.....	13,169	40,703	
Other tame and cultivated grasses.....	358	334	
Wild, salt, or prairie grasses.....	1,540	1,824	
Grains cut green.....	205	181	
All other hay and forage.....	1,206	6,833	
Totals.....	17,885	52,579	
Special crops—			
Potatoes, acres.....		182	
All other vegetables, acres.....		33	
Orchard fruits—		Number bearing trees	
Apples.....		17,963	
Peaches and nectarines.....		6,283	
Pears.....		3,405	
Prunes and plums.....		496	
Total.....		28,403	
Grapevines—			
Number in bearing.....		15,509	
Small fruits—			
Total acres.....		9	
Irrigation.			
Acres irrigated in 1919.....		74,958	
Acreage enterprises were capable of irrigating in 1920.....		79,771	
Acreage included in projects.....		97,998	

*Dan E. Williams, County Clerk, and A. T. Force.

KERN COUNTY.

Date of creation, April 2, 1863.

		1890	1900	1910	1920
Land area, 8,003 square miles.	Population---	9,808	16,480	37,715	54,843
County seat, Bakersfield (city).	Population---	2,626	4,836	12,727	18,638
Population per square mile, 6.9.					
	Highest	Lowest	Inches	Inches	
Elevation, 404 feet.	1917: Temperature---	110	25	Rainfall---	3.02
	1918: Temperature---	107	25	Rainfall---	6.62
				Snow--	0
				Snow--	0

Kern County, situated at the extreme southern end of the San Joaquin Valley, its eastern boundary extending on to the Mojave Desert over the extreme southerly end of the Sierra Nevada Mountains, is the third largest county in the state.

At Randsburg, on the eastern border, is one of the largest gold mines on this coast, and the county around Randsburg has many smaller mines.

Along the southern border where the line crosses the San Emidio Mountains are large deposits of iron ore and antimony, which are yet undeveloped. Along the western side of the county are the Sunset, Midway, McKittrick and Lost Hills oil fields, lying along the eastern base of the Coast Range Mountains.

In the northeastern part is the mining town of Kernville, surrounded by mines, and near it on the south fork of the Kern River is the South Fork Valley, where numerous stockmen have their alfalfa fields that furnish feed to the stock that pasture in the high Sierra in the summer time.

In the center, and surrounding the town of Bakersfield, the county seat, lie thousands of acres of fertile land that are irrigated by Kern River, and which are mostly used to raise stock and alfalfa, but large quantities of fruit, including oranges, are also raised in the county. The acreage in apricots, peaches, prunes, pears, olives, and oranges has increased very considerably in the last five years.

Kern County is a long way ahead of all others in the value of minerals produced, amounting in 1917 to \$49,743,422. The greater part of this sum is derived from the extensive oil fields which produced 53,065,066 barrels, valued at \$47,387,104, and in 1920 production value of \$100,000,000.

In the northern part of the county surrounding the towns of Delano and McFarland, is a large body of good land now being developed into a rich farming and fruit growing section. Rice has been successfully grown at Wasco and that vicinity for several years. In 1917, 1,280 acres were planted, and a new modern mill was installed at Wasco.

Cotton was planted in 1918 as an experiment in a number of sections. Arvin had the largest acreage, and Egyptian long staple was the only variety grown, as in Fresno and adjoining counties, and a cotton gin has been established at Bakersfield. Approximate acreage planted in 1919 was 1,500 and in 1920 15,000 acres.

In the oil fields the development work is continuous. Lost Hills is being developed, and the discoveries there indicate that the petroleum-bearing territory is continuous from Sunset to the north line of the county.

KERN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,167	Poultry raised, number.....	93,049
Total in 1920.....	1,000	Eggs produced, dozen.....	442,244
		Value poultry and eggs produced..	\$273,920
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	5,121,920	Honey produced, pounds.....	181,676
Land in farms in 1910.....	1,403,350	Wax produced, pounds.....	3,888
Land in farms in 1920.....	1,497,045	Value of honey and wax produced	\$37,851
Improved land in farms in 1910.....	315,387	Wool—	
Improved land in farms in 1920.....	393,932	Wool, fleeces shorn.....	136,902
Woodland in farms in 1920.....	45,877	Value wool produced.....	373,236
Other unimproved land.....	1,060,236	Principal Crops.	
Value of All Farm Property.		Corn.....	Acres 2,953 Bushels 73,708
Total value in 1910.....	\$30,405,013	Oats.....	637 12,003
Total value in 1920.....	76,915,646	Wheat.....	41,772 496,523
Land in 1910.....	23,962,202	Barley.....	17,181 348,503
Land in 1920.....	61,688,648	Kafir corn and milo maize.....	13,156 403,773
Buildings in 1910.....	1,252,139	Dry edible beans.....	102 1,623
Buildings in 1920.....	3,470,748	Potatoes.....	557 61,554
Implements and machinery in 1910.....	614,028	Hay and forage—	Acres Tons
Implements and machinery in 1920.....	2,000,973	Alfalfa.....	30,543 93,799
Domestic animals, poultry and bees in 1910.....	4,576,614	Other tame and cultivated grasses.....	31,707 94,648
Domestic animals, poultry and bees in 1920.....	9,635,277	Wild, salt, or prairie grasses.....	125 143
Domestic Animals on Farms and Ranges.		Grains cut green.....	17,074 17,760
Cattle—		All other hay and forage.....	1,818 6,160
Beef.....	119,803	Totals.....	50,124 118,711
Dairy.....	11,760	Special crops—	
Total.....	131,263	Potatoes, acres.....	557
Value.....	\$6,355,792	All other vegetables, acres.....	766
Horses—		Cotton, acres.....	1,296
Number.....	10,885	Orchard fruits—	
Value.....	\$820,365	Number bearing trees	
Mules—		Apples.....	17,899
Number.....	2,719	Apricots.....	23,392
Value.....	\$230,184	Peaches and nectarines.....	22,509
Asses and burros—		Pears.....	44,696
Number.....	189	Prunes and plums.....	19,005
Value.....	\$11,299	Total.....	128,487
Swine—		Subtropical fruits—	
Number.....	33,805	Number bearing trees	
Value.....	\$470,259	Figs.....	1,475
Sheep—		Lemons.....	962
Number.....	147,719	Oranges.....	51,144
Value.....	\$1,548,935	Grapevines—	
Goats—		Number in bearing.....	375,700
Number.....	1,818	Small fruits—	
Value.....	\$14,503	Total acres.....	21
Total value all domestic animals	\$9,451,397	Nuts—	
Poultry and bees—		Number bearing trees	
Poultry of all kinds.....	136,177	Total.....	9,233
Value.....	\$185,346	Irrigation.	
Colonies of bees.....	4,583	Acres irrigated in 1919.....	222,685
Value.....	\$28,534	Acraege enterprises were capable of irrigating in 1920.....	338,258
		Acraege included in projects.....	473,709

KINGS COUNTY.

Date of creation, March 22, 1893; organized from part of Tulare County; extended in 1909 by annexation of part of Fresno County.

	1890	1900	1910	1920
Land area, 1,159 square miles.	Population..	9,871	16,230	22,031
County seat, Hanford (city).	Population..	942	2,929	4,829
Population per square mile, 19.0.			5,888	

	Highest	Lowest	Inches	Inches
Elevation, 249 feet.	1917: Temperature...110	20	Rainfall...4.43	Snow... 0
	1918: Temperature...108	22	Rainfall...12.51	Snow... 0
	1920: Temperature...105	21	Rainfall...7.56	Snow... 0

In the very heart of the great fertile valley of the San Joaquin lies Kings County, one of the smallest, one of the youngest, but one of the most fertile counties in the state.

"In the northern part of the county raisin grapes, peaches, apricots and prunes thrive best. The bulk of these crops is dried or canned, the product being handled by conveniently located canneries and packing houses. These fruits alone net the growers well into the millions of dollars annually.

Alfalfa growing, hogs and dairying in Kings County make a combination which is hard to beat, as the county is recognized by the agricultural world as the home of pure bred live stock. Creameries and cheese factories are so located as to be convenient to all dairying sections.

On the shores of Tulare Lake a vast empire has been reclaimed by the building of levees, and here, protected from the flood waters, thousands of acres are farmed to wheat and barley by the use of modern machinery.

No slight contribution to the ease and low cost of marketing farm products is the fine new highway system which connects all the agricultural communities of the county.

Grain sorghums, honey, and many other products of the soil contribute largely to the wealth of this rich little San Joaquin Valley county. In the coming season about 1,200 acres of Egyptian long staple cotton is being planted.

Kings River supplies most of the water for irrigation. However, in 1872 a plan for using the waters of the Kaweah River or Cross Creek was put into practical operation and since that time this stream though smaller than the Kings River, has been doing its full share. The principal irrigation companies supplying water at the present time are the Peoples Ditch Company, the Last Chance Ditch Company, the Lemoore Canal and Irrigation Company and the Lakeside Ditch Company. There are also several smaller ditches in operation."*

In addition to gravity irrigation, there are a large number of pump-planting plants in operation, and in many sections of the county artesian wells are being used.

*Fred K. Howard, County Horticultural Commissioner.

KINGS COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	1,837	
Total in 1920.....	2,171	
Land and Farm Areas.		
Approximate land, acres.....	741,760	
Land in farms in 1910.....	373,823	
Land in farms in 1920.....	505,553	
Improved land in farms in 1910.....	196,569	
Improved land in farms in 1920.....	259,639	
Woodland in farms.....	5,870	
Other unimproved land.....	240,044	
Value of All Farm Property.		
Total value in 1910.....	\$33,312,292	
Total value in 1920.....	67,900,505	
Land in 1910.....	26,007,591	
Land in 1920.....	56,192,752	
Buildings in 1910.....	2,145,975	
Buildings in 1920.....	4,143,236	
Implements and machinery in 1910.....	654,971	
Implements and machinery in 1920.....	2,915,635	
Domestic animals, poultry and bees in 1910.....	4,538,755	
Domestic animals, poultry and bees in 1920.....	4,618,882	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	11,920	
Dairy.....	29,943	
Total.....	41,863	
Value.....	\$2,542,043	
Horses—		
Number.....	8,614	
Value.....	\$730,103	
Mules—		
Number.....	1,628	
Value.....	\$167,842	
Asses and burros—		
Number.....	18	
Value.....	\$1,140	
Swine—		
Number.....	34,195	
Value.....	\$516,949	
Sheep—		
Number.....	41,605	
Value.....	\$458,138	
Goats—		
Number.....	562	
Value.....	\$3,558	
Total value all domestic animals.....	\$4,419,773	
Poultry and bees—		
Poultry of all kinds.....	137,357	
Value.....	\$170,677	
Colonies of bees.....	3,883	
Value.....	\$28,432	
Poultry products—		
Poultry raised, number.....	124,502	
Eggs produced, dozen.....	753,058	
Value poultry and eggs produced.....	\$425,968	
Honey and wax—		
Honey produced, pounds.....	45,809	
Wax produced, pounds.....	649	
Value of honey and wax produced.....	\$9,415	
Wool—		
Wool, fleeces shorn.....	44,477	
Value of wool produced.....	\$107,254	
Principal Crops.		
	Acres	Bushels
Corn.....	4,443	193,811
Oats.....	237	8,102
Wheat.....	51,984	892,852
Barley.....	21,289	647,282
Kafir corn and milo maize.....	7,751	219,334
Dry edible beans.....	8	78
Potatoes.....	30	3,159
Hay and forage—	Acres	Tons
Clover alone.....	79	148
Alfalfa.....	30,316	71,581
Other tame and cultivated grasses.....	139	258
Grains cut green.....	10,708	14,230
All other hay and forage.....	1,700	7,606
Totals.....	42,942	93,793
Special crops—		
Potatoes, acres.....		30
All other vegetables, acres.....		282
Sugar beets, acres.....		300
Orchard fruits—		Number bearing trees
Apples.....		6,503
Apricots.....		161,112
Peaches and nectarines.....		402,450
Pears.....		6,382
Prunes and plums.....		49,829
Total.....		629,875
Grapevines—		
Number in bearing.....		5,608,040
Small fruits—		
Total acres.....		20
Nuts—		Number bearing trees
Total.....		1,997
Irrigation.		
Acres irrigated in 1919.....	175,971	
Acreege enterprises were capable of irrigating in 1920.....	359,121	
Acreege included in projects.....	472,940	

LAKE COUNTY.

Date of creation, May 20, 1851.

	1890	1900	1910	1920
Land area, 1,238 square miles.				
County seat, Lakeport (town).	Population... 7,101	6,017	5,526	5,402
Population per square mile, 4.4.	Population... 591	726	870	1,024
	Highest	Lowest	Inches	Inches
Elevation, 1,350 feet.	1916: Temperature... 105	12	Rainfall... 23.72	Snow... 25.3
	1917: Temperature... 108	23	Rainfall... 11.83	Snow... T
	1918: Station discontinued.			

The county is located in the heart of the Coast Range, about 100 miles north of San Francisco, and is about 75 miles long and 25 miles wide. Mount St. Helena guards the southern extremity. Clear Lake is a splendid sheet of fresh water 25 miles long and from 2 to 10 miles broad, with the lake surface at an elevation of 1,350 feet above sea level. It is stocked with a large quantity of fish. Clear Lake is the pride of Lake County, as well as the source of its name.

Although classed as mountainous, Lake County has a number of very fertile valleys, some of them being of large area. The acreage in farm crops is small compared with most other counties, but a considerable quantity of peas and beans are raised for canning purposes. Artesian water is obtainable in profuse quantities.

"In 1918 there were about 6,500 acres of orchard and vineyard in Lake County, 3,100 acres being in Bartlett pears, viz.: 700 in bearing, 2,400 non-bearing; 1,430 acres being in prunes, viz.: 550 bearing, 880 non-bearing; 545 acres being in almonds.

Lake County stands in a class by itself for dried Bartlett pears, and commands a preferential rate of 3 cents a pound over any other county, inasmuch as she dries entire crops of pears, whereas other counties dry only the culls.

In 1918 780 tons of dried pears were shipped out and 511 tons of green pears.

In 1918 1,240 tons of prunes were shipped out (crop of 1918 being lighter.)

There is a yearly increase in the planting out of Bartletts and prunes, almonds and walnuts. Within the last five years 133,384 Bartlett pears have been planted out. Within the last five years 66,211 prune trees have been planted out.

Upper Lake is noted for its canned string beans.'**

The rocky hillsides furnish pasturage for flocks of Angora goats. Large bodies of sugar and yellow pine, fir, cedar, and oak give employment to several sawmills and furnish the home market a good quality of lumber.

The minerals have heretofore been represented principally by quicksilver. Besides quicksilver, immense quantities of mineral water have been bottled at the many mineral springs and shipped to all parts of the country. Lake County has fifty-six mineral springs, or more than any other county in the state.

*Fred G. Stokes, County Horticultural Commissioner.

LAKE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	603		
Total in 1920.....	771		
Land and Farm Areas.			
Approximate land, acres.....	792,320		
Land in farms in 1910.....	217,464		
Land in farms in 1920.....	241,899		
Improved land in farms in 1910.....	42,768		
Improved land in farms in 1920.....	45,355		
Woodland in farms.....	54,781		
Other unimproved land.....	141,763		
Value of All Farm Property.			
Total value in 1910.....	\$6,271,615		
Total value in 1920.....	12,764,520		
Land in 1910.....	4,792,480		
Land in 1920.....	9,912,320		
Buildings in 1910.....	782,735		
Buildings in 1920.....	1,265,690		
Implements and machinery in 1910.....	207,211		
Implements and machinery in 1920.....	588,190		
Domestic animals, poultry and bees in 1910.....	489,189		
Domestic animals, poultry and bees in 1920.....	808,320		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	7,524		
Dairy.....	3,042		
Total.....	10,566		
Value.....	\$454,153		
Horses—			
Number.....	2,138		
Value.....	\$158,847		
Asses and burros—			
Number.....	172		
Value.....	\$15,250		
Swine—			
Number.....	8,198		
Value.....	\$85,293		
Sheep—			
Number.....	14,880		
Value.....	\$125,573		
Goats—			
Number.....	2,271		
Value.....	\$14,625		
Total value all domestic animals.....	\$854,601		
Total value of dairy products.....	4,912,896		
Poultry and bees—			
Poultry of all kinds.....	33,250		
Value.....	\$42,470		
Colonies of bees.....	424		
Value.....	\$1,849		
Poultry products—			
Poultry raised, number.....	27,711		
Eggs produced, dozen.....	100,514		
Value poultry and eggs produced.....	\$65,178		
Honey and wax—			
Honey produced, pounds.....	6,907		
Wax produced, pounds.....	72		
Value of honey and wax produced.....	\$1,427		
Wool—			
Wool, fleeces shorn.....	8,495		
Goat hair, fleeces shorn.....	1,701		
Value wool and mohair produced.....	\$30,378		
Principal Crops.			
	Acres	Bushels	
Corn.....	1,015	25,840	
Oats.....	434	8,091	
Wheat.....	5,333	96,952	
Barley.....	2,393	43,461	
Potatoes.....	132	13,193	
Hay and forage—		Acres	Tons
Timothy alone.....	10	17	
Timothy and clover mixed.....	156	233	
Clover alone.....	140	213	
Alfalfa.....	5,375	13,017	
Other tame and cultivated grasses.....	342	587	
Wild, salt or prairie grasses.....	789	751	
Grains cut green.....	5,254	6,045	
All other hay and forage.....	417	1,009	
Totals.....	12,477	21,872	
Special crops—			
Potatoes, acres.....		132	
All other vegetables, acres.....		13,193	
Orchard fruits—		Number	
		bearing trees	
Apples.....		17,304	
Apricots.....		363	
Peaches and nectarines.....		10,988	
Pears.....		85,776	
Prunes and plums.....		54,499	
Total.....		169,625	
Grapevines—			
Number in bearing.....		243,278	
Small fruits—			
Total acres.....		19	
Nuts—		Number	
		bearing trees	
Almonds.....		29,898	
Walnuts.....		3,463	
Total.....		33,361	
Irrigation.			
Acres irrigated in 1919.....	1,067		
Acraeage enterprises were capable of irrigating in 1920.....	1,497		
Acraeage included in projects.....	1,811		

LASSEN COUNTY.

Date of creation, April 1, 1864.

	1890	1900	1910	1920
Land area, 4,531 square miles.	Population... 4,239	4,511	4,802	8,507
County seat, Susanville (town).	Population... -----	-----	688	918
Population per square mile, 1.9.				

Madeline (Station):	Highest	Lowest	Inches	Inches
Susanville, 4,175 feet. 1917: Temperature... 102	—17	Rainfall... 9.82	Snow_ T	
Madeline, 5,270 feet. 1918: Temperature... 93	—18	Rainfall... 12.50	Snow_ T	76 0

Lassen County lies in the northeastern part of California along the Nevada line. It is traversed from south to north by the Nevada-California-Oregon Railway (narrow gauge), which connects at Reno, Nevada, with the Southern Pacific system. Susanville, the county seat, is in Honey Lake Valley, a little south of the center of the county. Lassen embraces large areas, comprising rich valley lands, suited to agriculture; rolling hills and uplands, affording splendid range for stock, and mountain tablelands covered with timber.

The principal present industries are farming and stock raising.

The altitude of the largest, most fertile, and most productive valleys, such as Honey Lake Valley, Big Valley, and Long Valley, is a little over 4,000 feet. Other large valleys, like Madeline Plains, Willow Creek Valley, and Secret Valley, are in the neighborhood of 5,000 feet above sea level. While the high valleys are not as well adapted to general farming as the lower ones, they are quite productive, and well suited to the stock-raising business. The climate generally is similar to that of the northeastern states, so far as range of temperature is concerned, but the summer season is quite dry, making irrigation necessary as a rule. Of farm products, alfalfa is probably the most important, though native grasses, timothy, and redtop are extensively raised.

Good hay and grass and pure cold water make the county an ideal one for dairying. There are a number of creameries in the county.

LASSEN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	502	Cattle—	
Total in 1920.....	603	Beef	35,919
		Dairy	4,724
		Total	40,643
		Value	\$2,268,947
		Horses—	
		Number	8,290
		Value	\$480,167
		Mules—	
		Number	709
		Value	\$56,316
		Asses and burros—	
		Number	91
		Value	\$8,125
		Swine—	
		Number	5,910
		Value	\$82,446
		Sheep—	
		Number	92,961
		Value	\$1,225,590
Land and Farm Areas.			
Approximate land, acres.....	2,899,840		
Land in farms in 1910.....	295,728		
Land in farms in 1920.....	741,220		
Improved land in farms in 1910.....	122,057		
Improved land in farms in 1920.....	140,887		
Woodland in farms.....	233,724		
Other unimproved land.....	366,609		
Value of All Farm Property.			
Total value in 1910.....	\$9,376,509		
Total value in 1920.....	20,396,238		
Land in 1910.....	6,331,832		
Land in 1920.....	13,803,528		
Buildings in 1910.....	765,460		
Buildings in 1920.....	1,544,209		
Implements and machinery in 1910.....	289,287		
Implements and machinery in 1920.....	884,471		
Domestic animals, poultry and bees in 1910.....	1,990,230		
Domestic animals, poultry and bees in 1920.....	4,163,769		

LASSEN COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.— Continued.		Acres	Tons
Goats—			
Number	450		
Value	\$3,441		
Total value all domestic animals	\$4,125,082		
Poultry and bees—			
Poultry of all kinds.....	27,174		
Value	29,752		
Colonies of bees.....	1,058		
Value	\$8,976		
Poultry products—			
Poultry raised, number.....	10,206		
Eggs produced, dozen.....	121,565		
Value poultry and eggs produced	\$83,710		
Honey and wax—			
Honey produced, pounds.....	46,398		
Wax produced, pounds.....	543		
Value of honey and wax produced	\$9,492		
Wool—			
Wool, fleeces shorn.....	55,221		
Goat hair, fleeces shorn.....	175		
Value wool and mohair produced..	\$187,840		
Principal Crops.			
	Acres	Bushels	
Corn	6	132	
Oats	1,039	19,551	
Wheat	11,986	140,042	
Barley	926	17,059	
Potatoes	324	25,203	
Hay and forage—			
Timothy alone	292		450
Timothy and clover mixed..	2,531		2,910
Alfalfa	17,569		31,912
Other tame and cultivated grasses	4,099		4,346
Wild, salt, or prairie grasses	34,707		36,844
Grains cut green.....	7,097		5,357
Total	66,333		82,740
Special crops—			
Potatoes, acres			324
All other vegetables, acres.....			48
Orchard fruits—		Number bearing trees	
Apples		18,120	
Peaches and nectarines.....		4,015	
Pears		691	
Prunes and plums.....		3,679	
Total		18,130	
Grapevines—			
Number in bearing.....			7,278
Small fruits—			
Total acres			16
Irrigation.			
Acres, irrigated in 1919.....			53,884
Acres, irrigated in 1920.....			71,382
Acres included in projects.....			85,873

LOS ANGELES COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 4,115 square miles.	Population...101,454	170,298	504,131	936,455
County seat, Los Angeles.	Population... 50,395	102,479	319,198	576,673
Population per square mile, 227.6.				

	Highest	Lowest	Inches	Inches
Elevation, 293 feet.	1917: Temperature...105	38	Rainfall... 8.45	Snow... 0
	1918: Temperature...100	37	Rainfall...17.49	Snow... 0

In wealth, population, and resources Los Angeles is the most important county in southern California, and the value of its farm products is greater than any other county in the United States. There are two rivers in the county, the Los Angeles and the San Gabriel. During a large part of the year these are dry beds of sand, what little water they contain finding its way through the porous sand to the bedrock. In the winter they are liable to flood. The Los Angeles River rises in the western part of the San Fernando Valley, about 12 miles northwest of the city.

Los Angeles County embraces within its limits a great variety of scenery and climate. Within its territory may be found the climate and scenery of almost every part of the state, from the cool and breezy seashore to the warm inland plains and bracing mountain tops. Of the area of the county, about four-fifths is capable of cultivation, the remainder being mountainous. The shore line is 85 miles in length. Nine-tenths of the population is within thirty miles of the ocean.

The chief industry is horticulture, the list of products including everything that can be grown in the state. The area of land devoted to horticultural purposes is being rapidly extended as the large tracts are subdivided and improved.

Adjoining San Gabriel Valley on the east is Pomona Valley. Irrigation is cheaply supplied to this section from the San Antonio River. The soil and climate are particularly adapted to the culture of citrus fruits. It contains a number of flourishing towns, the chief of which is Pomona, one of the most thriving cities of southern California.

The development of the horticultural industry during the past few years has been remarkable. The most important horticultural product is the orange. Besides the orange and lemon, the principal fruits raised are the almond, fig, olive, prune, apricot, walnut, peach, pear and berries. Deciduous fruits are shipped fresh, canned, dried and crystallized.

One of the most important enterprises for Los Angeles is the big breakwater built by the federal government at San Pedro. Other shipping points of the county are Port Los Angeles, near Santa Monica, Redondo and Long Beach.

The San Gabriel Valley, a choice section of Los Angeles County, has the Sierra Madre Range on the north. The mountains are grand and precipitous, enclosing the valley like a wall. This valley is the best known of any portion of southern California.

The valley contains 100 square miles of territory. The San Gabriel contains some of the choicest fruit lands in southern California, and is largely devoted to the raising of oranges and lemons, as well as deciduous fruits.

Pasadena, a beautiful city of 45,354 population, is located at the foot of the Sierra Madre Range, about seven miles from Los Angeles. Within twenty years Pasadena has grown from a sheep pasture to a city of beautiful homes.

Ostriches are raised for their plumes. There is a large ostrich farm at South Pasadena.

Los Angeles and Long Beach are the headquarters of the fish canneries and shipbuilding industries.

LOS ANGELES COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Dairy products—	
Total in 1910.....	7,919	Value	\$4,912,896
Total in 1920.....	12,444	Honey and wax—	
Land and Farm Areas.		Honey produced, pounds.....	519,019
Approximate land, acres.....	2,633,600	Wax produced, pounds.....	10,954
Land in farms in 1910.....	757,985	Value of honey and wax produced	\$108,076
Land in farms in 1920.....	881,333	Wool—	
Improved land in farms in 1910.....	418,998	Wool, fleeces shorn.....	19,938
Improved land in farms in 1920.....	483,096	Goat hair, fleeces shorn.....	130
Woodland in farms.....	32,070	Value wool and mohair produced..	\$60,659
Other unimproved land.....	367,167	Principal Crops.	
Value of All Farm Property.		Corn	Acres Bushels
Total value in 1910.....	\$199,998,200	Oats	6,222 149,580
Total value in 1920.....	396,593,914	Wheat	1,363 27,162
Land in 1910.....	180,354,798	Barley	11,553 96,852
Land in 1920.....	340,682,213	Kafir corn and milo maize.....	9,023 162,142
Buildings in 1910.....	11,798,273	Dry edible beans.....	2,981 58,860
Buildings in 1920.....	33,995,450	Potatoes.....	50,505 546,050
Implements and machinery in 1910.....	2,462,387	Other tame and cultivated	9,973 1,020,456
Implements and machinery in 1920.....	10,782,774	grasses.....	Acres Tons
Domestic animals, poultry and bees		Timothy alone.....	161 172
in 1910.....	5,382,742	Timothy and clover mixed.....	135 189
Domestic animals, poultry and bees		Clover alone.....	149 231
in 1920.....	11,136,477	Alfalfa.....	25,992 122,131
Domestic Animals on Farms and Ranges.		Hay and forage—	
Cattle—		Wild, salt or prairie grasses.....	463 977
Beef.....	19,205	Grains cut green.....	249 231
Dairy.....	35,238	All other hay and forage.....	9,257 98,985
Total.....	54,443	Totals.....	8,136 46,638
Value.....	\$4,691,852	Special crops—	
Horses—		Potatoes, acres.....	9,973
Number.....	19,731	All other vegetables, acres.....	31,489
Value.....	\$2,080,149	Sugar beets, acres.....	21,702
Mules—		Orchard fruits—	
Number.....	3,826	Number bearing trees	
Value.....	\$514,117	Apples.....	81,531
Asses and burros—		Apricots.....	169,125
Number.....	174	Peaches and nectarines.....	421,680
Value.....	\$12,395	Pears.....	199,531
Swine—		Prunes and plums.....	60,577
Number.....	38,768	Total.....	1,037,553
Value.....	\$802,918	Subtropical fruits—	
Sheep—		Number bearing trees	
Number.....	26,200	Lemons.....	829,296
Value.....	\$278,406	Oranges.....	2,624,172
Goats—		Grapevines—	
Number.....	4,751	Number in bearing.....	
Value.....	\$260,107	2,042,556	
Total value all domestic animals	\$8,639,944	Small fruits—	
Poultry and bees—		Number	
Poultry of all kinds.....	1,350,572	Strawberries, etc., acres.....	1,230
Value.....	\$2,351,386	Nuts—	
Colonies of bees.....	18,817	Number bearing trees	
Value.....	\$145,147	Walnuts.....	410,478
Poultry products—		Others.....	63,355
Poultry raised, number.....	1,245,012	Total.....	473,833
Eggs produced, dozen.....	7,793,395	Irrigation.	
Value poultry and eggs produced..	\$4,624,789	Acres irrigated in 1919.....	
		247,223	
		Acreage enterprises were capable of	
		irrigating in 1920.....	
		329,295	
		Acreage included in projects.....	
		362,116	

MADERA COUNTY.

Date of creation, March 11, 1893.

Land area, 2,112 square miles.	Population..	1890	1900	1910	1920
County seat, Madera (city).	Population..	-----	6,364	8,368	12,203
Population per square mile, 5.8.	Population..	-----	-----	2,404	3,444

Storey (Station):	Highest	Lowest	Inches	Inches
Elevation, 296 feet.	1916: Temperature...105	26	Rainfall...18.02	Snow... 0
	1917: Temperature...107	24	Rainfall... 4.99	Snow... 0
	1918: Station discontinued.			

Madera County is in the center of the San Joaquin Valley, bounded on the north by Merced and Mariposa counties, on the southeast and west by Fresno County, from which it was formed in 1893. The eastern portion of the county extends far up in the Sierra Nevada Mountains. From the foothills to the San Joaquin River, a distance of about forty miles, the land is level and adapted to all kinds of agricultural pursuits. The higher mountains are heavily timbered with valuable wood, principally sugar and white pine. Lumbering, stock raising, quarrying, mining, fruit growing, and farming are the principal industries. There are two large wineries in the county. The power plant of the San Joaquin Light and Power Corporation is near North Fork, in this county. The granite quarries at Knowles furnish 90% of the granite used in public building of California and employment to a large number of men.

Irrigation water is now secured chiefly from wells, which at a shallow depth give good supply. About 10,000 acres is the extent supplied from sources other than wells, but there is strong agitation for the formation of an immense irrigation district, to bring gravity water from the San Joaquin and Fresno rivers to an area of 300,000 acres. To further this the Madera Irrigation District was organized in 1920.

The immensity of the undertaking is shown by the following statistics:

The dam will be the largest of its kind in the world, being 4,200 feet long on top; 300 feet in height and wide enough to accommodate a highway sufficiently wide for the passage of three machines. It will be built across the San Joaquin River, some 20 miles east of Madera, the county seat, and will form a storage reservoir that will impound 600,000 acre-feet of water. There are in excess of 300,000 acres of land in the irrigation district, which means that it will be the largest irrigation district on United States soil. The dam, when completed, will contain over 1,500,000 cubic yards of concrete. To reduce the cost of constructing this dam, a gravel pit, located at the dam site, has been purchased by the district. It has been estimated that 15 cents per cubic yard of gravel has been saved by this purchase.

The distributing system, when completed, will consist of over 1,000 miles of main canals and laterals. By these, water will be taken to every quarter-section of land in the district.

An important part of the project is the installation of hydro-electric power plants at the dam. These will develop 200,000,000 kilowatt hours of electrical energy per year. It is estimated that from this power the district will receive an annual net income of over \$1,000,000.*

*Madera County Chamber of Commerce.

This county, until recently, was one of large individual land holdings. A single firm owned over 200,000 acres; another 108,000 acres; thousand-acre ranches were not considered large. Now the big holders are beginning to subdivide and the modest rancher who seeks to make his living on forty, sixty, or eighty acres, is coming more and more into his own. The Chowchilla Ranch was opened for sale in October, 1912; it is situated fourteen miles north of Madera, the county seat, and great progress has been made in its development.

Alfalfa fed to hogs and cows is one of the chief sources of gain. A large cooperative creamery in Madera monthly disburses thousands of dollars to dairymen. Fruits do well, raisins, figs, and olives being among the leading crops.

In 1918, about 50 acres of Egyptian long staple cotton was grown on one ranch, which yielded 9 bales, and 25 acres of Durango, which produced 4 bales.

The Mother Lode of the Sierra Nevadas extends into this county and along it are located many gold mines, some of which have earned records as producers. There are also deposits of iron ore and some copper. These are difficult of access and development has been greatly retarded on this account. Iron ore from the Minarets district runs 65 to 70 per cent. There are known deposits of lead, zinc, tungsten, cobalt, asbestos and platinum, and the problem of their development is one of transportation. Listed among the largest granite quarries in the state, those near Raymond have supplied stone for San Francisco's city hall, post office and other large structures.

The Mariposa Big Tree Grove skirts Madera County and the mountain highway offers great scenic beauties to the tourist bound for Yosemite Valley, just below its borders.

The state highway intersects Madera County north and south.

MADERA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	573	Cattle—	
Total in 1920.....	1,402	Beef	23,662
		Dairy	8,078
		Total	31,740
		Value	\$1,944,906
		Horses—	
		Number	4,876
		Value	\$3,829,968
		Mules—	
		Number	1,981
		Value	\$208,471
		Asses and burros—	
		Number	33
		Value	\$2,360
		Swine—	
		Number	15,132
		Value	\$243,303
		Sheep—	
		Number	14,185
		Value	\$120,364
Land and Farm Areas.			
Approximate land, acres.....	1,351,080		
Land in farms in 1910.....	629,663		
Land in farms in 1920.....	536,726		
Improved land in farms in 1910.....	391,086		
Improved land in farms in 1920.....	262,971		
Woodland in farms.....	86,639		
Other unimproved land.....	187,116		
Value of All Farm Property.			
Total value in 1910.....	\$14,984,395		
Total value in 1920.....	39,485,183		
Land in 1910.....	12,263,638		
Land in 1920.....	32,464,406		
Buildings in 1910.....	771,595		
Buildings in 1920.....	2,326,091		
Implements and machinery in 1910.....	441,455		
Implements and machinery in 1920.....	1,695,450		
Domestic animals, poultry and bees in 1910.....	1,507,707		
Domestic animals, poultry and bees in 1920.....	2,999,241		

MARIN COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 529 square miles.	Population.. 13,072	15,702	25,114	27,342
County seat, San Rafael (city).	Population.. 3,290	3,879	5,934	5,512
Population per square mile, 51.7.				

Point Reyes (Station):	Highest	Lowest	Inches	Inches
Elevation, 490 feet.	1917: Temperature... 90	32	Rainfall... 8.34	Snow... 0
	1918: Temperature... 81	38	Rainfall... 15.38	Snow... 0

Marin County is decidedly one of water frontage, being bounded on the west and south by the Pacific Ocean and by the Golden Gate, which separates it from San Francisco by only a mile and a half at its nearest point, and on the east by San Francisco Bay.

The topographical features are rolling hills and numerous small valleys. A part of the Coast Range crosses Marin in a northwesterly and southeasterly direction, and much of the surface of the county is broken and hilly, but a considerable portion immediately on the shore is composed of marsh and overflowed lands. A part of the Coast Range crosses the county, the highest point of which is Mount Tamalpais, which has an elevation of 2,520 feet.

The principal industry is dairying, but of late years attention has been paid to fruit growing in the Novato district.

At Bivalve on Tomales Bay are located the largest oyster beds in the state. There are also the shrimp fisheries at Point Pedro, the crab fishing with headquarters at Sausalito, the Booth Sardine Cannery at Hamlet. Potato and bean raising chiefly in the northern end of the county around Tomales and Fallon. Hog, poultry and Belgian rabbit raising throughout the county. There are also a number of sheep raised in the county.

Milk and milk products production are still the chief industry—in fact, it is at its high point at present. As a consequence, hog raising is on the increase. A company is now raising a great many hogs at Gallinas.

MARIN COUNTY SUMMARY.

(Census Figures)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	498	Cattle—	
Total in 1920.....	718	Beef	869
		Dairy	35,187
		Total	36,047
		Value	\$2,342,667
		Horses—	
		Number	2,778
		Value	\$253,459
		Mules—	
		Number	59
		Value	\$7,740
		Swine—	
		Number	23,780
		Value	\$351,654
		Sheep—	
		Number	10,207
		Value	\$107,289
		Goats—	
		Number	665
		Value	\$6,181
		Total value all domestic animals	\$3,068,990
		Value dairy products.....	2,665,016
Land and Farm Areas.			
Approximate land, acres.....	338,560		
Land in farms in 1910.....	263,442		
Land in farms in 1920.....	290,148		
Improved land in farms in 1910.....	93,115		
Improved land in farms in 1920.....	87,846		
Woodland in farms.....	58,876		
Other unimproved land.....	143,426		
Value of All Farm Property.			
Total value in 1910.....	\$12,426,158		
Total value in 1920.....	19,954,684		
Land in 1910.....	9,384,625		
Land in 1920.....	13,079,670		
Buildings in 1910.....	1,156,830		
Buildings in 1920.....	2,532,960		
Implements and machinery in 1910.....	343,482		
Implements and machinery in 1920.....	1,027,633		
Domestic animals, poultry and bees in 1910.....	1,541,221		
Domestic animals, poultry and bees in 1920.....	3,314,421		

MARIN COUNTY SUMMARY.—Continued.

Poultry and bees—		Special crops—	
Poultry of all kinds.....	199,137	Potatoes, acres.....	1,212
Value.....	\$244,587	All other vegetables, acres.....	272
Colonies of bees.....	75	Sugar beets.....	665
Value.....	\$844		
Poultry products—		Orchard fruits—	
Poultry raised, number.....	145,689		Number bearing trees
Eggs produced, dozen.....	1,093,172	Apples.....	7,323
Value poultry and eggs produced..	\$694,841	Apricots.....	2,029
		Peaches.....	1,785
		Pears.....	4,541
		Prunes and plums.....	4,187
		Total.....	20,123
Honey and wax—		Grapevines—	
Honey produced, pounds.....	3,920	Number in bearing.....	79,726
Wax produced, pounds.....	41		
Value of honey and wax produced	\$800		
Wool—		Small fruits—	
Wool, fleeces shorn.....	6,117	Total acres.....	28
Value wool produced.....	\$16,683		
Principal Crops.			
	Acres	Bushels	Number bearing trees
Corn.....	39	899	
Oats.....	2,287	89,654	
Wheat.....	78	1,402	
Barley.....	229	3,703	
Dry edible beans.....	41	1,153	
Potatoes.....	1,212	161,508	
Hay and forage—		Nuts—	
Timothy alone.....	52	77	
Alfalfa.....	124	258	
Other tame and cultivated			
grasses.....	34	76	
Wild, salt, or prairie grasses	240	211	
Grains cut green.....	14,182	25,465	
All other hay and forage...	4,684	8,220	
Totals.....	19,316	34,507	
Irrigation.			
Acres irrigated in 1919.....			564
Acreage enterprises were capable of irrigating in 1920.....			704
Acreage included in projects.....			713

MARIPOSA COUNTY.

Date of creation, February 18, 1850.

	1900	1910	1920
Land area, 1,463 square miles.	Population..... 4,720	3,956	2,775
County seat, Mariposa (township).	Population..... 1,009	654	671
Population per square mile, 1.9.			

Yosemite (Station):	Highest	Lowest	Inches	Inches
Elevation, 3,960 feet.	1917: Temperature... 96	0	Rainfall... 18.93	Snow... 91.5
	1918: Temperature... 98	8	Rainfall... 34.45	Snow... 0

The county reaches eastward from the edge of the San Joaquin plains across the foothills far into the Sierra Nevada Mountains, its altitude varying from 300 to 13,000 feet, Mount Dana, the highest point of land, reaching an elevation of 13,627 feet.

There are about 300,000 acres of plains and lower foothills together, the latter predominating, and the balance consists of high hills and mountains; bare of timber on the plains, then scattering oak and scrub pines, then rising to immense tracts of sugar and yellow pine, fir, spruce, and cedar, and the giant sequoias of Mariposa Big Tree Grove, which contains some 427 trees, many of 35 feet in diameter and 150 to 300 feet high. The county is well provided with water in the Merced, Mariposa and Chowehilla rivers. The famous Yosemite Valley is located in the eastern part of this county, at an elevation of 4,060 feet, with walls 5,000 feet higher. The Merced River flows through the valley.

There are three mining belts in the county—the Mother Lode with its offshoots, the east belt, and the copper belt.

Irrigation is practiced to some extent, water being taken from streams and mining ditches, and used with good results.

MARIPOSA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	330	Cattle—	
Total in 1920.....	381	Beef	11,389
		Dairy	262
		Total	11,651
		Value	\$561,067
		Horses—	
		Number	1,561
		Value	\$66,844
		Mules—	
		Number	323
		Value	\$27,585
		Asses and burros—	
		Number	84
		Value	\$2,049
		Swine—	
		Number	8,378
		Value	\$96,729
		Sheep—	
		Number	5,464
		Value	\$53,154
Land and Farm Areas.			
Approximate land, acres.....	936,320		
Land in farms in 1910.....	206,059		
Land in farms in 1920.....	235,849		
Improved land in farms in 1910.....	37,017		
Improved land in farms in 1920.....	49,587		
Woodland in farms.....	61,298		
Other unimproved land.....	121,964		
Value of All Farm Property.			
Total value in 1910.....	\$2,829,235		
Total value in 1920.....	5,107,025		
Land in 1910.....	1,817,100		
Land in 1920.....	3,596,817		
Buildings in 1910.....	276,180		
Buildings in 1920.....	448,396		
Implements and machinery in 1910.....	79,403		
Implements and machinery in 1920.....	186,302		
Domestic animals, poultry and bees in 1910.....	656,552		
Domestic animals, poultry and bees in 1920.....	875,518		

MENDOCINO COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,539 square miles.	Population--	17,612	20,465	23,929	24,116
County seat, Ukiah (city)).	Population--	1,627	1,850	2,136	2,305
Population per square mile, 6.9.					

		Highest	Lowest	Inches	Inches
Elevation, 620 feet.	1917: Temperature---	106	16	Rainfall---25.20	Snow-- 0
	1918: Temperature---	110	18	Rainfall---26.57	Snow-- 0

Mendocino County has 100 miles of coast line. In general topography it is mountainous, with valleys lying between the mountain chains and along the coast. It, together with the counties of Humboldt and Trinity, embodies the greater part of the northern Coast Range Mountains, and contains their highest peaks and deepest canyons, fertile valleys, wooded slopes, rushing rivers, and picturesque scenery. It shares with Sonoma, Humboldt and Del Norte the glory of the great redwood belt.

The county has a length of 85 miles from north to south, and the width is 45 miles from east to west. It is traversed the entire length by the Coast Range, which is composed of two parallel ridges. These mountains vary in height from 1,000 feet to 3,000 feet. Their lower slopes have a gentle declivity, while the higher portions are generally precipitous and furrowed with ravines and gulches. There are many small productive valleys throughout the county.

The Eel River, running north, and the Russian River, running south, have their sources in this county, and are the principal streams.

Stock raising, grazing and wool growing are the principal industries, there being an abundance of summer and winter pasture.

The Angora goat thrives well, the mountains being an ideal pasture.

No irrigation is required, and crops do not suffer from drought at any time.

In the county are large tracts of redwood, and it also has a large number of mineral springs.

Mendocino is one of the leading counties in the production of hops. Lumbering, fishing, and the growing of Bartlett pears, grapes, prunes, hay and grains are also important industries.

The streams are well stocked with trout, and deer and small game are found in abundance. It is in fact a sportsman's paradise.

In the summer season thousands of people spend their vacation in Mendocino County, where beautiful scenery, mineral springs and ideal climate blend happily together to make a wonderful playground.

State highways constructed and under construction, traverse the county north and south and east and west.

MENDOCINO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.	
Total in 1910.....	1,356
Total in 1920.....	1,759

Land and Farm Areas.	
Approximate land, acres.....	2,264,930
Land in farms in 1910.....	731,325
Land in farms in 1920.....	523,087
Improved land in farms in 1910.....	82,558
Improved land in farms in 1920.....	101,220
Woodland in farms.....	261,193
Other unimproved land.....	560,671

Value of All Farm Property.	
Total value in 1910.....	\$14,659,467
Total value in 1920.....	30,267,265
Land in 1910.....	10,774,439
Land in 1920.....	21,972,951
Buildings in 1910.....	1,816,135
Buildings in 1920.....	3,741,630
Implements and machinery in 1910.....	375,049
Implements and machinery in 1920.....	1,246,456
Domestic animals, poultry and bees in 1910.....	1,693,844
Domestic animals, poultry and bees in 1920.....	3,305,728

Domestic Animals on Farms and Ranges.	
Cattle—	
Beef.....	22,519
Dairy.....	10,751
Total.....	32,870
Value.....	\$1,534,636
Horses—	
Number.....	5,562
Value.....	\$421,129
Mules—	
Number.....	431
Value.....	\$35,870
Asses and burros—	
Number.....	30
Value.....	\$891
Swine—	
Number.....	24,061
Value.....	\$285,971
Sheep—	
Number.....	99,918
Value.....	\$875,341
Goats—	
Number.....	4,703
Value.....	\$29,054
Total value all domestic animals.....	\$3,182,892

Poultry and bees—	
Poultry of all kinds.....	\$9,140
Value.....	\$117,406
Colonies of bees.....	1,068
Value.....	\$5,420

Poultry products—	
Poultry raised, number.....	76,305
Eggs produced, dozen.....	421,224
Value poultry and eggs produced.....	\$237,195

Honey and wax—	
Honey produced, pounds.....	10,055
Wax produced, pounds.....	128
Value of honey and wax produced.....	\$2,065

Wool—	
Wool, fleeces shorn.....	95,680
Goat hair, fleeces shorn.....	3,847
Value wool and mohair produced.....	\$332,151

Principal Crops.			
	Acres	Bushels	
Corn.....	1,060	21,081	
Oats.....	2,896	76,199	
Wheat.....	7,848	120,670	
Barley.....	2,069	56,641	
Dry edible beans.....	40	349	
Potatoes.....	636	61,065	
Hay and forage—			
	Acres	Tons	
Timothy alone.....	95	99	
Timothy and clover mixed.....	148	207	
Clover alone.....	84	173	
Alfalfa.....	5,532	15,475	
Other tame and cultivated grasses.....	1,231	1,461	
Wild, salt, or prairie grasses.....	1,623	1,818	
Grains cut green.....	21,979	25,763	
All other hay and forage.....	1,015	5,303	
Totals.....	31,707	51,299	
Special crops—			
Potatoes, acres.....		686	
All other vegetables, acres.....		139	
Orchard fruits—			
		Number bearing trees	
Apples.....		94,574	
Apricots.....		63	
Peaches and nectarines.....		13,970	
Pears.....		51,087	
Prunes and plums.....		65,795	
Total.....		227,833	
Grapes—			
Grapes vines—			
Number in bearing.....		1,939,977	
Small fruits—			
Total acres.....			70
Nuts—			
			Number bearing trees
Almonds, etc.....			705
Walnuts.....			1,876
Total.....			2,581

Irrigation.	
Acres irrigated in 1919.....	1,352
Acresage enterprises were capable of irrigating in 1920.....	1,666
Acresage included in projects.....	1,736

MERCED COUNTY.

Date of creation, April 19, 1855.

	1890	1900	1910	1920
Land area, 1,995 square miles.	Population... 8,085	9,215	15,148	24,579
County seat, Merced (city).	Population... 2,009	1,569	3,192	3,974
Population per square mile, 12.3.				

	Highest	Lowest	Inches	Inches
Elevation, 173 feet.	1917: Temperature... 108	21	Rainfall... 5.33	Snow... 0
	1918: Temperature... 106	24	Rainfall... 14.97	Snow... 0

Merced County lies nearly in the center of the state and a little north of the center of the San Joaquin Valley. It extends entirely across the valley from the foothills of the Sierras to the crest of the Coast Range mountains. The San Joaquin River divides it into two nearly equal parts. The entire central part of the county is irrigated. Outside of the irrigated district is a strip of land devoted to dry grain farming, while the rougher lands above are devoted to pasturing beef cattle and sheep.

Irrigation water is supplied by canals from the San Joaquin, Merced, and Tuolumne rivers as well as pumping plants. Petitions are being circulated for the organization of an irrigation system under the Wright law to cover 175,000 acres.

Merced County grows half the sweet potatoes produced in California. It has the largest area planted to figs except Fresno—over 900 acres were set out to figs east and north of Merced city in 1919. Livingston is believed to have the largest raisin vineyard in the world—1,620 acres in one rabbit-proof fence. Canning, drying, and shipping figs, peaches, almonds, early table and raisin grapes, early tomatoes, egg plant and other truck crops, prosper. Dairying, poultry raising, beef cattle and hog raising are important. The irrigated district of the west side of the county is almost entirely devoted to dairying and beef cattle. The progress of the county has been retarded by large holdings farmed to grain, but they are being broken up and subdivided into colony lots.

Merced County is well supplied with transportation facilities—both by rail and public highways. The two main lines of the Southern Pacific and the main line of the Santa Fe cross the county. The Oakdale branch of the Southern Pacific connects Merced and Stockton and the Yosemite Valley Railroad connects Merced and the entrance to the Yosemite Valley. The Tidewater and Southern Electric runs from Stockton to Hilmar and will soon extend across the Merced River to Stevinson Colony.

The valley branch of the state highway crosses the county. The construction of the branch state highway from Merced to Mariposa was interrupted by the war, before completion, but construction will be resumed at once. The county has just sold bonds for the sum of \$1,250,000 to build a system of county highways. Including \$1,000,000 subscribed by automobile owners, acting through the California Auto Association, \$1,875,000 is available to complete the highway from Merced to the entrance of the Yosemite Valley, at Bagby. These sums, together with the bond issue by the state, will assure a state highway from the Yosemite Valley to the sea, including \$450,000 for the Pacheco Pass road in Merced County.

MODOC COUNTY.

Date of creation, February 17, 1874.

	1890	1900	1910	1920
Land area, 3,823 square miles.	Population... 4,986	5,076	6,191	5,425
County seat, Alturas (town).	Population... -----	-----	916	979
Population per square mile, 1.4.				

	Highest	Lowest	Inches	Inches
Elevation, 4,400 feet.	1917: Temperature... 104	-32	Rainfall... 11.33	Snow... 67.2
	1918: Temperature... 98	-15	Rainfall... 9.81	Snow... 46.5

Modoc County is in the extreme northeastern corner of California. The county is a succession of mountain ranges and valleys branching off from the Sierra Nevada Mountains, the principal spur of which is the Warner Range. It is principally drained by Pit River, which flows into the Sacramento, near Redding, Shasta County. The lava bed section occupies over one-half the total area. The county has two large lakes, but barring the lakes and the large cattle ranges, it is sparsely settled.

The valleys are the principal features, the leading ones being the Surprise, Goose Lake, Hot Springs, Jess, Big and the Little Hot Springs.

Wheat, barley, apples, vegetables, and hay are the leading staples. Thousands of acres are in alfalfa, and the stock and dairying industries are thriving. Snow falls in the valleys and much deeper in the mountains, forming the principal supply of moisture for the development of the country. Stock is usually fed for several months throughout the winter, although it is not always necessary to do so.

The county is well watered. Surprise Valley has nearly twenty streams, which run both winter and summer. Goose Lake Valley is equally fortunate, which Pit River supplies with water for many farms and ranches. Many springs exist, especially in the mountains, and in the Surprise Valley there are many artesian wells.

The timber of the county is pine and fir in the Warner Range, and sugar pine in the western part.

Horticulture has had but a small place in the industries, only sufficient fruit for home uses being raised. The wild plum is about the only native fruit.

MODOC COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910.....	736	Total value in 1910.....	\$11,376,263
Total in 1920.....	743	Total value in 1920.....	22,009,931
Land and Farm Areas.		Land in 1910.....	7,379,085
Approximate land, acres.....	2,446,720	Land in 1920.....	15,601,701
Land in farms in 1910.....	410,134	Buildings in 1910.....	1,004,180
Land in farms in 1920.....	506,757	Buildings in 1920.....	3,405,254
Improved land in farms in 1910.....	164,784	Implements and machinery in 1910.....	365,550
Improved land in farms in 1920.....	168,251	Implements and machinery in 1920.....	727,218
Woodland in farms.....	129,819	Domestic animals, poultry and bees	
Other unimproved land.....	298,687	in 1910.....	2,627,448
		Domestic animals, poultry and bees	
		in 1920.....	4,275,758

MONO COUNTY.

Date of creation, April 24, 1861.

		1890	1900	1910	1920
Land area, 3,036 square miles.	Population...	2,002	2,167	2,042	900
County seat, Bridgeport (Unship).	Population...	335	373	312	125
Population per square mile, 6.3.					

		Highest	Lowest	Inches	Inches
Elevation, 6,500 feet.	1917: Temperature...	85	-33	Rainfall... 4.99	Snow... 39.6
	1918: Station discontinued.				

Mono is a long, narrow county lying on the eastern slope of the Sierras, its greatest length bordering on the state of Nevada, which forms its northeastern boundary, its general direction being northeast and northwest.

The general contour is mountainous and very rough, all but 400 square miles, or less, being mountainous. The western portion lies among the Sierra Nevada Mountains, along their summit, the heights being clad in snow, and the slopes of the range being covered with forest trees.

Among the highest peaks are Mount Dana, 13,627 feet; Mount Lyell, 13,217 feet, and Castle Peak, 13,000 feet. The greater portion of the population is in the eastern part, in the valleys and the mining camps in the surrounding mountains. This portion, which has always been considered a strange, mysterious country, is of a desert-like, volcanic character, abounding in salt pools, alkali, and volcanic table-lands.

Mono Lake, the "Dead Sea of America," is one of the attractions, and is situated in the center of the county; it is about 12 miles long and 8 miles wide; its waters are somewhat unusually compound, various chemical substances being found in solution in them. The lake has a number of small streams flowing into it, but is without perceptible outlet.

Owens River in the south, which takes its rise in a high peak in the Sierra, and Kitten and Walker rivers in the north, are the principal streams. One passes through the southern part into Inyo County. The other, after rising in Mono County, continues its course into the state of Nevada. These two streams with their branches, together with the small streams that flow into Mono Lake, furnish the principal water supply for irrigation. There are 20 mineral springs in the county.

Grazing is the leading industry, and the pasturage is good and plentiful. Herds of dairy cattle are moving from the valleys during the summer. Large bands of sheep are also driven to its mountains for summer pasturage.

The timber belt is very large and the product of good, marketable quality, but as there is no means of transportation, the development of the lumber interests is retarded, although considerable quantities are used for local mining purposes.

MONO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	91	
Total in 1920.....	74	
Land and Farm Areas.		
Approximate land, acres.....	1,929,200	
Land in farms in 1910.....	115,672	
Land in farms in 1920.....	42,034	
Improved land in farms in 1910.....	43,382	
Improved land in farms in 1920.....	8,740	
Woodland in farms.....	735	
Other unimproved lands.....	32,559	
Value of All Farm Property.		
Total value in 1910.....	\$2,347,797	
Total value in 1920.....	2,593,663	
Land in 1910.....	1,587,813	
Land in 1920.....	1,800,887	
Buildings in 1910.....	154,709	
Buildings in 1920.....	159,693	
Implements and machinery in 1910.....	45,345	
Implements and machinery in 1920.....	75,275	
Domestic animals, poultry and bees in 1910.....	559,930	
Domestic animals, poultry and bees in 1920.....	560,803	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	1,461	
Dairy.....	285	
Total.....	1,746	
Value.....	\$100,941	
Horses—		
Number.....	501	
Value.....	\$37,300	
Mules—		
Number.....	52	
Value.....	\$5,890	
Asses and burros—		
Number.....	25	
Value.....	\$530	
Swine—		
Number.....	363	
Value.....	\$6,822	
Sheep—		
Number.....	30,285	
Value.....	\$404,383	
Goats—		
Number.....	55	
Value.....	\$186	
Total value all domestic animals.....	\$556,032	
Poultry and bees—		
Poultry of all kinds.....	2,727	
Value.....	\$3,893	
Colonies of bees.....	100	
Value.....	\$883	
Poultry products—		
Poultry raised, number.....	2,301	
Eggs produced, dozen.....	9,281	
Value poultry and eggs produced.....	\$5,136	
Honey and wax—		
Honey produced, pounds.....	3,712	
Wax produced, pounds.....	20	
Value honey and wax produced.....	\$750	
Wool—		
Wool, fleeces shorn.....	21,154	
Value wool produced.....	\$87,582	
Principal Crops.		
	Aces	Bushels
Corn.....	7	125
Oats.....	30	1,500
Wheat.....	53	1,630
Potatoes.....	124	17,016
Hay and forage—	Aces	Tons
Timothy and cloved mixed.....	855	1,577
Clover alone.....	181	180
Alfalfa.....	1,552	5,242
Wild, salt, or prairie grasses.....	663	677
All other hay and forage.....	119	76
Totals.....	3,430	7,830
Special crops—		
Potatoes, acres.....	124	
All other vegetables, acres.....	16	
Orchard fruits—	Number bearing trees	
Apples.....	1,083	
Peaches.....	110	
Pears.....	76	
Prunes and plums.....	75	
Total.....	1,435	
Grapevines—		
Number in bearing.....	218	
Small fruits—		
Total acres.....	1	
Irrigation.		
Acres irrigated in 1919.....	46,012	
Acres irrigated in 1920.....	89,335	
Acres included in projects.....	121,886	

MONTEREY COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 3,330 square miles.	Population-- 18,637	19,310	24,146	27,980
County seat, Salinas (city).	Population-- 2,339	3,304	3,736	4,308
Population per square mile, 8.4.				

	Highest	Lowest	Inches	Inches
Elevation, 40 feet.	1917: Temperature--- 97	23	Rainfall--- 5.17	Snow-- 0
	1918: Temperature--- 98	21	Rainfall---17.74	Snow-- 0

Monterey County is situated about 100 miles south of San Francisco and 300 miles north of Los Angeles, on the Pacific Ocean. It is 124 miles long and 45 miles wide, its extreme length being from north to south. A state highway traverses its length, with excellent laterals.

The county is divided into three sections—the mountains and hills on the east, mountains and hills on the west, and the great Salinas Valley situated between these ranges of mountains.

The portion of Pajaro Valley lying south of the Pajaro River and running to Monterey Bay on the southwest is in Monterey County, and is about 15 miles long and from 6 to 8 miles wide. The land is exceedingly fertile and under a thorough system of cultivation, producing large crops of all kinds of vegetables, grain, fruit, and berries.

There is a considerable acreage in sugar beets, and the largest sugar factory in the state is the Spreckels, situated near Salinas City, having a daily slicing capacity of 4,000 tons.

In the southern part of the county barley excels, and prunes, apricots, cherries and almonds grow to perfection in the foothills, canyons, and small valleys.

The greatest apple district of the state is in the Pajaro Valley, which includes also parts of Santa Cruz County, centering at Watsonville.

Currants, gooseberries, blackberries, loganberries and raspberries grow well. Strawberries are in the market most of the year, and are shipped from Watsonville by carloads.

Dairying is very important, if not a leading industry. Some of the finest dairies in the state are in Monterey County, and some of the best cheese and butter in the state are made here.

In the harbor of Monterey Bay the largest battleships of our navy find anchorage within 100 feet of the shore. The fishing industry is an important one, especially for salmon and sardines. More than two-thirds of the abalone catch of the state also comes from this bay.

Considerable interest in horticulture is being shown. Large plantings of almonds, pears and apricots have been made during the last season, an estimate of 200,000 trees being a conservative figure.

A strawberry project of over 100 acres has been established, which is the largest strawberry farm west of the Mississippi.

MONTEREY COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	1,658	
Total in 1920.....	1,712	
Land and Farm Areas.		
Approximate land, acres.....	2,131,200	
Land in farms in 1910.....	1,147,416	
Land in farms in 1920.....	1,104,048	
Improved land in farms in 1910.....	371,599	
Improved land in farms in 1920.....	398,320	
Woodland in farms.....	201,891	
Other improved land.....	563,837	
Value of All Farm Property.		
Total value in 1910.....	\$35,021,950	
Total value in 1920.....	61,899,323	
Land in 1910.....	27,885,000	
Land in 1920.....	49,108,783	
Buildings in 1910.....	2,178,728	
Buildings in 1920.....	4,022,555	
Implements and machinery in 1910.....	811,883	
Implements and machinery in 1920.....	2,886,120	
Domestic animals, poultry and bees in 1910.....	4,146,316	
Domestic animals, poultry and bees in 1920.....	5,881,875	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	52,892	
Dairy.....	22,213	
Total.....	75,075	
Value.....	\$4,196,333	
Horses—		
Number.....	13,202	
Value.....	\$1,036,980	
Mules—		
Number.....	1,113	
Value.....	\$73,804	
Asses and burros—		
Number.....	14	
Value.....	\$2,115	
Swine—		
Number.....	23,286	
Value.....	\$303,903	
Sheep—		
Number.....	10,829	
Value.....	\$110,340	
Goats—		
Number.....	1,359	
Value.....	\$8,780	
Total value all domestic animals.....	\$5,732,275	
Poultry and bees—		
Poultry of all kinds.....	106,322	
Value.....	\$123,512	
Colonies of bees.....	3,224	
Value.....	\$23,083	
Dairy products—		
Value.....	\$1,817,210	
Poultry products—		
Poultry raised, number.....	65,618	
Eggs produced, dozen.....	563,257	
Value poultry and eggs produced.....	\$302,680	
Honey and wax—		
Honey produced, pounds.....	126,763	
Wax produced, pounds.....	1,740	
Value of honey and wax produced.....	\$26,032	
Wool—		
Wool, fleeces shorn.....	8 876	
Grease, fleeces shorn.....	1,338	
Value wool and grease produced.....	\$24,185	
Principal Crops.		
	Acres	Bushels
Corn.....	1,317	15,687
Oats.....	4,207	57,123
Wheat.....	39,315	491,992
Barley.....	51,012	764,693
Kafir corn and milo maize.....	1	20
Dry edible beans.....	17,791	200,009
Potatoes.....	2,101	187,597
Hay and forage—		Acres
Clover alone.....	10	15
Alfalfa.....	16,817	52,713
Other tame and cultivated grasses.....		276
Wild, salt, or prairie grasses.....	982	924
Gains cut green.....	56,966	48,572
All other hay and forage.....	715	2,638
Total's.....	75,716	105,249
Special crops—		Acres
Potatoes, acres.....	2,101	
All other vegetables, acres.....	543	
Sugar beets, acres.....	23,488	
Orchard fruits—		Number bearing trees
Apples.....	207,850	
Apricots.....	42,371	
Peaches and nectarines.....	8,373	
Pears.....	12,499	
Prunes and plums.....	10,503	
Total.....	284,178	
Grapevines—		Number in bearing
Number in bearing.....	34,682	
Small fruits—		Total acres
Total acres.....	106	
Nuts—		Number bearing trees
Almonds.....	3,637	
Walnuts.....	805	
Total.....	4,442	
Irrigation.		
Acres irrigated in 1919.....		47,336
Acres irrigated in 1920.....		56,056
Acres included in projects.....		59,537

NAPA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 783 square miles.	Population.. 16,411	16,451	19,800	20,678
County seat, Napa (city).	Population.. 4,395	4,036	5,791	6,757
Population per square mile, 26.4.				

St. Helena (Station):		Highest	Lowest	Inches	Inches
Elevation, 225 feet.	1917: Temperature...	107	23	Rainfall...13.64	Snow... 0
Napa, 20 feet.	1918: Temperature...	98	23	Rainfall...19.75	Snow... T

The principal resources of Napa County are the raising of grapes, the making of wine and of grape juice; raising of prunes, pears, plums, and other fruit, and growing of grain. The value of mineral products is also considerable. There is a large cement manufactory at Napa Junction. Among the minerals produced in 1916 are magnesite of the value of \$108,556, quicksilver \$107,525, and mineral water, \$93,370.

Napa County has the great advantage of river transportation to the bay of San Francisco, passenger and freight steamers making daily trips between Napa and San Francisco.

No irrigation is required to produce any crops.

Its southern boundary reaches down to within twenty-nine miles of San Francisco. The Napa River, a short tidal stream which drains the great Napa Valley, is navigable to the heart of the city of Napa.

There are many large creeks, brooks, and many springs in the hills, both mineral and otherwise.

Since 1910, hundreds of acres of fruit have come into bearing and hundreds of acres have been set out. The plantings are chiefly confined to prunes and pears, which are the chief commercial crops of the county in agriculture. Grapes are the premier crop, there being some 13,000 acres of dry wine grapes in bearing. About two-thirds of the country taxes of the county are said to come out of the vineyards.

Large areas are being cut up and planted to trees, or are being farmed on a more scientific plan—the grain farms *per se*, becoming a thing of the past. Farmers in certain sections are also reviving their interest in sheep and this is bound to improve the farms where they are kept.

Peach orchards are now on the decline, but good prune land is being rapidly planted up and few first-class prune orchards in full bearing are for sale. There are some 4,000 acres of non-bearing prunes. A considerable acreage of pears is being planted continuously.

Dairying is on the increase in the county. The Napa State Hospital has recently completed a 200-cow plant, and many silos have been installed by different men the past two or three years. A cow testing association is organized for the purpose of improving the herds.*

*W. D. Butler, County Horticultural Commissioner.

NAPA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,537	Poultry raised, number.....	121,547
Total in 1920.....	1,428	Eggs produced, dozen.....	643,385
		Value poultry and eggs produced..	\$404,823
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	501,120	Honey produced, pounds.....	9,054
Land in farms in 1910.....	360,583	Wax produced, pounds.....	153
Land in farms in 1920.....	293,925	Value of honey and wax produced	\$1,871
Improved land in farms in 1910.....	101,114	Wool—	
Improved land in farms in 1920.....	116,723	Wool, fleeces shorn.....	16,319
Woodland in farms.....	40,321	Goat hair, fleeces shorn.....	790
Other unimproved land.....	136,881	Value wool and mohair produced	\$49,280
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$18,082,006	Corn.....	Acres 1,143 Bushels 29,543
Total value in 1920.....	29,478,221	Oats.....	4,465 122,851
Land in 1910.....	13,086,656	Wheat.....	8,789 136,943
Land in 1920.....	21,435,821	Barley.....	2,742 54,872
Buildings in 1910.....	3,365,470	Dry edible beans.....	20 167
Buildings in 1920.....	4,747,570	Potatoes.....	49 6,701
Implements and machinery in 1910...	500,921	Hay and forage—	
Implements and machinery in 1920...	1,469,321	Timothy and clover mixed..	Acres 2 Tons 2
Domestic animals, poultry and bees		Clover alone.....	52 53
in 1910.....	1,128,959	Alfalfa.....	2,317 7,217
Domestic animals, poultry and bees		Other tame and cultivated	
in 1920.....	1,825,509	grasses.....	248 241
		Wild, salt, or prairie grasses	116 106
Domestic Animals on Farms and Ranges.		Grains cut green.....	16,032 25,249
Cattle—		All other hay and forage....	513 1,346
Beef.....	9,116	Totals.....	19,284 34,220
Dairy.....	7,141	Special crops—	
Total.....	16,257	Potatoes, acres.....	49
Value.....	\$859,083	All other vegetables, acres.....	145
Horses—		Number	
Number.....	3,845	Orchard fruits—	bearing trees
Value.....	\$333,995	Apples.....	69,828
Mules—		Apricots.....	4,658
Number.....	307	Cherries.....	16,955
Value.....	\$30,490	Peaches and nectarines.....	7,100
Asses and burros—		Pears.....	59,087
Number.....	17	Prunes and plums.....	449,866
Value.....	\$920	Total.....	653,396
Swine—		Number	
Number.....	8,541	Subtropical fruits—	bearing trees
Value.....	\$134,143	Lemons.....	74
Sheep—		Oranges.....	720
Number.....	16,500	Grapevines—	
Value.....	\$171,454	Number in bearing.....	5,822,727
Goats—		Small fruits—	
Number.....	1,357	Total acres.....	26
Value.....	\$11,861	Nuts—	
Total value all domestic animals	\$1,641,949	Almonds, etc.....	2,811
Poultry and bees—		Walnuts.....	6,259
Poultry of all kinds.....	129,214	Total.....	9,070
Value.....	\$178,693	Irrigation.	
Colonies of bees.....	544	Acres irrigated in 1919.....	660
Value.....	\$4,867	Acreage enterprises were capable of	
Dairy products—		irrigating in 1920.....	1,284
Value.....	\$325,023	Acreage included in projects.....	1,405

NEVADA COUNTY.

Date of creation, April 25, 1851.

	1890	1900	1910	1920
Land area, 974 square miles.	Population... 17,369	17,789	14,955	10,850
County seat, Nevada City.	Population... 2,524	3,250	2,689	1,782
Population per square mile, 11.1.				

	Highest	Lowest	Inches	Inches
Elevation, 2,850 feet.	1917: Temperature... 99	12	Rainfall... 25.71	Snow 32.5
	1918: Temperature... 101	13	Rainfall... 40.70	Snow 17.5

Nevada County is situated in that portion of the state generally known as northern California, although its county seat, Nevada City, is but 76 miles from Sacramento. It is bounded on the north by Sierra County, on the east by the state line between California and Nevada, on the south by Placer County, and on the west by Yuba County. From the Yuba County line, Nevada County is hemmed in by the Yuba and Bear Rivers until their sources are reached. The South Yuba River heads in the high Sierras and runs across the county almost its entire length from east to west.

On the rolling foothills of the western portion, where snow and frost are seldom seen, the elevation is slightly above the sea level, while along the eastern boundaries rise the snowcapped peaks of the Sierra Nevada to an elevation of nearly 8,000 feet.

"In its undeveloped state, a large part of the county is adapted to the grazing of cattle and sheep. The National Forests, which cover a considerable portion of the area provide splendid ranges at the higher altitudes during the summer, the cattle being returned to the lowlands for wintering.

A large part of the county is peculiarly adapted to the growing of Bartlett pears, to which the elevation and climate give a flavor and texture second to none. In the Chicago Park section, between Colfax and Grass Valley, both Bartlett pears and Hungarian prunes are grown very successfully without irrigation. This is also true of some other sections. As irrigation water is developed pear growing will see a tremendous expansion."*

In the southwestern portion of the county, where there is an abundance of water, the farmers are turning their attention to dairying.

In the production of gold, Nevada County has been one of the largest producers, in 1917 being first with the production of \$3,682,947. Some of the mines are working at a depth of upwards of 4,000 feet, and have proven conclusively that in every instance where depth has been attained the ore bodies and the values are equally distributed.

"The Sierra Nevada Mountains pass through the eastern third of the county, making the general slopes eastward to the state of Nevada basin and on the west to the great Sacramento Valley.

The altitude varies from 400 feet on the west to 9,140 feet on the summit of the mountains. All ranges of temperature are to be found, from the heat of the valley to the coolness of the mountain heights.

*H. Graser, County Agent.

The industries of the county are gold mining, power, lumbering, paper making, ice making, fruit growing, stock raising, dairying and general farming.

On the eastern slope there is a large area of the primeval forest. It is being extensively lumbered with Hobart Mills as the center. At Floriston is located the largest paper pulp mill in the state. The locality grows a fir in inexhaustible quantities, that is especially adapted for paper making.

Ice along the Truckee River is a large and profitable industry. Truckee is the seat of this ice making industry. Also the well known ice carnival during the winter is held here.

The area of the gold mining zone is large, with Grass Valley, Nevada City and Washington as centers.

The county is well supplied with water for power, municipal and irrigation purposes. Here are located some the largest reservoirs in the state, notably Lake Spalding, which is the source of the main hydro-electrical development of the Pacific Gas and Electric Company. But a small portion of the annual run-off has been utilized.

The western slope is especially adapted to the growing of all kinds of fruit, to which great attention is being paid. The acreage of commercial fruit trees is rapidly increasing.

Nevada County took the highest awards for pears at the Panama Exposition in 1915.†

NEVADA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Mules—	
Total in 1910.....	544	Number	24
Total in 1920.....	481	Value	\$2,130
Land and Farm Areas.		Asses and burros—	
Approximate land, acres.....	623,360	Number	23
Land in farms in 1910.....	175,398	Value	\$335
Land in farms in 1920.....	198,441	Swine—	
Improved land in farms in 1910.....	24,542	Number	3,096
Improved land in farms in 1920.....	26,196	Value	\$43,115
Woodland in farms.....	59,369	Sheep—	
Other unimproved land.....	112,876	Number	11,475
Value of All Farm Property.		Value	\$126,659
Total value in 1910.....	\$3,022,685	Goats—	
Total value in 1920.....	5,125,345	Number	2,332
Land in 1910.....	1,817,417	Value	\$11,360
Land in 1920.....	3,338,537	Total value all domestic animals	\$712,726
Buildings in 1910.....	664,400	Poultry and bees—	
Buildings in 1920.....	815,258	Poultry of all kinds.....	25,572
Implements and machinery in 1910.....	132,857	Value	\$30,872
Implements and machinery in 1920.....	226,192	Col. nies of bees.....	199
Domestic animals, poultry and bees		Value	\$1,760
in 1910.....	408,011	Dairy products—	
Domestic animals, poultry and bees		Value	\$165,190
in 1920.....	745,358	Poultry products—	
Domestic Animals on Farms and Ranges.		Poultry raised, number.....	26,583
Cattle—		Eggs produced, dozen.....	144,310
Beef	6,789	Value poultry and eggs produced.....	\$90,535
Dairy	2,958	Honey and wax—	
Total	9,747	Honey produced, pounds.....	8,835
Value	\$421,239	Wax produced, pounds.....	91
Horses—		Value of honey and wax produced	\$1,802
Number	1,523		
Value	\$107,888		

†W. W. Waggoner, C. E., Nevada City.

ORANGE COUNTY.

Date of creation, March 11, 1889.

		1890	1900	1910	1920
Land area, 795 square miles.	Population..	13,589	19,696	34,436	61,375
County seat, Santa Ana (city).	Population..	1,456	3,628	8,429	15,485
Population per square mile, 77.2.					

		Highest	Lowest	Inches	Inches
Elevation, 405 feet.	1917: Temperature...	112	32	Rainfall... 5.41	Snow... 0
Santa Ana, 133 feet.	1918: Temperature...	100	22	Rainfall... 12.05	Snow... 0

Orange County is bounded on the north by Los Angeles County, on the east by San Bernardino and Riverside counties, on the south by San Diego County, and on the west by the Pacific Ocean. The Santa Ana River enters the county on the northeast boundary and empties into Newport Bay, furnishing irrigating water to the Anaheim Union Water Company and Santa Ana Valley Irrigating Company. The Santiago Creek furnishes water to and along the foothills east of Orange.

East Newport, Balboa, Newport Beach, and Port Orange are situated on Newport Bay, which is the best shipping point of the county. The county is one of the largest producers of oranges, of which a large acreage has been planted in recent years. There is also a considerable acreage in olives. The first raisin grapevines in southern California were planted in this county by McPherson Brothers in 1872, and the first raisins produced in 1875, but the vines were killed in 1888 by the Anaheim disease.

The county is one of the largest producers of lima beans, and also of sugar beets, the county having no less than five factories, with a total daily slicing capacity of upwards of 3,000 tons. At one time celery was grown on a large scale, but the acreage in the latter is reduced to between 100 and 200 acres in small lots, as growers find that beans and sugar beets pay better. Nearly all green and red chili peppers and pimientos which are packed are grown in Orange County.

ORANGE COUNTY SUMMARY

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	3,165	Cattle—	
Total in 1920.....	4,188	Beef	9,113
		Dairy	5,947
		Total	15,070
		Value	\$1,130,755
		Horses—	
		Number	7,355
		Value	\$930,619
		Mules—	
		Number	2,919
		Value	\$498,935
		Asses and burros—	
		Number	13
		Value	\$3,637
		Swine—	
		Number	6,843
		Value	\$118,165
		Sheep—	
		Number	178
		Value	\$1,449
Land and Farm Areas.			
Approximate land, acres.....	508,800		
Land in farms in 1910.....	371,692		
Land in farms in 1920.....	325,703		
Improved land in farms in 1910.....	189,463		
Improved land in farms in 1920.....	200,945		
Woodland in farms.....	2,453		
Other unimproved land.....	122,305		
Value of All Farm Property.			
Total value in 1910.....	\$64,357,852		
Total value in 1920.....	176,663,249		
Land in 1910.....	55,952,755		
Land in 1920.....	156,960,321		
Buildings in 1910.....	4,660,795		
Buildings in 1920.....	11,370,220		
Implements and machinery in 1910.....	1,148,222		
Implements and machinery in 1920.....	5,288,628		
Domestic animals, poultry and bees in 1910.....	2,596,080		
Domestic animals, poultry and bees in 1920.....	3,044,080		

PLACER COUNTY.

Date of creation, April 25, 1851.

Land area, 1,411 square miles.	Population..	1890	1900	1910	1920
County seat, Auburn (city).	Population..	15,101	15,786	18,237	18,584
Population per square mile, 13.2.		1,595	2,050	2,376	2,289

	Highest	Lowest	Inches	Inches
Elevation, 1,360 feet. 1917: Temperature...	105	21	Rainfall...24.33	Snow... 2.3
Blue Canyon, 4,695 ft. 1918: Temperature...	93	13	Rainfall...48.72	Snow...170.0

Placer County is about 100 miles long and of varying widths, from 10 to 30 miles, the course and distance being defined by the course of the rivers which mark its boundaries. It extends from about eight miles from the Sacramento River to the summit of the Sierra Nevada Mountains. Just above Auburn, between the Bear and American Rivers, the county is very narrow, being about eight miles across. Above Auburn it widens out into the two divides lying between the Bear River and the Middle Fork of the American River. These are known as the Dutch Flat, or Railroad Divide, and the Forest Hill Divide. The southwestern portion is more regular in shape than the part just described. This section contains the foothill and level agricultural lands.

The entire extent faces toward the west, extending from an altitude of some 40 feet on the plains in the western portion to over 7,000 feet at its eastern boundary line. At the eastern boundary, separating it from the state of Nevada, is Lake Tahoe, one of the most picturesque lakes in America, and is visited by thousands of tourists and vacationists every summer.

The soil of the western, or valley, portion is of the same general alluvial composition as all the soil in the Sacramento Valley, and is well adapted to the growth of grain. The low foothills near Lincoln are excellent for viticulture.

Placer County holds a foremost position among the fruit producers. Peaches have been grown for years, and oranges and olives are also produced. In the production of plums, the county ranks above all others, and also produces large crops of pears, cherries, berries and table grapes.

The olive industry is a successful one in this county and both olive oil and pickled olives are produced here.

Dairying and stock and poultry raising are successful industries. Butter making is carried on in the summer, the mountain ranges providing plenty of natural feed for the cattle.

Much sugar and yellow pine, fir, spruce, and cedar are found in the mountains, and the lumber output from that section has been very large for many years. Oak and scrub pine abound all over the foothills and fuel is plentiful.

At Colfax is a large sanitarium for the treatment of pulmonary diseases, and at Weimer is located the sanitarium maintained by several counties for the treatment of patients suffering from tubercular troubles.

PLACER COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	1,062	Honey and wax—	
Total in 1920.....	1,280	Honey produced, pounds.....	22,011
Land and Farm Areas.		Wax produced, pounds.....	377
Approximate land, acres.....	903,040	Value honey and wax produced...	\$4,549
Improved land in farms in 1910.....	98,698	Wool—	
Land in farms in 1920.....	233,153	Wool, fleeces shorn.....	23,175
Improved land in farms in 1910.....	98,698	Goat hair, fleeces shorn.....	367
Improved land in farms in 1920.....	136,455	Value wool and mohair produced..	\$79,793
Woodland in farms.....	48,071	Principal Crops.	
Other unimproved land.....	48,627	Corn.....	Acres 17 Bushels 533
Value of All Farm Property.		Oats.....	8,131 110,169
Total value in 1910.....	\$10,234,101	Wheat.....	23,449 212,509
Total value in 1920.....	22,718,017	Barley.....	1,473 15,610
Land in 1910.....	7,747,744	Kafir corn and milo maize.....	39 512
Land in 1920.....	17,817,701	P. tatoes.....	22 1,464
Buildings in 1910.....	1,399,840	Rough rice.....	295 26,707
Buildings in 1920.....	2,576,337	Hay and forage—	Acres Tons
Implements and machinery in 1910...	320,081	Timothy alone.....	2 2
Implements and machinery in 1920...	1,044,849	Timothy and clover mixed..	22 31
Domestic animals, poultry and bees		Clover alone.....	42 52
in 1910.....	766,431	Alfalfa.....	773 1,405
Domestic animals, poultry and bees		Other tame and cultivated	
in 1920.....	1,279,130	grasses.....	54 60
Domestic Animals on Farms and Ranges.		Wild, salt, or prairie grasses	403 317
Cattle—		Grains cut green.....	11,378 9,266
Beef.....	4,307	All other hay and forage..	100 423
Dairy.....	3,330	Tota's.....	12,774 11,556
Total.....	7,637	Special crops—	
Value.....	\$436,812	Potatoes, acres.....	22
Horses—		All other vegetables, acres.....	79
Number.....	3,852	Orchard fruits--	Number
Value.....	\$265,163	bearing trees	
Mules—		Apples.....	33,555
Number.....	320	Apricots.....	2,469
Value.....	\$28,065	Peaches and nectarines.....	746,189
Asses and burros—		Pears.....	224,631
Number.....	11	Prunes and plums.....	703,593
Value.....	\$377	Total.....	1,777,722
Swine—		Subtropical fruits--	Number
Number.....	5,334	bearing trees	
Value.....	\$84,861	Lemons.....	656
Sheep—		Oranges.....	21,011
Number.....	23,829	Grapevines—	
Value.....	\$238,452	Number in bearing.....	1,200,816
Goats—		Small fruits—	
Number.....	1,531	Total acres.....	126
Value.....	\$7,931	Nuts—	Number
Total value all domestic animals	\$1,112,690	bearing trees	
Poultry and bees—		Almonds.....	31,563
Poultry raised, number.....	78,182	Walnuts.....	267
Value.....	\$109,518	Total.....	31,830
Colonies of bees.....	896	Irrigation.	
Value.....	\$6,952	Acres irrigated in 1919.....	1,103
Dairy products—		Acraee enterprises were capable of	
Value.....	\$135,910	irrigating in 1920.....	1,660
Poultry products—		Acraee included in projects.....	3,618
Poultry raised, number.....	91,645		
Eggs produced, dozen.....	370,572		
Value poultry and eggs produced	\$232,782		

PLUMAS COUNTY.

Date of creation, March 18, 1854.

Land area, 2,593 square miles.	Population..	1900	1910	1920
County seat, Quincy (Plumas township).	Population..	4,657	5,259	5,681
Population per square mile, 2.2.		748	884	1,134

		Highest	Lowest	Inches	Inches
Elevation, 3,400 feet.	1917: Temperature...	99	—12	Rainfall...25.72	Snow...55.0
La Porte, 5,000 feet.	1918: Temperature...	87	5	Rainfall...53.0	Snow...181.2

Plumas County is situated in the northeastern part of California. It is bounded on the north by Shasta and Lassen counties, on the south by Yuba, Butte and Sierra counties, on the east by Lassen, and on the west by Butte and Tehama counties. In the lowest portion the elevation is about 1,800 feet, but sloping gradually from its valleys, it rises gently to an elevation of its mountain ridges of over 7,000 feet. Although a great deal of valley lands have been cultivated, there is still a large acreage of uncleared land.

Plumas County has the largest area of timber land of any county in California. It is practically one entire sweep of forest land from one end to the other. While the greater part of it has been in reserve, the timber on it has been taken up, and the many sawmills throughout its mountains are turning out thousands of feet of white, sugar pine and spruce lumber.

Running in numerous channels through all of its mountain ridges, the ancient river beds afford large stores of gold. There have been large quantities of gold taken from the mines of Plumas. There has also been a great deal of surface mining done in times past. The mining section of Plumas County is scattered throughout the entire county.

Hot Springs Valley, near the northwest corner of the county, contains scores of rumbling springs from which issue steam, or in which hot mud is bubbling, suggesting nearness to an active volcano. To the southwest of this valley are the geyser and a lake of boiling mud.

PLUMAS COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic animals, poultry and bees	
Total in 1910.....	221	in 1910	505,845
Total in 1920.....	150	in 1920	751,402
Land and Farm Areas.		Domestic Animals on Farms and Ranges.	
Approximate land, acres.....	1,659,520	Cattle—	
Land in farms in 1910.....	134,259	Beef	6,322
Land in farms in 1920.....	101,653	Dairy	3,845
Improved land in farms in 1910.....	54,281	Total	10,167
Improved land in farms in 1920.....	34,223	Value	\$546,812
Woodland in farms.....	14,864	Horses—	
Other unimproved land.....	52,563	Number	1,285
		Value	\$118,722
Value of All Farm Property.		Mules—	
Total value in 1910.....	\$3,362,955	Number	21
Total value in 1920.....	4,317,073	Value	\$1,335
Land in 1910.....	2,201,654	Swine—	
Land in 1920.....	2,641,161	Number	1,027
Buildings in 1910.....	532,156	Value	\$18,879
Buildings in 1920.....	686,525		
Implements and machinery in 1910...	123,300		
Implements and machinery in 1920...	237,985		

PLUMAS COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.— Continued.		Hay and forage—	Acres	Tons
Sheep—		Timothy alone	260	435
Number	4,305	Timothy and clover mixed	4,952	6,920
Value	\$57,366	Clover alone	96	210
Goats—		Alfa'fa	1,318	2,627
Number	40	Other tame and cultivated		
Value	\$382	grasses	811	1,140
Total value all domestic animals	\$743,316	Wild, salt, or prairie grasses	13,981	15,471
Poultry and bees—		Grains cut green	1,581	1,677
Poultry of all kinds	6,659	All other hay and forage	7	5
Value	\$7,741	Totals	22,996	28,485
Colonies of bees	47	Special crops—		
Value	\$345	Potatoes, acres		95
Poultry products—		All other vegetables, acres		12
Poultry raised, number	5,910	Orchard fruits—		Number
Eggs produced, dozens	27,176	Apples		bearing trees
Value poultry and eggs produced	\$18,450	Peaches and nectarines		1,891
Honey and wax—		Pears		25
Honey produced, pounds	1,683	Prunes and plums		57
Value of honey produced	\$337	Total		149
Wool—		Irrigation.		
Wool, fleeces shorn	3,557	Acres irrigated in 1919		22,768
Value of wool produced	\$13,595	Acreage enterprises were capable of irrigating in 1920		25,424
Principal Crops.		Acreage included in projects		28,266
Oats	Acres 953 Bushels 27,835			
Wheat	789 10,030			
Barley	77 535			
Potatoes	95 4,677			

RIVERSIDE COUNTY.

Date of creation, March 11, 1883.

Land area, 7,223 square miles.	Population	1890	1900	1910	1920
County seat, Riverside (city).	Population	4,683	17,897	34,696	50,297
Population per square mile, 7.0.			7,973	15,212	19,341

Elevation, 851 feet.	Highest	Lowest	Inches	Inches
	1917: Temperature...118	28	Rainfall... 5.46	Snow... T
	1918: Temperature...110	25	Rainfall...12.70	Snow... 0

Riverside County was formed in 1893 from the southwestern part of San Bernardino and the northern part of San Diego counties. It is about 200 miles long by 40 miles wide, and embraces most varied geographical and topographical features, climate, scenery, soil, agricultural, horticultural, and mineral resources. It contains within its borders one of the highest mountains in southern California, Mount San Jacinto, 10,865 feet high, and part of Salton Sea, 250 feet below sea level.

The central and greater part of the eastern portion of the county is desert, but known to be heavily mineralized. The high cost of freight, fuel, and scarcity of water, making prospecting dangerous, all combine to retard mining developments.

“The principal rivers of the county are the Colorado, which forms its eastern boundary; the Santa Ana, having its head in the San Bernardino Range of mountains, flowing through the northwestern part of the county, furnishing irrigation for a large area of land; the San Jacinto, having its source in the San Jacinto Range, flowing through the San Jacinto, Hemet, and Perris valleys, and forming Lake Elsinore.

The earlier and principal development of Riverside County has been in the northwestern portion. The central and eastern parts of the county are largely desert, though yielding readily to development with the coming of water through storage reservoirs or artesian wells. These sections of Riverside county have large mineral resources which are yet undeveloped on account of inaccessibility and the scarcity of fuel and water.

In the northwestern section of the county is one of the great citrus districts of southern California with Riverside City as its center. Here irrigation systems are highly developed and the land is intensively cultivated.

Adjacent to this district and lying east and south are the Elsinore, Hemet, San Jacinto, Beaumont and Banning districts, where rapid and extensive agricultural development has occurred during recent years. In general these sections are particularly devoted to the production of deciduous fruits and nuts. Here the olive, apricot, peach, apple and almond grow in great luxuriance. With the further development of the resources of water in the San Jacinto mountains it will be possible to bring Perris and Moreno valleys into prominence in the matter of similar productions. These valleys are now chiefly devoted to dry farming. Alfalfa production is an especially flourishing industry of Riverside County, almost all parts of the county where water is avail-

able being well adapted to its culture. Poultry farming is also much in evidence, especially in the Arlington neighborhood.

Further east lies the Coachella Valley, rapidly coming under cultivation as irrigating systems are developed and chiefly noted for the production of dates. This industry, though new, is exceedingly promising, the quality of the product being second to none.

In the extreme eastern part of Riverside County lies the Palo Verde Valley, consisting of some 100,000 acres of land lying along the Colorado River. Here the cotton industry has come into prominence in recent years, the 1918 crop amounting to 14,000 bales and worth \$2,500,000.

Temecula, Wildomar, Nuevo and other neighboring localities are noted for their stock raising and the production of seeds in commercial quantities.

Among the industries of Riverside County should be noted the plant of the Riverside Portland Cement Company, one of the largest in the West; the citrus by-product industries of Corona, engaged particularly in the production of citric acid from cull lemons; the Temescal Rock Company's plant at Corona; Alberhill Coal and Clay Company's plant near Elsinore; the Western Products Company's fibre manufacturing plant at Riverside, for converting the yucca plant of the desert into fibre in commercial quantities, and the Riverside plants engaged in the manufacture of packing house machinery.

Riverside County has a large number of health and pleasure resorts. Among these are those in the vicinity of Lake Elsinore, Murrietta Hot Springs, Eden Hot Springs, and Palm Springs, all distinguished for their medicinal properties; the charming resort of Glen Ivy near Corona, Idylwild and Keen Camp in the San Jacinto Mountains, and Palm and Andreas canyons.

The Citrus Experiment Station of the University of California, the Indian School at Arlington (Sherman Institute), one of the largest in the country, which is to have a farm school similar to that at Davis, the first appropriation for which was made by the legislature in the spring of 1919, and the March Aviation Field, are all situated in the county.**

*Information supplied by the Riverside Chamber of Commerce.

HORTICULTURAL.

Districts Where the Various Fruits Are Mostly Grown.*

Oranges—Riverside District, including Arlington, Highgrove and West Riverside; Corona, Hemet, Perris District, including Moreno.	Grapes—Wineville District, Coachella Valley.
Lemons—Riverside, Corona.	Olives—Banning District, including Cabazon; Beaumont, Elsinore, Perris, Hemet, Corona.
Avocado—Riverside.	Peaches—Banning, Beaumont, Corona, Perris, Hemet and San Jacinto.
Almonds—Banning, Elsinore.	Pears—Beaumont, Perris, Hemet and San Jacinto, Elsinore.
Apples—Beaumont, Banning, Yucaipa District, Hemet.	Prunes—Banning.
Apricots—Banning, Beaumont, Corona, Elsinore, Hemet District, including San Jacinto.	Walnuts—Elsinore, Perris, Hemet and San Jacinto.
Cherries—Beaumont.	Dates—Coachella Valley.

*D. D. Sharp, County Horticultural Commissioner.

RIVERSIDE COUNTY SUMMARY.

(Census Figures)

Number of Farms.			
Total in 1910.....	2,688		
Total in 1920.....	3,949		
Land and Farm Areas.			
Approximate land, acres.....	4,622,720		
Land in farms in 1910.....	520,803		
Land in farms in 1920.....	676,293		
Improved land in farms in 1910.....	278,151		
Improved land in farms in 1920.....	348,538		
Woodland in farms.....	26,027		
Other unimproved land.....	301,728		
Value of All Farm Property.			
Total value in 1910.....	\$46,203,795		
Total value in 1920.....	94,456,776		
Land in 1910.....	39,363,652		
Land in 1920.....	80,337,250		
Buildings in 1910.....	3,666,689		
Buildings in 1920.....	7,974,641		
Implements and machinery in 1910.....	1,112,189		
Implements and machinery in 1920.....	3,656,194		
Domestic animals, poultry and bees in 1910.....	2,061,265		
Domestic animals, poultry and bees in 1920.....	3,488,691		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	10,607		
Dairy.....	8,205		
Total.....	18,812		
Value.....	\$1,202,018		
Horses—			
Number.....	10,065		
Value.....	\$998,122		
Mules—			
Number.....	2,913		
Value.....	\$345,302		
Asses and burros—			
Number.....	118		
Value.....	\$6,685		
Swine—			
Number.....	15,599		
Value.....	\$264,360		
Sheep—			
Number.....	13,964		
Value.....	\$130,570		
Goats—			
Number.....	4,493		
Value.....	\$45,783		
Total value all domestic animals.....	\$2,993,040		
Poultry and bees—			
Poultry of all kinds.....	229,112		
Value.....	\$351,672		
Colonies of bees.....	17,014		
Value.....	\$143,979		
Poultry products—			
Poultry raised, number.....	261,133		
Eggs produced, dozen.....	1,120,579		
Value poultry and eggs produced.....	\$628,676		
		Honey and wax—	
		Honey produced, pounds.....	480,016
		Wax produced, pounds.....	12,678
		Value honey and wax produced.....	\$100,947
		Wool—	
		Wool, fleeces shorn.....	12,345
		Goat hair, fleeces shorn.....	601
		Value wool and mohair produced.....	\$20,626
Principal Crops.			
		Acres	Bushels
		Corn.....	1,383
		Oats.....	875
		Wheat.....	18,984
		Barley.....	35,222
		Kafir corn and milo maize.....	6,763
		Dry edible beans.....	719
		Potatoes.....	637
		Hay and forage—	Acres
		Timothy alone.....	13
		Alfalfa.....	17,694
		Other tame and cultivated grasses.....	1,426
		Wild, salt, or prairie grasses.....	11
		Grains cut green.....	34,300
		All other hay and forage.....	3,516
		Totals.....	57,114
			118,891
Special crops—			
		Potatoes, acres.....	687
		All other vegetables, acres.....	2,691
		Sugar beets, grown for sugar.....	Acres 1,100 Tons 6,131
		Cotton.....	Acres 22,482 Bales 17,160
Orchard fruits—			
		Number bearing trees	
		Apples.....	107,808
		Apricots.....	363,918
		Peaches.....	204,566
		Pears.....	22,086
		Prunes and plums.....	47,863
		Total.....	780,494
Subtropical fruits—			
		Number bearing trees	
		Lemons.....	320,066
		Oranges.....	1,047,343
Grapevines—			
		Number in bearing.....	1,041,495
Small fruits—			
		Total acres.....	72
Nuts—			
		Number bearing trees	
		Almonds.....	85,428
		Walnuts.....	35,100
		Total.....	120,528
Irrigation.			
		Acres irrigated in 1919.....	108,336
		Acres irrigated in 1920.....	131,907
		Acres included in projects.....	230,144

SACRAMENTO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 983 square miles.	Population-- 40,339	45,915	67,806	91,029
County seat, Sacramento (city).	Population-- 26,386	29,282	44,686	65,908
Population per square mile, 92.6.				

	Highest	Lowest	Inches	Inches
Elevation, 71 feet.	1917: Temperature---107	26	Rainfall--- 8.92	Snow-- 0
	1918: Temperature---107	29	Rainfall---16.92	Snow-- 0

Sacramento County is situated at the southern entrance of the great Sacramento Valley, and is well named the "Heart of California."

Its land area is 983 square miles, is largely comprised of rich sediment or bottom land surrounding the three main rivers, and owing to the enormous yield obtained each year, these sections have proven to be among the richest farming districts in the world.

This county leads the state in the production of pears and asparagus, besides being a large producer of other fruits, such as grapes, peaches, prunes, plums, almonds and olives. Over 35,000 acres are devoted to fruits, vines and nuts. The fruit production and net returns therefrom surpassed all the previous records of Sacramento County during the season of 1920, which netted the growers nearly \$9,500,000 profit. This large production is due, however, to a normal increase in plantings during the last eight years, which has placed Sacramento among the leading fruit producing counties of the state.

Apart from the ideal soil and climatic conditions, so necessary to profitable fruit culture, several other factors have contributed largely to this gradual increase of plantings of this county. Among these are the permanent building of three of the largest fruit and vegetable canneries in the state; three olive pickling plants, seven asparagus canneries which handle the enormous 14,000 acre crop.

Again the splendid river transportation handling the bulk of the vast delta fruit output, and last but not least, the transcontinental shipping facilities which enable the grower to get his fruit started to Eastern markets under refrigeration without the slightest loss of time. From sixty to eighty cars of deciduous fruits leave this county each day during the shipping season.

In addition to the enormous fruit industry, there are over 100,000 acres devoted to alfalfa, beans, hops, corn, vegetable and vegetable seed growing, and about 150,000 acres are planted each year to wheat, barley and other cereal crops.

The livestock industry has been gradually increased so that now we have some of the largest and best dairy and swine herds in the state. The large yields of alfalfa and other forage crops, together with the building of several large modern creameries and a condensary have practically trebled this industry during the last three years.

Poultry is also on the increase, especially in the new districts that are being settled, where the farmers are growing large flocks to carry them along until the newly planted orchards come into bearing.

The 1920 Federal census places the total value of all crops of Sacramento County at \$19,845,858.

THE WEALTH OF SACRAMENTO COUNTY.

The wealth of Sacramento County is increasing amazingly, as is indicated by the following statement taken from the records of the County Assessor. In 1910 the total assessed valuation of property in the county was \$58,620,075. In 1920 the total assessed valuation of property was \$127,000,000. This wonderful gain in values is due to the tremendous industrial development in all lines of endeavor and it is not unwise to estimate that the gain in material wealth will be in far greater proportion as the European countries settle down to normal conditions, when much of the commerce of the world will be directed through the Panama Canal, thereby adding greatly to the population and development of all California and the Pacific Coast States.

While it must be apparent to the reader that there has been marked activity in the industrial life of Sacramento County and consequent rise in property values, it should be thoroughly understood that there has been no boom here and all values are based upon actual worth. Land in Sacramento County is valued on a basis of what it will produce.

Sacramento County is just a trifle smaller than the state of Rhode Island. There is very little waste land in the county, now that practically all of the overflowed areas have been reclaimed.

The county has an excellent system of good roads. Two main trunk lines of the state highway pass through the county and state roads lead from Sacramento City in five different directions. The Lincoln Highway, the transcontinental road from New York to San Francisco, passes through Sacramento. The county has 240 miles of improved highways.

The level condition of the county's surface renders motoring ideal. Most of the farmers of the county own motor cars, which they use for business and pleasure.

Fruit Production and Estimated Net Returns Sacramento County, 1920*
Shipping and canning.

	Number of boxes	Tons	Cars	Estimated net return
Pears -----	1,298,017	33,427	2,429	\$3,125,691
Grapes -----	1,983,533	38,465	2,583	3,758,920
Plums -----	404,315	4,588	391	906,689
Peaches -----	46,466	2,475	169	259,684
Strawberries -----	127,355	1,521	127	355,665
Apples, apricots, cherries.....	392,420	845	69	443,520
Almonds, oranges, olives, dried fruits.....				600,000
	4,252,106	81,321	5,768	\$9,450,169

*By County Horticultural Commissioner Fred C. Brosius.

SACRAMENTO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.	
Total in 1910.....	1,601
Total in 1920.....	2,975

Land and Farm Areas.	
Approximate land, acres.....	629,120
Land in farms in 1910.....	473,044
Land in farms in 1920.....	555,503
Improved land in farms in 1910.....	275,682
Improved land in farms in 1920.....	399,024
Woodland in farms.....	63,155
Other unimproved land.....	93,324

Value of All Farm Property.	
Total value in 1910.....	\$36,694,682
Total value in 1920.....	87,983,650
Land in 1910.....	30,425,404
Land in 1920.....	72,412,416
Buildings in 1910.....	3,205,416
Buildings in 1920.....	7,482,007
Implements and machinery in 1910.....	786,383
Implements and machinery in 1920.....	3,719,948
Domestic animals, poultry and bees in 1910.....	2,277,479
Domestic animals, poultry and bees in 1920.....	4,369,279

Domestic Animals on Farms and Ranges.	
Cattle—	
Beef.....	13,327
Dairy.....	18,695
Total.....	32,022
Value.....	\$2,153,189
Horses—	
Number.....	11,019
Value.....	\$1,003,598
Mules—	
Number.....	743
Value.....	\$74,921
Asses and burros—	
Number.....	11
Value.....	\$345
Swine—	
Number.....	16,393
Value.....	\$278,375
Sheep—	
Number.....	42,637
Value.....	\$476,084
Goats—	
Number.....	142
Value.....	\$3,843
Total value all domestic animals.....	\$3,993,353

Poultry and bees—	
Poultry of all kinds.....	254,948
Value.....	\$364,774
Colonies of bees.....	1,827
Value.....	\$11,150

Dairy products—	
Value.....	\$1,218,237

Poultry products—	
Poultry raised, number.....	348,240
Eggs produced, dozen.....	1,218,376
Value poultry and eggs produced.....	\$805,985

Honey and wax—	
Honey produced, pounds.....	31,330
Wax produced, pounds.....	402
Value of honey and wax produced.....	\$6,423

Wool—	
Wool, fleeces shorn.....	37,313
Value wool produced.....	\$105,455

Principal Crops.		
	Acre	Bushels
Corn.....	4,030	159,145
Oats.....	17,367	226,180
Wheat.....	60,669	914,289
Barley.....	18,872	474,930
Kafir corn and milo maize.....	488	6,588
Dry edible beans.....	22,222	441,645
Potatoes.....	1,919	198,037
Rough rice.....	100	4,500

Hay and forage—		
	Acre	Tons
Timothy alone.....	15	10
A'alfa.....	13,455	51,614
Other tame and cultivated grasses.....	380	245
Wild, salt, or prairie grasses.....	3,483	3,385
Grains cut green.....	27,997	9,095
All other hay and forage.....	1,589	7,359
Totals.....	46,920	91,800

Special crops—	
Potatoes, acres.....	1,919
All other vegetables, acres.....	17,044
Sugar beets, acres.....	515

Orchard fruits—	
	Number bearing trees
Apples.....	16,633
Apricots.....	14,265
Peaches.....	169,848
Pears.....	369,540
Prunes and plums.....	233,237
Total.....	1,957,517

Subtropical fruits—	
	Number bearing trees
Lemons.....	2,709
Oranges.....	77,948

Grapevines—	
Number in bearing.....	7,259,957

Small fruits—	
Strawberries, etc., acres.....	722

Nuts—	
	Number bearing trees
Almonds.....	162,604
Walnuts.....	4,176
Total.....	166,780

Irrigation.	
Acre irrigated in 1919.....	72,857
Acreage enterprises were capable of irrigating in 1920.....	103,249
Acreage included in projects.....	141,351

SAN BENITO COUNTY.

Date of creation, February 12, 1874.

	1890	1900	1910	1920
Land area, 1,392 square miles.	Population-- 6,412	6,633	8,041	8,995
County seat, Hollister (town).	Population-- 1,234	1,315	2,308	2,781
Population per square mile, 6.5.				

	Highest	Lowest	Inches	Inches
Elevation, 284 feet.	1917: Temperature--103	22	Rainfall-- 9.17	Snow-- 0
	1918: Temperature--101	23	Rainfall--17.29	Snow-- 0

The county extends from northwest to southeast about 60 miles, with a general width of 20 miles. The Gabilan Mountains on the southwest constitute the dividing line from Monterey County, and at their base flows northerly, the entire length, the San Benito River. Farther east the Tres Pinos forms another valley.

Irrigation is by gravity from the San Benito River and the Tres Pinos. This is supplemented by an extensive system of pumping from an apparently inexhaustible supply of underground flow, and further by artesian wells in the northern end of the county.

The lime industry, though once large, has ceased, awaiting better transportation facilities. Nearly half the quicksilver produced in the state comes from San Benito County, the New Idria mine being the largest. In 1917 the production of quicksilver in the county amounted to 11,150 flasks valued at \$1,057,770.

Large deposits of potter's clay of superior quality lie in easy access.

SAN BENITO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	921	Number	5,219
Total in 1920.....	945	Value	\$418,069
Land and Farm Areas.		Mules—	
Approximate land, acres.....	890,880	Number	110
Land in farms in 1910.....	544,801	Value	\$10,185
Land in farms in 1920.....	539,378	Asses and burros—	
Improved land in farms in 1910.....	186,573	Number	14
Improved land in farms in 1920.....	122,606	Value	\$430
Woodland in farms.....	13,577	Swine—	
Other unimproved land.....	403,195	Number	9,003
		Value	\$107,495
Value of All Farm Property.		Sheep—	
Total value in 1910.....	\$14,063,837	Number	14,875
Total value in 1920.....	32,852,180	Value	\$183,981
Land in 1910.....	11,272,156	Goats—	
Land in 1920.....	25,249,043	Number	988
Buildings in 1910.....	1,336,855	Value	\$6,819
Buildings in 1920.....	3,634,620	Total value all domestic animals	\$2,060,376
Implements and machinery in 1910.....	391,058	Poultry and bees—	
Implements and machinery in 1920.....	1,184,012	Poultry of all kinds.....	67,661
Domestic animals, poultry and bees	1,963,798	Value	\$101,145
Domestic animals, poultry and bees	2,764,504	Colonies of bees.....	539
		Value	\$2,983
Domestic Animals on Farms and Ranges.		Poultry products—	
Cattle—		Poultry raised, number.....	28,826
Beef	27,928	Eggs produced, dozen.....	367,415
Dairy	5,161	Value poultry and eggs produced..	\$208,210
Total	33,097		
Value	\$1,933,397		

SAN BERNARDINO COUNTY.

Date of creation, April 26, 1853.

	1890	1900	1910	1920
Land area, 20,175 square miles.	Population.. 25,497	27,929	56,706	73,401
County seat, San Bernardino(city).	Population.. 4,012	6,159	12,779	18,721
Population per square mile, 3.6.				

	Highest	Lowest	Inches	Inches
Elevation, 1,054 feet.	1917: Temperature...116	26	Rainfall... 8.37	Snow... 0
	1918: Temperature...110	25	Rainfall...17.61	Snow... 0

San Bernardino is not only the largest county in California, but it is the largest in the United States. It is larger than New Hampshire, Vermont, and Rhode Island combined; larger than New Jersey, Delaware, Massachusetts and Rhode Island combined; very nearly as large as Massachusetts, Connecticut, and New Jersey. There are eight states whose area is less than that of this county.

San Bernardino County is in the southeastern part of the state. The greater portion is desert. In the north is the Mojave Desert, and in the east the northern end of the Colorado Desert, the arable portion being confined to the southwestern part—the San Bernardino Valley. This valley forms an almost perfect amphitheater, encircled by mountains and hills, open only on the west, allowing the sea breeze from the ocean to sweep its entire length.

Mount San Bernardino, from its distinctive cone, has been adopted by the United States surveyors as the initial point for land surveys in southern California, both base and meridian starting from its peak of 10,100 feet.

The northern and western portions of the county are almost sterile, yet, along the Mojave River, where it debouches from the mountains to the desert, and for many miles, the land on both sides is fertile, easily worked, and produces abundantly as long as the water supply is available.

Here was dug the first irrigation ditch in the state, and here were raised the first crops by irrigation. It is over a hundred years since the mission fathers of San Gabriel established a sub-mission, just west of Redlands, and employed Indian labor to dig what is known as the zanja. This ancient ditch is still in use and within the same banks that were first thrown up by Indian labor almost a century ago.

Almost every variety of fruit can be produced in some part of this county. On the lower levels, all the deciduous fruits are produced. The production of oranges, lemons, and pomeloes is large, these fruits being grown to perfection. The production of oranges has increased rapidly during the last few years, San Bernardino County being the largest producer in the state for many years. There has also been a large increase within the last five years, in alfalfa, and deciduous fruits, but wine grapes are grown to a considerable extent; one of the largest vineyards in the state at Guasti, belonging to the Italian Vineyard Company, contains 3,200 acres of all the best varieties of wine grapes.

In the western part of Rialto, Etiwanda and Cucamonga neighborhoods a considerable quantity of raisins is made.

At Chino is a factory of the American Beet Sugar Company, which is one of the largest beet-sugar factories in the state.

The northern and eastern portions are heavily mineralized. The greatest source of potash is in the saline deposits at Searles Lake, where a development plant has been erected, effecting a complete commercial utilization of the vast supply of raw material in sight. The deposits are not only rich in potash, but contain, also, borax, common salt, sodium sulphate, and sodium carbonate. The scarcity of water, which renders the life of the prospector precarious, as well as interfering with the working of the mines, and the scarcity and high cost of fuel, all combined, have limited prospecting and retarded mining development in the past.

SAN BERNARDINO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	2,949		
Total in 1920.....	4,023		
Land and Farm Areas.			
Approximate land, acres.....	12,912,000		
Land in farms in 1910.....	208,393		
Land in farms in 1920.....	415,733		
Improved land in farms in 1910.....	136,625		
Improved land in farms in 1920.....	175,272		
Woodland in farms.....	35,843		
Other unimproved land.....	204,623		
Value of All Farm Property.			
Total value in 1910.....	\$68,499,101		
Total value in 1920.....	99,728,993		
Land in 1910.....	60,681,348		
Land in 1920.....	83,064,894		
Buildings in 1910.....	5,238,858		
Buildings in 1920.....	10,168,443		
Implements and machinery in 1910.....	1,077,851		
Implements and machinery in 1920.....	3,407,629		
Domestic animals, poultry and bees in 1910.....	1,501,046		
Domestic animals, poultry and bees in 1920.....	3,088,027		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	12,890		
Dairy.....	7,608		
Total.....	20,498		
Value.....	\$1,221,741		
Horses—			
Number.....	6,819		
Value.....	\$773,120		
Mules—			
Number.....	1,300		
Value.....	\$181,626		
Asses and burros—			
Number.....	59		
Value.....	\$1,720		
Swine—			
Number.....	20,651		
Value.....	\$397,571		
Sheep—			
Number.....	3,919		
Value.....	33,476		
Goats—			
Number.....	1,152		
Value.....	\$41,467		
Total value all domestic animals.....	\$2,650,721		
Poultry and bees—			
Poultry of all kinds.....	197,204		
Value.....	\$397,147		
Colonies of bees.....	13,186		
Value.....	\$130,159		
Poultry products—			
Poultry raised, number.....	222,549		
Eggs produced, dozen.....	943,471		
Value poultry and eggs produced.....	\$606,958		
Honey and wax—			
Honey produced, pounds.....	536,935		
Wax produced, pounds.....	8,838		
Value honey and wax produced.....	\$110,834		
Principal Crops.			
	Acres	Bushels	
Corn.....	1,295	41,083	
Oats.....	748	17,955	
Wheat.....	1,730	40,269	
Barley.....	4,445	183,486	
Kafir corn and milo maize.....	6,208	79,088	
P. potatoes.....	1,267	97,117	
Hay and forage—		Acres	Tons
Timothy alone.....	86	123	
Clover alone.....	1,092	540	
Alfalfa.....	11,244	43,395	
Other tame and cultivated grasses.....		856	1,672
Wild, salt, or prairie grasses.....	100	113	
Grains cut green.....	20,811	27,494	
All other hay and forage.....	2,972	14,178	
Totals.....	37,247	87,554	
Special crops—			
Potatoes, acres.....			1,267
All other vegetables, acres.....			1,260
Sugar beets, acres.....			1,294
Orchard fruits—		Number	bearing trees
Apples.....			263,922
Apricots.....			156,173
Peaches.....			549,221
Pears.....			21,473
Prunes and plums.....			10,542
Total.....			1,011,842
Subtropical fruits—		Number	bearing trees
Lemons.....			293,499
Oranges.....			2,334,245
Grapevines—			
Number in bearing.....			6,276,671
Small fruits—			
Total acres.....			77
Nuts—		Number	bearing trees
Almonds.....			3,594
Walnuts.....			27,398
Total.....			30,992
Irrigation.			
Acres irrigated in 1919.....	105,481		
Acres enterprises were capable of irrigating in 1920.....	120,628		
Acres included in projects.....	186,784		

SAN DIEGO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 4,221 square miles.	Population.. 34,897	35,690	61,665	112,248
County seat, San Diego (city).	Population.. 16,159	17,700	39,578	74,683
Population per square mile, 26.6.				

	Highest	Lowest	Inches	Inches
Elevation, 87 feet.	1917: Temperature... 92	39	Rainfall... 8.04	Snow... T
	1918: Temperature... 94	35	Rainfall... 11.99	Snow... 0

“San Diego County occupies the extreme southwestern portion of the state, and has an area slightly larger than Massachusetts. From the ocean to the Jacumba Mountains on the east, which form the natural barrier between this county and the great Imperial Valley, San Diego County is a natural amphitheatre sweeping from the sea through a succession of fertile valleys, rolling foothills and rugged mountains. Its sea coast is 75 miles in length from north to south, and the rocky backbone, better known as the ‘back country,’ enjoys a distinct increase in altitude from 1,200 to 5,000 feet above sea level.

Irrigable Lands.—The total number of acres under cultivation at the close of 1920 was 25,483, with sufficient water available to irrigate 100,000 acres. New irrigation projects now under way will materially increase the supply of water for irrigation purposes and it is expected that the farming area of the county will be largely increased, as there are thousands of acres of fertile land that will produce fine crops when the necessary water becomes available.

Cooperative Organizations.—Within the past five years, the shipment of the Muscat, or raisin grape, for table use, has been put on a substantial basis by the development of an almost unlimited market in the eastern states. The California Raisin Growers’ Association is successfully looking after the raisin end, and the 1920 yield was approximately 15,000 tons of grapes.

The Milk Producers’ Association of San Diego County, a cooperative marketing concern, dealing with the distributor only, was formed in the winter of 1917, and has done much to put the dairy business of the county on a firm financial basis. As a result of this work, the wholesale milk supply of San Diego city for 1918 was 63.75 per cent grade ‘A’ raw. Formerly it was 36.76 per cent.

Poultry raising is becoming an important industry in San Diego County, there being approximately 400,000 laying hens in the county. The bulk of the egg output is marketed through the San Diego Poultry Association, a strictly cooperative organization, organized about four years ago with a membership of twenty. The present membership totals approximately 500, and the Association does a business of about \$100,000 a month. Last year the organization shipped out 112 carloads of eggs, each car containing approximately 12,000 dozen. A few months ago the Association purchased a block of land at Twenty-second street and Imperial avenue, and erected a \$50,000 warehouse and feed mill. There are sidetrack facilities for handling four cars at a time.

A strong Bean Growers’ Association, formed primarily to solve marketing problems, is finding many avenues of usefulness to its mem-

bers. The 1920 acreage planted to beans was 20,000 acres, producing 150,000 bags of beans.

The citrus industry is well organized, and most of the packing houses are members of the California Fruit Growers' Exchange.

The San Diego Beekeepers' Association is well organized, and is doing good work in the way of improving the industry. Intelligent methods are being employed to stamp out foul brood and generally to improve conditions. The past season has been a very profitable one for the honey producers of the county, 1,476,000 pounds of honey having been gathered and sold at generally satisfactory prices. San Diego County is one of the oldest honey producing counties in the state, and one of the leading counties in point of production.

Tomatoes are picked from May 1 until October 15, and, in favored sections of the county as late as January 1, and, occasionally throughout the year.

In both the coastal and interior belts, vegetable growing and truck farming is being carried on. In portions of this area where frost seldom comes, tomatoes can be ripened as late as January 1, cucumbers can be put on the market in February; and cabbage ready for shipment in January are not uncommon occurrences. String beans and peas prove to be profitable crops throughout the winter, while bell peppers and egg plant are profitably grown until very late in the winter.

This area has also a great opportunity in the growth of the early potato, it being quite possible to mature a spring crop by the first of March and a fall crop during December.'*'

SAN DIEGO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	2,298	Cattle—	
Total in 1920.....	3,200	Beef	34,644
		Dairy	11,904
		Total	46,548
		Value	\$2,527,723
		Horses—	
		Number	9,730
		Value	\$795,418
		Mules—	
		Number	1,209
		Value	\$138,501
		Asses and burros—	
		Number	130
		Value	\$8,427
		Swine—	
		Number	15,731
		Value	\$277,951
		Sheep—	
		Number	7,311
		Value	\$60,784
Land and Farm Areas.			
Approximate land, acres.....	2,701,440		
Land in farms in 1910.....	834,426		
Land in farms in 1920.....	925,192		
Improved land in farms in 1910.....	234,045		
Improved land in farms in 1920.....	262,646		
Woodland in farms.....	69,320		
Other unimproved land.....	692,226		
Value of All Farm Property.			
Total value in 1910.....	\$31,124,814		
Total value in 1920.....	64,081,885		
Land in 1910.....	23,934,732		
Land in 1920.....	49,995,336		
Buildings in 1910.....	3,337,362		
Buildings in 1920.....	6,923,517		
Implements and machinery in 1910.....	851,591		
Implements and machinery in 1920.....	2,512,000		
Domestic animals, poultry and bees in 1910.....	3,001,169		
Domestic animals, poultry and bees in 1920.....	3,001,109		

*Information supplied by the San Diego Chamber of Commerce.

SAN DIEGO COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.—		Special crops—	
Continued.			
Goats—		Potatoes, acres	487
Number	7,300	All other vegetables, acres.....	2,704
Value	\$32,603	Sugar beets, acres.....	432
Total value all domestic animals		Number	
	\$8,871,407	bearing trees	
Poultry and bees—		Orchard fruits—	
Poultry of all kinds.....	402,669	Apples	227,677
Value	\$632,788	Apricots	21,376
Colonies of bees.....	19,012	Peaches	124,429
Value	\$146,843	Pears	12,573
Poultry products—		Prunes and plums.....	16,472
Poultry raised, number.....	376,187	Total	227,677
Eggs produced, dozen.....	2,305,717	Number	
Value poultry and eggs produced..	\$1,373,837	bearing trees	
Honey and wax—		Subtropical fruits—	
Honey produced, pounds.....	480,165	Lemons	278,480
Wax produced, pounds.....	9,584	Oranges	96,785
Value of honey and wax produced	\$99,771	Number	
Wool—		Grapevines—	
Wool, fleeces shorn.....	5,442	Number in bearing.....	1,275,873
Goat hair, fleeces shorn.....	1,713	Small fruits—	
Value wool and mohair produced..	\$11,240	Total acres	48
Principal Crops.			
	Acres	Bushels	Number
Corn	3,119	51,846	bearing trees
Oats	2,562	48,509	Almonds and pecans.....
Wheat	8,899	87,727	Walnuts
Barley	18,150	271,533	Total
Kafir corn and milo maize.....	1,926	14,327	21,830
Dry edible beans.....	16,067	120,243	
Potatoes	487	33,288	
Hay and forage—		Acres	Tons
Timothy alone	42	37	
Clover alone	42	32	
A'alfa	4,814	20,121	
Other tame and cultivated			
grasses	517	318	
Wild, salt, or prairie grasses	2,534	2,096	
Grains cut green.....	59,658	42,698	
All other hay and forage....	5,034	12,716	
Totals	72,641	77,928	
Irrigation.			
Acres irrigated in 1919.....			24,791
Acreage enterprises were capable of			
irrigating in 1920.....			31,931
Acreage included in projects.....			68,170

SAN FRANCISCO CITY AND COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 42 square miles.	Population...298,697	342,782	416,912	576,676
County Seat, San Francisco.				
Population per square mile, 12,663.7.				
Water area, 80½ square miles.				

	Highest	Lowest	Inches	Inches
Elevation, 207 feet.	1917: Temperature... 96	34	Rainfall... 9.00	Snow... 0
	1918: Temperature... 85	38	Rainfall... 20.85	Snow... 0

San Francisco is essentially a commercial and manufacturing city. It produces no agricultural products, except to a small extent the minor vegetables. Its location on the bay of San Francisco, one of the finest and safest harbors in the world, eminently fits it for a commercial city, and its importance in this respect insures it a place among the chief shipping centers of the world.

The value of all property has increased enormously in recent years in spite of a temporary setback owing to the terrible double disaster of earthquake and fire in 1906, as the following summary of assessed values will prove:

GRAND TOTAL OF ALL PROPERTY, 1850-1920.

1850	\$21,621,184	1913	\$624,182,130
1860	35,967,499	1914	647,456,025
1870	116,375,988	1915	676,677,332
1880	253,520,326	1916	756,235,432
1890	301,438,040	1917	791,937,717
1900	410,425,849	1918	792,251,382
1911	545,398,908	1919	794,457,406
1912	605,141,061	1920	819,820,078

The total county indebtedness in 1920 amounted to \$51,161,500. Space will not allow of even a brief summary of the vast resources and possibilities of this great, rising and progressive city, but much up-to-date information of value will be found in numerous publications.

SAN FRANCISCO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	157	Number	105
Total in 1920.....	74	Value	\$8,889
Land and Farm Areas.		Swine—	
Approximate land, acres.....	26,880	Total	200
Land in farms in 1910.....	2,691	Value	\$1,934
Land in farms in 1920.....	1,295	Goats—	
Improved land in farms in 1910.....	1,562	Number	15
Improved land in farms in 1920.....	840	Value	\$235
Woodland in farms.....	7	Total value all domestic animals.....	
Other unimproved land.....	448	\$22,272	
Value of All Farm Property.		Poultry and bees—	
Total value in 1910.....	\$2,630,428	Poultry of all kinds.....	3,303
Total value in 1920.....	1,519,862	Value	\$3,835
Land in 1910.....	2,097,111	Poultry products—	
Land in 1920.....	1,427,945	Poultry raised, number.....	8,036
Buildings in 1910.....	326,780	Eggs produced, dozen.....	19,829
Buildings in 1920.....	128,125	Value poultry and eggs produced.....	\$16,981
Implements and machinery in 1910.....	63,270	Principal Crops.	
Implements and machinery in 1920.....	37,485	Acres Bushels	
Domestic animals, poultry and bees in 1910.....	138,258	Potatoes	65 3,652
Domestic animals, poultry and bees in 1920.....	26,107	Special crops—	
Domestic Animals on Farms and Ranges.		Potatoes, acres.....	66
Cattle—		All other vegetables, acres.....	542
Dairy	254	Irrigation.	
Value	\$11,164	Acres irrigated in 1919.....	372
		Acres enterprises were capable of irrigating in 1920.....	412
		Acres included in projects.....	412

Imports and Exports of Gold and Silver (Coin and Bullion) of California Ports,
for fiscal years ending June 30, 1900-1920.
San Francisco.

Year	Gold		Silver		Gold and silver	
	Imports	Exports	Imports	Exports	Total imports	Total exports
1900	\$10,574,256	\$2,025,189	\$3,096,775	\$7,502,120	\$13,671,031	\$9,527,309
1901	24,911,109	364,758	3,738,814	7,927,900	28,649,923	8,292,638
1902	14,338,906	781,826	4,169,221	8,368,761	18,508,127	9,150,587
1903	9,263,674	3,114,023	2,679,547	6,392,414	11,943,221	9,506,437
1904	40,363,770	652,277	3,492,939	4,690,950	43,859,679	5,253,227
1905	15,590,871	5,905,700	3,003,796	6,622,002	18,594,667	12,527,702
1906	4,233,579	5,366,189	2,513,831	9,417,951	6,747,440	14,784,140
1907	14,504,491	22,291	3,414,584	2,410,717	17,919,501	2,433,108
1908	3,750,329	34,539	3,164,428	5,182,637	6,923,757	5,217,196
1909	3,588,424	3,033,975	2,652,954	6,886,849	6,241,378	9,920,224
1910	3,362,104	27,008,324	2,582,352	7,314,954	5,944,456	34,323,878
1911	8,111,108	20,690	1,579,109	9,202,759	9,690,217	9,283,419
1912	4,532,321	7,034,962	1,453,089	9,905,094	5,985,410	16,940,056
1913	3,941,975	113,108	1,808,461	11,753,927	5,730,439	11,867,035
1914	1,831,388	5,090	1,516,866	9,494,498	3,478,254	9,499,588
1915	25,881,230	68,855	2,150,838	6,021,927	28,032,068	6,090,782
1916	58,087,257	23,303,121	3,250,236	9,654,271	61,337,493	32,357,392
1917	56,629,054	71,882,839	4,724,147	23,928,927	61,368,201	95,811,766
1918	5,714,726	5,582,548	11,295,274	39,255,440	100,210,488	130,465,928
1919	15,074,542	188,734,653	8,376,219	175,465,253	23,430,761	364,199,906
1920	22,700,803	144,226,436	11,011,007	90,153,323	33,720,810	231,379,750

Imports and Exports of Foreign and Domestic Merchandise from California Ports,
1900-1919.
(For fiscal year ending June 30.)

Year	San Francisco		Los Angeles	
	Imports	Exports	Imports	Exports
1900	\$47,869,628	\$40,363,288	\$1,011,090	---
1901	35,161,753	34,566,792	885,473	\$30
1902	35,102,981	38,183,755	676,615	80
1903	36,454,283	33,502,616	1,019,481	682
1904	37,542,978	32,547,181	1,292,560	503
1905	43,675,545	49,924,026	810,000	291
1906	44,433,271	39,915,269	827,059	12,105
1907	54,094,570	33,026,694	1,550,322	45,000
1908	48,251,476	28,090,069	1,538,199	187,247
1909	49,998,111	31,639,370	1,305,341	193,221
1910	49,350,643	31,180,700	1,942,647	135,911
1911	53,885,021	40,624,903	2,655,558	86,415
1912	59,235,471	49,249,724	3,225,618	161,735
1913	62,501,681	66,021,385	2,747,601	253,562

Year	San Francisco*		Southern California†		Total	
	Imports	Exports	Imports	Exports	Imports	Exports
1914	\$67,111,051	\$63,374,909	\$4,908,513	\$2,010,280	\$72,019,624	\$65,385,189
1915	76,068,028	81,500,979	4,716,799	2,512,355	80,784,418	84,013,334
1916	113,645,919	94,558,987	4,175,200	3,208,105	117,821,179	97,827,092
1917	144,027,410	143,202,190	6,532,381	5,825,090	150,559,791	149,027,280
1918	269,107,408	211,670,838	9,855,619	7,502,399	278,963,027	219,173,257
1919	238,074,061	239,601,049	16,166,628	15,501,911	254,240,689	255,102,960

*San Francisco and Humboldt consolidated since 1913.

†San Diego and Los Angeles consolidated since 1913.

SAN JOAQUIN COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,488 square miles.	Population... 28,629	35,452	50,731	79,507
County seat, Stockton (city).	Population... 14,424	17,506	23,253	40,266
Population per square mile, 55.2.				

	Highest	Lowest	Inches	Inches
Elevation, 23 feet.	1917: Temperature... 105	22	Rainfall... 7.01	Snow... 0
	1918: Temperature... 103	26	Rainfall... 15.21	Snow... 0

San Joaquin County lies directly east of San Francisco and San Pablo bays and spans the great interior valley of California from the foothills of the Coast Range to the foothills of the Sierra Nevada Mountains. It thus commands the entrance to the chief port and metropolis of the coast from the continent, and for both water and land traffic; hence it is termed the "Gateway County." The soil varies in character, but the surface is mostly level and well adapted to intensive agriculture. The climate of this area is tempered by sea influences, by the air which rushes through the gap in the Coast Range.

The county is famous for its good roads, built by the county at a cost of \$2,500,000.

Four hundred miles of navigable waterways, three transcontinental railways, three interurban lines, and three hundred and fifty miles of improved highways give San Joaquin County unusually good transportation facilities and make it possible to capitalize fully its advantageous location, directly east of San Francisco. A developed arm of the San Joaquin River penetrates into the center of its county seat, Stockton. The western third of the county embraces the far-famed San Joaquin Delta, reclaimed by levee construction and drainage, land of exceptional productivity. The soils of the county are roughly divided into peats of the delta, the adobes along the river and surrounding Stockton, the deep, mellow loams of the west side, and the great body of sandy loam found in the northern and southern parts of the county. It is estimated that over 40 per cent of the farm area of the county is developed for irrigation by public and private enterprises.

Second in California and twelfth in the United States in the value of all crops, according to census figures, San Joaquin County produces annually about 13½ per cent on its assessed valuation, this ratio being higher than for any other county in the state. The per capita wealth of its rural districts, \$2,448.74, is greater than that of any other California county. San Joaquin County is first in the production of cereals, vegetables, potatoes, barley, and table grapes; second in hay and forage, oats and rye; third in grapes; fourth in wheat, beans, peas, and bearing almond trees. It is significant to note that all the crops noted are staples. Animal husbandry is fast coming to the front, opportunities in such lines being especially attractive. Sugar beets have become one of the important crops, and sugar factories are near Manteca and Tracy. In the last few years field corn has become one of the biggest and most satisfactory crops.

The great South San Joaquin Irrigation District of 71,050 acres and the new West Side Irrigation District of nearly 12,000 acres are

both within the county. They are owned and operated by the land owners themselves as municipal corporations.

The commerce of the river amounts to about 1,890,000 tons annually, valued at \$55,000,000. Nearly 200,000 passengers are carried on the river each year.*

SAN JOAQUIN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910.....	3,286	Honey produced, pounds.....	137,477
Total in 1920.....	4,500	Wax produced, pounds.....	2,618
Land and Farm Areas.		Value of honey and wax produced	\$28,516
Approximate land, acres.....	926,720	Wool—	
Land in farms in 1910.....	763,048	Wool, fleeces shorn.....	49,984
Land in farms in 1920.....	706,308	Goat hair, fleeces shorn.....	675
Improved land in farms in 1910.....	611,762	Value wool and mohair produced..	\$106,282
Improved land in farms in 1920.....	599,403	Principal Crops.	
Woodland in farms.....	18,471		
Other unimproved land.....	88,434		
Value of All Farm Property.			
Total value in 1910.....	\$87,386,638	Corn.....	Acres 30,350 Bushels 1,236,160
Total value in 1920.....	141,702,764	Oats.....	19,300 341,666
Land in 1910.....	55,969,884	Wheat.....	73,272 1,594,310
Land in 1920.....	115,785,808	Borley.....	104,933 2,878,687
Buildings in 1910.....	5,675,665	Ka'ir corn and milo maize.....	5,727 109,587
Buildings in 1920.....	11,731,875	Dry edible beans.....	22,487 401,780
Implements and machinery in 1910.....	1,741,053	Potatoes.....	18,462 3,208,310
Implements and machinery in 1920.....	5,855,919	Hay and forage—	
Domestic animals, poultry and bees in 1910.....	3,960,026	Timothy and clover mixed..	Acres 196 Tons 259
Domestic animals, poultry and bees in 1920.....	7,329,162	Clover alene.....	327 537
Domestic Animals on Farms and Ranges.		Alfalfa.....	35,088 144,896
Cattle—		Other tame and cultivated grasses.....	804 1,154
Beef.....	14,329	Wid. salt. or prairie grasses.....	2,855 2,550
Dairy.....	31,927	Grains cut green.....	34,082 44,740
Total.....	46,256	All other hay and forage.....	2,479 10,479
Value.....	\$3,755,609	Totals.....	75,831 204,785
Horses—		Special crops—	
Number.....	18,050	Potatoes, acres.....	18,462
Value.....	\$1,684,634	All other vegetables, acres.....	10,990
Mules—		Sugar beets, acres.....	2,647
Number.....	1,885	Orchard fruits—	
Value.....	\$197,854		
Asses and burres—		Apples.....	Number 11,347 bearing trees 11,347
Number.....	50	Apricots.....	22,288
Value.....	\$7,495	Peaches.....	318,700
Swine—		Pears.....	24,553
Number.....	34,214	Prunes and plums.....	94,222
Value.....	\$584,581	Total.....	551,593
Sheep—		Subtropical fruits—	
Number.....	68,874		
Value.....	\$680,792	Lemons.....	Number 456 bearing trees 456
Goats—		Oranges.....	3,257
Number.....	2,573	Grapevines—	
Value.....	\$12,489	Number in bearing.....	13,074,667
Total value all domestic animals	\$6,923,386	Small fruits—	
Dairy products—		Total acres.....	172
Value.....	\$2,340,938	Nuts—	
Poultry and bees—			
Poultry of all kinds.....	303,465	Almonds.....	Number 224,681 bearing trees 224,681
Value.....	\$377,558	Walnuts.....	13,244
Colonies of bees.....	3,177	Total.....	238,225
Value.....	\$28,218	Irrigation.	
Poultry products—			
Poultry raised, number.....	342,870	Acres, irrigated in 1910.....	183,853
Eggs produced, dozen.....	1,183,000	Acres enterprises were capable of irrigating in 1920.....	230,763
Value poultry and eggs produced..	\$416,694	Acres included in projects.....	324,099

*Information supplied by Chamber of Commerce.

SAN LUIS OBISPO COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.		Principal Crops.		
Cattle—			Aces	Bushels
Beef	62,311	Corn	2,443	64,176
Dairy	26,366	Oats	1,768	42,266
		Wheat	62,777	908,260
Total	88,677	Barley	18,956	527,867
Value	\$4,790,734	Kafir corn and milo maize... ..	21	525
		Dry edible beans.....	23,330	385,827
Horses—		Potatoes	363	30,531
Number	11,820	Hay and forage—	Aces	Tons
Value	\$1,039,506	Alfalfa	3,877	13,591
Mules—		Other tame and cultivated		
Number	767	grasses	1,973	1,233
Value	\$68,651	Wild, salt, or prairie grasses	490	460
Asses and burros—		Grains cut green.....	45,270	67,207
Number	21	All other hay and forage... ..	1,049	3,888
Value	\$1,095			
Swine—		Totals	52,665	86,329
Number	17,451	Special crops—		
Value	\$260,286	Potatoes, acres		363
Sheep—		All other vegetables, acres.....		561
Number	11,609	Sugar beets, acres.....		2,215
Value	\$99,744	Orchard fruits—		Number
Goats—		Apples		bearing trees
Number	405	Apricots		34,264
Value	\$4,653	Peaches		15,086
Total value all domestic animals	\$6,264,669	Pears		12,045
		Prunes and plums.....		26,838
Poultry and bees—		Total		29,275
Poultry of all kinds.....	90,204	Total		119,366
Value	\$164,558	Subtropical fruits—		Number
Colonies of bees.....	1,694	Lemons		bearing trees
Value	\$13,096	Oranges		898
Dairy products—		Grapevines—		411
Value	\$1,084,282	Number in bearing.....		148,842
Poultry products—		Small fruits—		
Poultry raised, number.....	62,794	Total acres		31
Eggs produced, dozen.....	390,871	Nuts—		Number
Value poultry and eggs produced..	\$212,171	Almonds		bearing trees
Honey and wax—		Walnuts		125,835
Honey produced, pounds.....	73,093	Total		10,363
Wax produced, pounds.....	1,873			
Value of honey and wax produced	\$15,350	Irrigation.		
Wool—		Acres irrigated in 1919.....		5,302
Wool, fleeces shorn.....	5,858	Acreage enterprises were capable of		
Goat hair, fleeces shorn.....	128	irrigating in 1920.....		10,878
Value wool and mohair produced..	\$8,825	Acreage included in projects.....		11,229

SANTA BARBARA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 2,740 square miles.	Population__ 15,754	18,934	27,738	41,097
County seat, Santa Barbara (city).	Population__ 5,864	6,587	11,659	19,441
Population per square mile, 15.0.				

	Highest	Lowest	Inches	Inches
Elevation, 130 feet.	1917: Temperature...115	28	Rainfall...11.79	Snow__ 0
	1918: Temperature... 93	31	Rainfall...28.85	Snow__ 0

Santa Barbara County is situated in the parallelogram formed by the break in the coast line made by Point Conception, the great continental headland. From this point, the coast line extends for about fifty miles in each direction. The Coast Range of mountains divides the county into five natural divisions.

The largest of these divisions is the Santa Maria Valley occupying the northern and western portion of the county. This valley contains about 160,000 acres, 80 per cent of which is under cultivation. The Santa Maria River is the chief stream, furnishing water for irrigation purposes in the upper valley and replenishing the underground flow nearer the ocean. The soil is mostly a light sandy loam, noted for its great depth and fertility. It is especially adapted to the growing of beans, beets, potatoes, and onions. The Union Sugar Company maintains a large factory near Betteravia, where upwards of 100,000 tons of beets are made into sugar.

South of the Santa Maria Valley, and parallel to it, is the Los Alamos Valley. Most of the cultivated land is planted to beans, the higher lands being devoted to the growing of grain.

The Lompoc Valley, extending along the Santa Ynez River from the ocean eastward, lies parallel to the Los Alamos Valley. While not as wide as the Santa Maria Valley, its length is greater. The lower portion of the valley resembles the Santa Maria, the products and soil being very similar. Beans, beets, potatoes, and mustard head the list. The valley is noted also for the fine quality of apples and cherries. In the upper part of the valley, beans, barley, and alfalfa are the leading crops. Irrigation water can be had in abundance from the Santa Ynez River.

The Santa Barbara Valley, varying in width from one-half to four miles and extending from Point Conception to the Ventura County line, is a coastal plain, traversed by many mountain streams. The soil laid down by these streams is characterized by great depth and fertility. The high mountains to the north afford protection from strong winds while the proximity to the ocean greatly moderates the temperature. Near the ocean, the broad flat bottom lands are devoted to the production of lima beans, while the lands farther back are planted to orchards. Lemons, walnuts, olives and other fruits flourish. Water is obtained for irrigation from the mountain streams and through artesian wells. Many of the canyons are free from frost and are especially adapted to the growth of semi-tropical fruits, the avocado and cherimoya heading the list.

The Cuyama Valley lies in the extreme northern and eastern part of the county. As yet this valley is largely undeveloped, but it affords many possibilities to the prospective settler.

Plans are now on foot by which a permanent highway will pass through this valley, connecting the cities of the San Joaquin Valley with those of the coast.

The Santa Barbara Islands lie off the coast, about thirty miles southward. They are devoted principally to the production of cattle and sheep.

A considerable portion of Santa Barbara County is made up of rolling hills, wooded with oak timber. The land is ideal for grazing purposes and furnishes feed for large numbers of cattle, horses and hogs. The latter feed extensively on acorns. Burr clover, alfilaria, and wild oats are the natural forage crops.

In 1918 there was produced approximately 1,000,000 sacks of beans, 125,000 sacks of potatoes, 12,000 tons of lemons, and 2,200 tons of walnuts.

The petroleum oil fields in this county are very rich, the Santa Maria Fields producing about 4,000,000 barrels in 1917. The potash industry is being developed along the coast line. Due to the influence of the islands off the coast, the water is very quiet and large beds of giant seaweed or kelp are found. This kelp is cut by large harvesters, dried, burned, and the residue is found to contain a high percentage of potash. The Santa Barbara Channel is also noted for its fisheries. Many species of fish are taken here and are found only in the waters of this channel.

“The city of Santa Barbara is famed the world over for its evenness of climate and wealth of scenery. Proximity from the mountains to the sea affords outdoor sports to many tourists and other people who have made this city their home. Direct transportation by highway, rail, and water connects this city with leading cities of the Pacific Coast.”*

*Eugene S. Kellogg, County Horticultural Commissioner.

SANTA BARBARA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,355	Poultry raised, number.....	56,012
Total in 1920.....	1,485	Eggs produced, dozen.....	239,619
Land and Farm Areas.		Value poultry and eggs produced..	\$181,292
Approximate land, acres.....	1,753,600	Honey and wax—	
Land in farms in 1910.....	1,120,475	Honey produced, pounds.....	15,565
Land in farms in 1920.....	869,781	Wax produced, pounds.....	461
Improved land in farms in 1910.....	215,552	Value of honey and wax produced	\$3,294
Improved land in farms in 1920.....	210,353	Wool—	
Woodland in farms.....	88,241	Wool, fleeces shorn.....	16,065
Other unimproved land.....	571,184	Mohair and goat hair, fleeces shorn	42
Value of All Farm Property.		Value wool and mohair produced..	\$34,755
Total value in 1910.....	\$43,544,076	Principal Crops.	
Total value in 1920.....	61,251,833	Corn.....	Acres 689 Bushels 10,483
Land in 1910.....	35,556,593	Oats.....	2,610 43,651
Land in 1920.....	56,765,718	Wheat.....	4,451 54,819
Buildings in 1910.....	3,004,679	Barley.....	8,563 251,483
Buildings in 1920.....	4,928,738	Dry edible beans.....	86,578 1,117,725
Implements and machinery in 1910.....	804,264	Potatoes.....	414 25,759
Implements and machinery in 1920.....	3,038,508	Hay and forage—	
Domestic animals, poultry and bees		Timothy and clover mixed..	Acres 20 Tons 10
in 1910.....	4,178,540	Alfalfa.....	2,190 7,086
Domestic animals, poultry and bees		Other tame and cultivated	
in 1920.....	4,520,874	grasses.....	242 221
Domestic Animals on Farms and Ranges.		Grains cut green.....	36,178 46,992
Cattle—		All other hay and forage.....	2,053 4,918
Beef.....	39,951	Totals.....	40,683 59,227
Dairy.....	8,143	Special crops—	
Total.....	48,094	Potatoes, acres.....	414
Value.....	\$2,643,924	All other vegetables, acres.....	731
Horses—		Sugar beets, acres.....	4,165
Number.....	10,612	Orchard fruits—	
Value.....	\$1,151,349	Apples.....	Number 19,856 bearing trees
Mules—		Apricots.....	14,373
Number.....	568	Peaches.....	8,847
Value.....	\$80,057	Pears.....	2,734
Asses and burros—		Prunes and plums.....	1,796
Number.....	16	Total.....	49,126
Value.....	\$2,822	Subtropical fruits—	
Swine—		Lemons.....	Number 77,925 bearing trees
Number.....	14,356	Oranges.....	4,359
Value.....	\$223,714	Grapevines—	
Sheep—		Number in bearing.....	209,833
Number.....	31,741	Small fruits—	
Value.....	\$314,221	Total acres.....	35
Goats—		Nuts—	
Number.....	504	Walnuts.....	Number 116,826 bearing trees
Value.....	\$5,851	Irrigation.	
Total value all domestic animals	\$4,422,046	Acres irrigated in 1910.....	16,420
Poultry and bees—		Acres irrigated in 1920.....	34,494
Poultry of all kinds.....	70,843	Acres included in projects.....	37,875
Value.....	\$2,630		
Colonies of bees.....	1,039		
Value.....	\$6,198		

SANTA CLARA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,328 square miles.	Population-- 48,005	60,216	83,539	100,676
County seat, San Jose (city).	Population-- 18,060	21,500	28,946	39,642
Population per square mile, 75.8.				

	Highest	Lowest	Inches	Inches
Elevation, 95 feet.	1917: Temperature...102	22	Rainfall... 8.21	Snow... 0
	1918: Temperature... 95	27	Rainfall...18.28	Snow... 0
	1919: Temperature... 97	—	Rainfall...11.97	Snow... 0
	1920: Temperature...101	—	Rainfall...13.21	Snow... 0

Santa Clara County is situated to the south of San Francisco Bay, and is separated from the Pacific Ocean by San Mateo and Santa Cruz counties. The county seat is San Jose, and is distant 50 miles from San Francisco. The county is 47 miles wide from north to south, and through the center runs the favored Santa Clara Valley, with an average width of 15 miles, which is one of the most fertile valleys in the state. The county from the valley slopes upward through rolling hills to the summit of the Santa Cruz Mountains on the west. The county is famous for its large fruit production, especially of prunes, and embracing cherries, apricots, plums, pears, peaches, apples, and all kinds of deciduous fruits; there are 36 large fruit and vegetable canneries in the county and nearly as many packing houses. San Jose is the headquarters of the California Prune and Apricot Growers, Inc. For a number of years Turkish tobacco of fine quality has been grown in the county, and the acreage is being increased. Tomatoes are grown extensively for the canneries.

The county has 1,200 miles of roads, of which 160 miles are paved, and 650 miles are excellent roads of various types, and more than 400 miles are sprinkled during the summer.

Educational interests are represented by the Leland Stanford Junior University, University of Santa Clara, the State Normal School, the College of the Pacific, the College of Notre Dame, and several high schools.

The valley is drained by a number of streams. In summer their watercourses greatly diminish and smaller ones wholly disappear; having their sources in the surrounding hills and sinking as they approach the valley, they augment the subterranean supply of the artesian wells.

SANTA CLARA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	4,731	
Total in 1920.....	5,016	
Land and Farm Areas.		
Approximate land, acres.....	849,920	
Land in farms in 1910.....	734,819	
Land in farms in 1920.....	576,812	
Improved land in farms in 1910.....	237,170	
Improved land in farms in 1920.....	206,890	
Woodland in farms.....	70,668	
Other unimproved land.....	299,254	
Value of All Farm Property.		
Total value in 1910.....	\$67,187,549	
Total value in 1920.....	149,875,095	
Land in 1910.....	52,882,603	
Land in 1920.....	123,567,923	
Buildings in 1910.....	9,125,640	
Buildings in 1920.....	15,352,090	
Implements and machinery in 1910.....	1,942,339	
Implements and machinery in 1920.....	6,061,049	
Domestic animals, poultry and bees in 1910.....	3,236,967	
Domestic animals, poultry and bees in 1920.....	4,894,033	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	25,176	
Dairy.....	17,213	
Total.....	42,389	
Value.....	\$3,223,281	
Horses—		
Number.....	10,305	
Value.....	\$1,044,790	
Mules—		
Number.....	225	
Value.....	\$25,181	
Asses and burros—		
Number.....	6	
Value.....	\$550	
Swine—		
Number.....	10,317	
Value.....	\$191,680	
Sheep—		
Number.....	531	
Value.....	\$7,388	
Goats—		
Number.....	622	
Value.....	\$15,736	
Total value all domestic animals.....	\$4,508,615	
Poultry and bees—		
Poultry of all kinds.....	249,345	
Value.....	\$358,950	
Colonies of bees.....	3,275	
Value.....	\$26,468	
Poultry products—		
Poultry raised, number.....	314,123	
Eggs produced, dozen.....	1,109,532	
Value poultry and eggs produced.....	\$79,156	
Honey and wax—		
Honey produced, pounds.....	75,679	
Wax produced, pounds.....	1,195	
Value honey and wax produced.....	\$15,602	
Dairy products—		
Value.....	\$1,536,935	
Wool—		
Wool, fleeces shorn.....	196	
Value wool produced.....	\$603	
Principal Crops.		
Corn.....	Acres 2,107	Bushels 41,682
Oats.....	591	8,123
Wheat.....	1,323	22,194
Barley.....	3,565	85,672
Dry edible beans.....	1,344	16,079
Potatoes.....	639	51,613
Hay and forage—		
Timothy alone.....	Acres 249	Tons 214
Clver alone.....	186	261
Alfalfa.....	7,958	33,602
Other tame and cultivated grasses.....	849	1,118
Wild, salt, or prairie grasses.....	672	756
Grains cut green.....	33,882	43,264
All other hay and forage.....	1,127	5,179
Totals.....	43,923	84,489
Special crops—		
Potatoes, acres.....	639	
All other vegetables, acres.....	8,917	
Sugar beets, acres.....	95	
Orchard fruits—		
Apples.....	Number 92,013	bearing trees
Apricots.....	1,113,405	
Peaches.....	259,674	
Pears.....	249,320	
Prunes and plums.....	3,371,436	
Total.....	5,219,129	
Subtropical fruits—		
Lemons.....	Number 2,143	bearing trees
Oranges.....	5,414	
Grapevines—		
Number in bearing.....	3,907,761	
Small fruits—		
Total acres.....	894	
Nuts—		
Almonds, etc.....	Number 36,817	bearing trees
Walnuts.....	51,004	
Total.....	87,821	
Irrigation.		
Acres irrigated in 1919.....	71,274	
Acresage enterprises were capable of irrigating in 1920.....	74,977	
Acresage included in projects.....	86,510	

SANTA CRUZ COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 435 square miles.	Population.. 19,270	21,512	26,140	26,269
County seat, Santa Cruz (city).	Population.. 5,586	5,659	11,146	10,917
Population per square mile, 60.4.				

	Highest	Lowest	Inches	Inches
Elevation, 20 feet.	1917: Temperature...101	24	Rainfall...12.37	Snow... 0
	1918: Temperature... 95	28	Rainfall...22.84	Snow... 0

Santa Cruz fronts its entire length on the Pacific Ocean. It is separated from San Mateo and Santa Clara counties by the Santa Cruz Mountains, and from Monterey County by the Pajaro River. It is one of the smallest counties, and comprises a narrow strip of mountainous land about 40 miles long and 18 miles broad, forming a vast amphitheater, and sloping from the summits of the Santa Cruz Range, whose highest elevation, Loma Prieta, is 3,793 feet, southward and westward to the bay of Monterey.

The curving line of shore and the corresponding curve of the mountain line inclose an irregular, crescent-shaped tract of country, with an average width of 20 miles. The sides of the mountain are closely set with forests of pine, redwood, madrone, and other trees, the redwoods having in many cases attained gigantic growth.

The extent of the apple industry, which is the principal fruit raised, is shown by statistics, and is one of the most valuable industries. During the harvesting of the crop in the Pajaro Valley, this industry gives employment to several thousands. The leading varieties are the Newtown Pippin and Bellflower; also Red Pearmain, White Pearmain, Missouri Pippin, Baldwin, Rome Beauty, Spitzenberg, Winesap, Langford Seedling, and Ben Davis.

An average apple crop amounts to about 3,600 cars, represented as follows: Newtown Pippins, 2,100; Bellflowers, 900; and other varieties, 600 cars. An ordinary car is 640 boxes.

Of the small fruits, the strawberry is the most widely grown and furnishes a crop from about April 1 to December 1.

In the southern part of the county a large acreage is devoted to the profitable growth of sugar beets, potatoes, beans, and onions.

Asparagus and rhubarb are grown for outside markets.

Seeds, bulbs, plants, and cut flowers are cultivated on a large scale.

The Santa Cruz Portland cement plant has the largest capacity for the manufacture of cement of any in the state.

There is a cold storage plant at Watsonville with a capacity of 500 carloads.

The fish hatchery at Brookdale, on Clear Creek, which was established in 1905, produces large quantities of steelhead trout and also of quinnat salmon and silver salmon.

SANTA CRUZ COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	1,466		
Total in 1920.....	1,759		
Land and Farm Areas.			
Approximate land, acres.....	278,400		
Land in farms in 1910.....	157,308		
Land in farms in 1920.....	144,751		
Improved land in farms in 1910.....	66,875		
Improved land in farms in 1920.....	67,838		
Woodland in farms.....	46,618		
Other unimproved land.....	30,295		
Value of All Farm Property.			
Total value in 1910.....	\$17,653,136		
Total value in 1920.....	27,109,492		
Land in 1910.....	14,103,715		
Land in 1920.....	20,235,412		
Buildings in 1910.....	2,299,890		
Buildings in 1920.....	4,319,998		
Implements and machinery in 1910.....	461,107		
Implements and machinery in 1920.....	1,242,341		
Domestic animals, poultry and bees in 1910.....	788,424		
Domestic animals, poultry and bees in 1920.....	1,311,741		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	2,991		
Dairy.....	5,177		
Total.....	8,168		
Value.....	\$481,876		
Horses—			
Number.....	3,445		
Value.....	\$306,164		
Mules—			
Number.....	77		
Value.....	\$5,850		
Asses and burros—			
Number.....	5		
Value.....	\$190		
Swine—			
Number.....	6,122		
Value.....	\$93,999		
Sheep—			
Number.....	2,061		
Value.....	\$21,567		
Goats—			
Number.....	1,516		
Value.....	\$15,254		
Total value all domestic animals.....	\$924,900		
Poultry and bees—			
Poultry of all kinds.....	224,572		
Value.....	\$382,569		
Colonies of bees.....	506		
Value.....	\$4,272		
Poultry products—			
Poultry raised, number.....	218,606		
Eggs produced, dozen.....	1,523,711		
Value poultry and eggs produced.....	\$827,764		
Honey and wax—			
Honey produced, pounds.....	2,646		
Wax produced, pounds.....	32		
Value of honey and wax produced.....	\$541		
Wool—			
Wool, fleeces shorn.....	1,403		
Goat hair, fleeces shorn.....	711		
Value wool and mohair produced.....	\$6,545		
Principal Crops.			
	Acres	Bushels	
Corn.....	2,463	42,121	
Oats.....	1,082	22,010	
Wheat.....	537	7,279	
Barley.....	765	11,845	
Dry edible beans.....	1,644	24,891	
Potatoes.....	875	83,208	
Hay and forage—		Acres	Tons
Timothy alone.....	5	10	
Clover alone.....	15	20	
Alfalfa.....	616	1,528	
Other tame and cultivated grasses.....		116	176
Wild, salt, or prairie grasses.....		15	15
Grains cut green.....		12,144	13,988
All other hay and forage.....		453	2,224
Totals.....	13,347	18,131	
Special crops—			
Potatoes, acres.....		875	
All other vegetables, acres.....		651	
Sugar beets, acres.....		513	
Orchard fruits—		Number bearing trees	
Apples.....		665,535	
Apricots.....		77,749	
Peaches.....		15,486	
Pears.....		27,450	
Prunes and plums.....		103,154	
Total.....		907,910	
Subtropical fruits—		Number bearing trees	
Lemons.....		2,183	
Oranges.....		552	
Grapevines—		Number in bearing	
Total acres.....		629,816	
Small fruits—		Total acres.....	
		907	
Nuts—		Number bearing trees	
Walnuts.....		2,671	
Irrigation.			
Acres irrigated in 1919.....	1,269		
Acres irrigated in 1920.....	2,044		
Acres included in projects.....	2,671		

SHASTA COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,858 square miles.	Population--	12,123	17,318	18,920	13,361
County seat, Redding (city).	Population--	1,821	2,946	3,572	2,462
Population per square mile, 3.5.					

		Highest	Lowest	Inches	Inches
Elevation, 552 feet.	1917: Temperature--	111	26	Rainfall--22.95	Snow--25.0
	1918: Temperature--	111	27	Rainfall--30.76	Snow-- T

Shasta County lies at the head of the famous Sacramento Valley. One mile north of Redding, the county seat, the valley ends and the canyon, second only in fame to the valley, which bears the name of the great waterway in the state, begins.

Covering a portion of eastern Shasta are the Sierra Nevada Mountains and on the northeastern boundary is the Coast Range. These are lofty, some peaks exceeding 5,000 feet in height, and are very rugged. On the extreme eastern border of the county is Lassen Peak, raising its mighty head 10,437 feet above sea level. This peak has attracted much attention in recent years owing to numerous great eruptions. This mountain is timbered two-thirds of the way up. Hot and boiling springs and others noted for their medicinal qualities, abound in this region. The southwestern portion of this section is a succession of rounded hills, varying in height from 50 to 200 feet, while the central and southern portions consist of tablelands, varying in altitude from 500 to 700 feet. Fertile valleys predominate.

Shasta is noted for the number and beauty of its streams. First in importance is the Sacramento River, which enters the county on its northern boundary, traversing it throughout to its southern borders. The Sacramento is augmented by the combined McCloud, Pit, and Fall rivers, the former finding its source at Mount Shasta on the extreme north, enters the county and travels in a southerly direction, emptying into the Pit, which earlier has received the Fall River flow, and continuing still in a southerly course meets and enters the Sacramento at a point a few miles north of Kennett. Most beautiful of all northern streams is the Fall River.

Beautiful resorts and springs abound. The mountains are heavily timbered with sugar pine, cedar, fir, and other valuable timbers.

While dry farming is carried on successfully irrigation is being inaugurated in different sections of the county. An irrigation system to irrigate about 30,000 acres, under what is known as the Anderson-Cottonwood Irrigation District, has been made. A small quantity of cotton was planted on the Rancho Buena Ventura at Cottonwood in 1918, as an experiment, but the rains came before it was matured.

The prune, peach, pear, and plum thrive, while grapes have proved a success in the valley districts.

Anderson, twelve miles south of Redding, is the leading fruit district and also the lumber center of the county, and Kennett, seventeen miles to the north of the county seat, are the two next important centers.

Shasta's pre-eminence in mineral production is largely due to her immense copper output, which in 1916 amounted to 39,437,000 pounds, valued at \$9,701,000.

SHASTA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.				
Total in 1910.....	1,010			
Total in 1920.....	949			
Land and Farm Areas.				
Approximate land, acres.....	2,469,120			
Land in farms in 1910.....	889,218			
Land in farms in 1920.....	565,235			
Improved land in farms in 1910.....	96,217			
Improved land in farms in 1920.....	103,470			
Woodland in farms.....	276,284			
Other unimproved land.....	185,481			
Value of All Farm Property.				
Total value in 1910.....	\$7,847,929			
Total value in 1920.....	16,095,556			
Land in 1910.....	5,403,079			
Land in 1920.....	11,034,935			
Buildings in 1910.....	851,750			
Buildings in 1920.....	1,562,565			
Implements and machinery in 1910.....	289,511			
Implements and machinery in 1920.....	683,619			
Domestic animals, poultry and bees in 1910.....	1,303,589			
Domestic animals, poultry and bees in 1920.....	2,794,437			
Domestic Animals on Farms and Ranges.				
Cattle—				
Beef.....	36,477			
Dairy.....	2,665			
Total.....	39,142			
Value.....	\$1,859,878			
Horses—				
Number.....	4,505			
Value.....	\$271,659			
Mules—				
Number.....	297			
Value.....	\$21,442			
Asses and burros—				
Number.....	52			
Value.....	\$23,340			
Swine—				
Number.....	26,270			
Value.....	\$279,618			
Sheep—				
Number.....	23,258			
Value.....	\$254,418			
Goats—				
Number.....	4,802			
Value.....	\$25,909			
Total value all domestic animals.....	\$2,736,264			
Poultry and bees—				
Poultry of all kinds.....	42,376			
Value.....	\$46,010			
Colonies of bees.....	1,182			
Value.....	\$11,563			
Poultry products—				
Poultry raised, number.....	33,375			
Eggs produced, dozen.....	205,340			
Value poultry and eggs produced.....	\$116,331			
Honey and wax—				
Honey produced, pounds.....	67,648			
Wax produced, pounds.....	1,073			
Value of honey and wax produced.....	\$13,948			
Wool—				
Wool, fleeces shorn.....	17,251			
Goat hair, fleeces shorn.....	3,820			
Value wool and mohair produced.....	\$66,890			
Principal Crops.				
	Aces	Busheis		
Rice.....	257	12,320		
Corn.....	270	5,470		
Oats.....	469	7,590		
Wheat.....	11,213	137,525		
Barley.....	724	11,037		
Dry edible beans.....	76	1,086		
Potatoes.....	170	16,629		
Hay and forage—	Aces	Tons		
Timothy alone.....	737	902		
Timothy and clover mixed.....	4,206	5,069		
Clover alone.....	289	433		
Alfalfa.....	6,637	21,098		
Other tame and cultivated grasses.....	2,668	3,148		
Wild, salt, or prairie grasses.....	11,924	11,723		
Grains cut green.....	5,405	5,661		
All other hay and forage.....	673	1,564		
Totals.....	32,539	49,841		
Special crops—				
Potatoes, acres.....		170		
All other vegetables, acres.....		105		
Orchard fruits—		Number bearing trees		
Apples.....		28,688		
Apricots.....		288		
Peaches and nectarines.....		59,153		
Pears.....		9,472		
Prunes and plums.....		71,437		
Total.....		169,926		
Grapevines—				
Number in bearing.....		112,007		
Small fruits—				
Total acres.....		50		
Nuts—		Number bearing trees		
Almonds.....		4,329		
Walnuts.....		580		
Total.....		4,909		
Irrigation.				
Acres irrigated in 1919.....		5,0173		
Acceage enterprises were capable of irrigating in 1920.....		58,989		
Acceage included in projects.....		110,407		

SIERRA COUNTY.

Date of creation, April 16, 1852.

	1890	1900	1910	1920
Land area, 923 square miles.				
County seat, Downieville (t'nship).	Population-- 5,051	4,017	4,098	1,783
Population per square mile, 1.9.	Population-- -----	-----	751	374
	Highest	Lowest	Inches	Inches
Elevation, 3,150 feet.	1917: Temperature--- 99	11	Rainfall---46.40	Snow_76.0
	1918: Temperature---104	16	Rainfall---55.72	Snow_25.2

Sierra County has an area practically all mountainous. The altitude ranges from 2,000 feet to 8,600 feet, the highest elevation being that of the Sierra Buttes, but the greater portion has an elevation of from 4,000 to 5,000 feet.

The main ridge of the Sierra Nevada crosses the eastern part from south to north. Several spurs traverse the county from east to west, forming the watersheds of the four principal streams which make the drainage system of the western part. These streams consist of the Middle Yuba River on the south, the North Yuba near the center, and Canyon Creek and Slate Creek on the north, and in the eastern end the many streams that form the headwaters of the Feather and Truckee rivers. Of the peculiar topographical features are the expansive valleys and lakes, lying among the loftiest peaks of the Sierra. The lakes vary from one-eighth of a mile to three or four miles in length, most of them circular, and, considering their small size, are remarkable for their depth.

The important body of agricultural land is Sierra Valley. It extends over the boundary line into Plumas County, and is the largest and the most elevated of the valley of the Sierra, being 4,750 feet above sea level. It is 30 miles in length and 10 miles in width. This valley is particularly adapted to stock raising and dairy purposes. There are several creameries in the valley. The soil is deep, black loam, largely admixed with rich mold.

The greater portion is practically covered with a virgin belt of soft timber. The lumber cut runs into many millions of feet, and the cut-over timber land is gradually passing into the hands of stock men for grazing purposes.

Since 1849, the principal industry has been gold mining.

SIERRA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	110	Poultry and bees—	
Total in 1920.....	77	Poultry of all kinds.....	2,906
Land and Farm Areas.		Value.....	\$3,319
Approximate land, acres.....	590,720	Colonies of bees.....	118
Land in farms in 1910.....	84,220	Value.....	\$829
Land in farms in 1920.....	69,667	Poultry products—	
Improved land in farms in 1910.....	30,794	Poultry raised, number.....	2,476
Improved land in farms in 1920.....	21,607	Eggs produced, dozen.....	15,603
Woodland in farms.....	14,152	Value poultry and eggs produced..	\$10,183
Other unimproved land.....	24,908	Honey and wax—	
Value of All Farm Property.		Honey produced, pounds.....	3,418
Total value in 1910.....	\$1,659,799	Wax produced, pounds.....	10
Total value in 1920.....	2,172,015	Value of honey and wax produced	\$688
Land in 1910.....	962,575	Wool—	
Land in 1920.....	1,197,050	Wool, fleeces shorn.....	1,172
Buildings in 1910.....	262,125	Value wool and mohair produced..	\$5,024
Buildings in 1920.....	254,550	Principal Crops.	
Implements and machinery in 1910.....	65,524		
Implements and machinery in 1920.....	111,860	Oats.....	Acre Bushels
Domestic animals, poultry and bees		Wheat.....	173 1,796
in 1910.....	360,575	Barley.....	144 1,269
in 1920.....	608,555	Potatoes.....	105 885
Domestic Animals on Farms and Ranges.			
Cattle—		Hay and forage—	Acre Tons
Beef.....	4,811	Timothy alone.....	67 102
Dairy.....	2,517	Timothy and clover mixed..	975 1,818
Total.....	7,328	Clover alone.....	36 65
Value.....	\$440,281	Alfalfa.....	1,918 2,021
Horses—		Other tame and cultivated	
Number.....	822	grasses.....	441 382
Value.....	\$82,020	Wild, salt, or prairie grasses	10,261 12,135
Mules—		Grains cut green.....	1,132 1,183
Number.....	27	Totals.....	14,830 17,706
Value.....	\$2,475	Special crops—	
Asses and burros—		Potatoes, acres.....	29
Number.....	7	All other vegetables, acres.....	4
Value.....	\$320	Orchard fruits—	Number
Swine—		bearing trees	
Number.....	482	Apples.....	1,677
Value.....	\$7,346	Peaches.....	88
Sheep—		Pears.....	125
Number.....	3,656	Prunes and plums.....	211
Value.....	\$70,710	Total.....	2,168
Goats—		Number	
Number.....	51	Nuts—	Number
Value.....	\$605	Walnuts.....	bearing trees
Total value all domestic animals	\$394,407	28	
		Irrigation.	
		Acres irrigated in 1919.....	15,292
		Acreege enterprises were capable of	
		irrigating in 1920.....	15,873
		Acreege included in projects.....	18,547

SISKIYOU COUNTY.

Date of creation, March 22, 1852.

	1890	1900	1910	1920
Land area, 6,256 square miles.	Population-- 12,163	16,962	18,801	18,515
County seat, Yreka (town).	Population-- 1,100	1,254	1,134	1,277
Population per square mile, 3.0.				
Sisson (Station):	Highest	Lowest	Inches	Inches
Elevation, 2,625 feet.	1917: Temperature...105	-3	Rainfall...33.06	Snow 25.5
	1918: Temperature...102	6	Rainfall...14.13	Snow 0.6

Siskiyou is one of the northern counties of the state, adjoining Oregon for 80 miles on the north. Of its area of 6,256 square miles, 1,500 square miles are valley; the remainder is mountains and forest. Much of the agricultural land is farmed without irrigation, producing good crops of wheat, barley, and in some localities, alfalfa and timothy. The so-called desert lands were long considered of little value save for pasturage, but are now being successfully farmed, and require only the application of water to produce abundant crops.

The agricultural lands are chiefly comprised in Scott Valley in the western portion of the county, Shasta Valley and Little Shasta in the central portion, and McCloud and Butte valleys in the eastern portion.

Timber is everywhere; there are thousands of sections that will cut from ten to twenty million feet of yellow and sugar pine, besides large quantities of red fir and cedar.

The Sierra Nevada and Coast Range mountains meet here. The altitude ranges from 2,000 feet in the valleys to 14,000 feet on the mountain peaks, the highest of these being Mount Shasta. There are localities where snow seldom falls, and regions of perpetual snow. These conditions make it one of the most scenic of the counties.

The Marble Mountains, now but little known to tourists, will in time rival the Kings River Canyon and the Yosemite Valley. Chief among the noted resorts are the famous Shasta Springs and Upper Soda Springs, all situated in the Sacramento River Canyon, just over the border of Shasta County. At Sisson, at the base of Mount Shasta, the largest fish hatchery in the United States is located.

Lumbering is the chief industry, with mining and livestock a close second and third. The total assessed value of all property in 1918 was \$19,764,455. The coal deposits north of Yreka, in the vicinity of Hornbrook and Ager, have furnished a small amount of coal for domestic use for several years. It is a good grade of lignite, burns freely and leaves no clinkers.

SISKIYOU COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	1,114	
Total in 1920.....	1,052	
Land and Farm Areas.		
Approximate land, acres.....	4,003,840	
Land in farms in 1910.....	455,876	
Land in farms in 1920.....	537,396	
Improved land in farms in 1910.....	183,147	
Improved land in farms in 1920.....	166,621	
Woodland in farms.....	71,912	
Other unimproved land.....	298,863	
Value of All Farm Property.		
Total value in 1910.....	\$14,270,302	
Total value in 1920.....	20,315,672	
Land in 1910.....	10,352,935	
Land in 1920.....	13,577,450	
Buildings in 1910.....	1,411,810	
Buildings in 1920.....	2,057,395	
Implements and machinery in 1910.....	420,745	
Implements and machinery in 1920.....	912,515	
Domestic animals, poultry and bees in 1910.....	2,084,812	
Domestic animals, poultry and bees in 1920.....	3,788,312	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	42,204	
Dairy.....	11,436	
Total.....	53,640	
Value.....	\$2,838,586	
Horses—		
Number.....	7,076	
Value.....	\$485,299	
Mules—		
Number.....	399	
Value.....	\$28,293	
Asses and burros—		
Number.....	49	
Value.....	\$3,490	
Swine—		
Number.....	11,787	
Value.....	\$136,838	
Sheep—		
Number.....	19,093	
Value.....	\$239,788	
Gats—		
Number.....	243	
Value.....	\$1,778	
Total value all domestic animals.....	\$3,734,102	
Poultry and bees—		
Poultry of all kinds.....	39,936	
Value.....	\$39,856	
Colonies of bees.....	2,353	
Value.....	\$14,354	
Dairy products—		
Value.....	\$585,132	
Poultry products—		
Poultry raised, number.....	33,232	
Eggs produced, dozen.....	182,899	
Value poultry and eggs produced.....	\$109,885	
Honey and wax—		
Honey produced, pounds.....	84,143	
Wax produced, pounds.....	1,389	
Value of honey and wax produced.....	\$17,371	
Wool—		
Wool, fleeces shorn.....	10,089	
Goat hair, fleeces shorn.....	96	
Value wool and mohair produced.....	\$36,109	
Principal Crops.		
	Acres	Bushels
Corn.....	212	4,655
Oats.....	1,506	35,494
Wheat.....	20,340	274,910
Barley.....	2,457	39,689
Dry edible beans.....	54	797
Potatoes.....	448	51,916
Hay and forage—	Acres	Tons
Timothy alone.....	801	1,083
Timothy and clover mixed.....	7,059	11,229
Clover alone.....	133	292
Alfalfa.....	28,483	54,996
Other tame and cultivated grasses.....	6,051	8,953
Wild, salt, or prairie grasses.....	9,024	11,535
Grains cut green.....	14,898	12,272
All other hay and forage.....	139	649
Totals.....	66,588	101,079
Special crops—		
Potatoes, acres.....		448
All other vegetables, acres.....		49
Orchard fruits—		Number bearing trees
Apples.....		20,557
Apricots.....		31
Peaches and nectarines.....		4,295
Pears.....		1,866
Prunes and plums.....		3,104
Total.....		30,917
Grapevines—		
Number in bearing.....		2,461
Small fruits—		
Total acres.....		30
Nuts—		Number bearing trees
Almonds.....		59
Walnuts.....		98
Total.....		157
Irrigation.		
Acres irrigated in 1919.....	65,637	
Acreage enterprises were capable of irrigating in 1920.....	71,077	
Acreage included in projects, 1920.....	130,741	

SOLANO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 822 square miles.	Population.. 20,956	24,143	27,559	40,602
County seat, Fairfield (town).	Population.. -----	-----	834	1,008
Population per square mile, 49.4.				
Vacaville (Station):	Highest	Lowest	Inches	Inches
Elevation, 175 feet.	1917: Temperature... --	--	Rainfall... --	Snow... --
	1918: Station discontinued.			

Solano County is about thirty miles north of San Francisco, the great bay system forming its southern boundary. The Sacramento River forms the eastern line, and these bodies of water have created a great acreage, originally swamp land, but with reclamation, capable of producing prodigious crops. There are several delta islands within the county lines. On the west, the county extends into the foothills of the Coast Range, where several warm, sheltered valleys, with rich soil, are the home of the choicest deciduous fruits. In addition, there are sections of plain and rolling land, where cereals are produced and live stock raised in large numbers. The county has 526,000 acres of land, and is small in area, as compared with other counties, but is a leader in material products. In the production of deciduous fruits Solano holds a high position among the counties of the state. There is also a considerable acreage in grapes. The federal census of 1919 places the annual fruit and nut production at \$4,244,608 and of all crops at \$11,246,439.

Manufacturing and industries are a source of great wealth. At Vallejo, the largest city, is the Mare Island Navy Yard. The Sperry flour mills, just completed, are the most modern in the state. Benicia has the United States Arsenal, a great iron working plant; two ship yards, several tanneries, and other industries. Dixon is the center of a splendid dairy section, and Vacaville and Suisun are the shipping points for green and dried fruits. Rio Vista is the main shipping point on the Sacramento River in the county, and is a prosperous community.

Transportation facilities are excellent. The Southern Pacific main line traverses the county, with two branch lines. There are three electric lines in the different sections of the county, while freight and passenger service by water is accessible to nearly every portion of the county, effectively regulating charges for freight, and affording splendid accommodations for passengers.

The school facilities are in keeping with the wealth and prosperity of the county. There are six fully equipped high schools, and a complete elementary system with several private schools of equal merit. Every inducement for home seekers is offered by the county. The warmth of summer is tempered by sea breezes coming from the bays, and severe frosts are seldom known.

There are several mineral springs with commercial outputs, and one producing quicksilver mine.

SOLANO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,143	Poultry raised, number.....	70,096
Total in 1920.....	1,358	Eggs produced, dozen.....	368,548
		Value poultry and eggs produced..	\$193,667
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	526,080	Honey produced, pounds.....	13,762
Land in farms in 1910.....	474,866	Value of honey and wax produced	\$2,898
Land in farms in 1920.....	408,288	Wool—	
Improved land in farms in 1910.....	310,452	Wool, fleeces shorn.....	101,318
Improved land in farms in 1920.....	299,264	Value wool produced.....	\$285,253
Woodland in farms.....	17,142	Principal Crops.	
Other unimproved land.....	91,882		
Value of All Farm Property.			
Total value in 1910.....	\$28,727,683	Corn.....	Acres 1,870 Bushels 61,391
Total value in 1920.....	50,393,638	Oats.....	6,597 144,980
Land in 1910.....	23,025,081	Wheat.....	42,828 1,035,049
Land in 1920.....	39,680,249	Barley.....	35,979 910,421
Buildings in 1910.....	2,278,540	Dry ed'ble beans.....	6,555 150,862
Buildings in 1920.....	4,351,826	Potatoes.....	1,165 177,610
Implements and machinery in 1910.....	767,136	Rough rice.....	113 5,760
Implements and machinery in 1920.....	2,586,638	Hay and forage—	Acres Tons
Domestic animals, poultry and bees		Timothy and clover mixed..	95 95
in 1910.....	2,656,926	Clover alone.....	415 595
Domestic animals, poultry and bees		Alfa'fa.....	7,831 33,863
in 1920.....	3,774,925	Other tame and cultivated	
		grasses.....	272 415
		Wild, salt, or prairie grasses	1,083 1,385
		Grains cut green.....	22,100 29,405
		All other hay and forage....	838 1,997
		Totals.....	32,639 67,755
Domestic Animals on Farms and Ranges.			
Cattle—		Special crops—	
Beef.....	10,542	Potatoes, acres.....	1,165
Dairy.....	12,897	All other vegetables, acres.....	2,938
Total.....	23,439		
Value.....	\$1,548,265		
Horses—			
Number.....	5,891	Orchard fruits—	Number
Value.....	\$563,656	Apples.....	bearing trees 5,979
Mules—		Apricots.....	217,358
Number.....	1,161	Peaches.....	214,412
Value.....	\$138,522	Pears.....	195,504
Asses and burros—		Prunes and plums.....	609,755
Number.....	7	Total.....	1,286,704
Value.....	\$525		
Swine—		Subtropical fruits—	Number
Number.....	14,529	Lemons.....	bearing trees 290
Value.....	\$230,596	Oranges.....	3,586
Sheep—		Grapevines—	
Number.....	98,669	Number in bearing.....	565,624
Value.....	\$1,175,410	Small fruits—	
Goats—		Total acres.....	4
Number.....	67		
Value.....	\$896	Nuts—	Number
Total value all domestic animals	\$3,657,870	Almonds.....	bearing trees 93,496
		Walnuts.....	4,598
		Total.....	98,094
Poultry and bees—		Irrigation.	
Poultry of all kinds.....	99,600	Acres irrigated in 1919.....	23,900
Value.....	\$110,710	Acraage enterprises were capable of	
Colonies of bees.....	787	irrigating in 1920.....	28,650
Value.....	\$6,345	Acraage included in projects.....	36,023

SONOMA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,582 square miles.	Population--	38,480	48,394	52,090
County seat, Santa Rosa (city).	Population--	5,220	6,673	7,817
Population per square mile, 32.9.				

	Highest	Lowest	Inches	Inches
Elevation, 181 feet.	1917: Temperature---111	23	Rainfall---15.49	Snow-- 0
	1918: Temperature---100	20	Rainfall---24.21	Snow-- 0

Sonoma County is bounded on the west by the Pacific Ocean, for more than 65 miles that boundary conforming to the irregularities of the shore, while on San Pablo Bay it has a frontage of 20 miles.

The great central valley extends the entire length of the county from south to north. The area on which rough stone interferes with farming operations is small. Out of the area of land in the county at least 200,000 acres are valley land, the richest soil known, being a black loam; 200,000 acres are rolling, or higher tableland, of exceedingly rich, alluvial, brown soil, with considerable sand. This is the best fruit land. At least 100,000 acres of mountain land are adapted to grazing, and about 80,000 acres are covered with redwood timber of a magnificent growth.

Sonoma Valley is about 20 miles in length, with an average width of 8 miles. It lies parallel to Petaluma Valley, from which it is separated by a range of mountains.

The streams and watercourses of Sonoma County are numerous. Russian River, the largest stream, enters on the north, flows in a southeasterly direction for 20 miles, turns at Fitch Mountain and finds its way to the largest depression in the Santa Rosa Basin, from which it breaks through a gap in the Coast Range to the Pacific Ocean. This river gathers the waters from three-fifths of the area of the county. Owing to the abundant rainfall little or no irrigation is required, as is the case in some of the valley counties.

"Sonoma County leads the state in the production of poultry and eggs, berries, and dry wines. It stands second in apples, prunes, and hop production, and has extensive dairy, stock, sheep, and general farming interests.

Poultry and egg production make up the largest single interest in the county. In recent years the five million hens in the county have returned to their owners an average of about fifteen million dollars per year.

Although national prohibition will injure the wine grape interests, the vineyards are still being cared for in the hope that some outlet will be developed for the crops produced.

The berry business has developed as a companion interest to the apples, the berries being grown between the rows of young trees. Loganberries and blackberries are the chief varieties. The berries are shipped fresh to Eastern markets and to California canneries. A large loganberry juice industry is now being developed.

Sonoma County prunes are superior in size to other California prunes and are not excelled by any in quality. The prune industry returns from three to eight million dollars per year to the county.

The apple producers are on a firm business basis, as Sonoma Gravensteins, which make up the bulk of the crop, reach the markets ahead of those from other sections. The apple industry is expanding rapidly.

There are about three thousand acres of hops in Sonoma County and contracts at remunerative prices covering a period of three years have recently been entered into by a large proportion of growers.

Because of the long period of green pasture and cheap range lands in the coast section, dairy products are produced as cheaply in Sonoma County as anywhere in the country. '*

SONOMA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	4,772	Honey and wax—	
Total in 1920.....	5,739	Honey produced, pounds.....	10,920
Land and Farm Areas.		Wax produced, pounds.....	132
Approximate land, acres.....	1,012,481	Value of honey and wax produced	\$2,249
Land in farms in 1910.....	744,644	Wool—	
Land in farms in 1920.....	748,147	Wool, fleeces shorn.....	55,199
Improved land in farms in 1910.....	248,271	Mohair and goat hair, fleeces shorn	1,596
Improved land in farms in 1920.....	251,730	Value wool and mohair produced..	\$295,266
Woodland in farms.....	204,763	Principal Crops.	
Other unimproved land.....	291,654		
Value of All Farm Property.			
Total value in 1910.....	\$55,351,049	Corn.....	Acres 3,360 Bushels 81,405
Total value in 1920.....	112,294,273	Oats.....	6,204 167,345
Land in 1910.....	41,512,706	Wheat.....	4,068 70,744
Land in 1920.....	81,430,294	Barley.....	1,161 36,433
Buildings in 1910.....	8,758,787	Dry edible beans.....	155 2,133
Buildings in 1920.....	17,240,643	Potatoes.....	7,685 827,146
Implements and machinery in 1910.....	1,326,832	Hay and forage—	
Implements and machinery in 1920.....	4,668,489	Timothy alone.....	Acres 4,718 Tons 8,715
Domestic animals, poultry and bees		Timothy and clover mixed.....	261 421
in 1910.....	3,752,724	Clover alone.....	20 48
Domestic animals, poultry and bees		A'alfa.....	1,669 5,578
in 1920.....	8,954,947	Other tame and cultivated	
Domestic Animals on Farms and Ranges.		grasses.....	820 1,463
Cattle.....		Wild, salt, or prairie grasses.....	3,513 4,956
Beef.....	9,895	Grains cut green.....	44,632 82,281
Dairy.....	36,242	All other hay and forage.....	1,509 7,812
Total.....	46,107	Totals.....	57,162 356,427
Value.....	\$2,757,203	Special crops—	
Horses—		Potatoes, acres.....	7,685
Number.....	12,011	All other vegetables, acres.....	1,973
Value.....	\$1,013,705	Orchard fruits—	
Mules—		Number bearing trees	
Number.....	382	Apples.....	617,021
Value.....	\$40,876	Apricots.....	3,313
Asses and burros—		Peaches and nectarines.....	61,186
Number.....	16	Pears.....	124,739
Value.....	\$357	Prunes and plums.....	854,411
Swine—		Total.....	1,735,093
Number.....	22,040	Sub-tropical fruits—	
Value.....	\$356,271	Number bearing trees	
Sheep—		Lemons.....	663
Number.....	62,846	Oranges.....	5,539
Value.....	\$523,427	Grapevines—	
Goats—		Number in bearing.....	
Number.....	3,409	11,414,171	
Value.....	\$32,347	Small fruits—	
Total value all domestic animals	\$4,724,186	Acres.....	
Poultry and bees—		Quarts.....	
Poultry of all kinds.....	3,011,998	2,432	
Value.....	\$4,221,336	3,351,258	
Colonies of bees.....	964	Nuts—	
Value.....	\$9,425	Number bearing trees	
Dairy products—		Almonds.....	
Value.....	\$2,115,704	Walnuts.....	
Poultry products—		15,691	
Poultry raised, number.....	2,512,179	Total.....	
Eggs produced, dozen.....	19,684,744	17,227	
Value poultry and eggs produced..	\$12,380,034	Irrigation.	
		Acres irrigated in 1919.....	
		2,126	
		Acres enterprises were capable of	
		irrigating in 1920.....	
		3,163	
		Acres included in projects.....	
		11,256	

SUTTER COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.—
Continued.

Goats—	
Number	80
Value	\$843
Total value all domestic animals	\$2,364,498
Poultry and bees—	
Poultry of all kinds	88,299
Value	\$112,988
Colonies of bees	1,397
Value	\$9,587
Poultry products—	
Poultry raised, number	67,293
Eggs produced, dozen	362,042
Value poultry and eggs produced..	\$212,877
Honey and wax—	
Honey produced, pounds	42,573
Wax produced, pounds	593
Value of honey and wax produced	\$8,748
Wool—	
Wool, fleeces shorn	95,982
Value wool produced	\$469,486

Principal Crops.

	Acres	Bushels
Corn	2,145	44,244
Oats	5,313	95,805
Wheat	45,174	649,584
Barley	36,114	1,113,576
Kafir corn and milo maize	1,959	33,561
Dry edible beans	16,999	300,768
Potatoes	57	3,416
Rice	7,112	313,820
Hay and forage—	Acres	Tons
Timothy and clover mixed	25	38
Clover alone	201	233
Alfalfa	7,194	22,948
Other tame and cultivated		
grasses	230	274
Wild, salt, or prairie grasses	926	1,283
Grains cut green	10,313	13,847
All other hay and forage	648	2,638
Total	19,537	41,266

Special crops—

Potatoes, acres	57
All other vegetables, acres	153
Sugar beets, acres	990

Orchard fruits—

	Number bearing trees
Apples	6,753
Apricots	2,924
Peaches	522,074
Pears	18,052
Prunes and plums	159,002
Total	712,924

Subtropical fruits—

	Number bearing trees
Lemons	302
Oranges	6,831

Grapevines—

Number in bearing	2,417,954
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Nuts—

	Number bearing trees
Almonds	173,547
Walnuts	4,068
Total	177,615

Irrigation.

Acres irrigated in 1919	47,037
Acreage enterprises were capable of irrigating in 1920	96,004
Acreage included in projects	100,558

TEHAMA COUNTY.

Date of creation, April 9, 1856.

Land area, 2,925 square miles.	Population--	1890	1900	1910	1920
County seat, Red Bluff (city).	Population--	9,916	10,996	11,401	12,882
Population per square mile, 4.4.	Population--	2,608	2,750	3,530	3,104

		Highest	Lowest	Inches	Inches
Elevation, 307 feet.	1917: Temperature---	110	24	Rainfall---14.16	Snow-- 0
	1918: Temperature---	112	26	Rainfall---23.57	Snow-- 0

General Description.—Tehama County occupies the upper or northern portion of the Sacramento Valley. It is 200 miles north of San Francisco and 120 miles north of Sacramento. Part of its eastern boundary follows the summit of the Sierra Nevada Mountains, and its western boundary lies along the summit of the Coast Range. Its greatest length from east to west is 78 miles; its width from north to south, 38 miles.

The Sacramento River is navigable to Red Bluff and steamboats from San Francisco and Sacramento make trips up and down most of the year. The Sacramento River runs through the county from north to south. From this river there is a rise to the east and west until the summit of the mountain range is reached. South of Red Bluff and west of the river lie broad plains, beyond this, rolling hills developing into the foothills of the mountains, and then the mountains themselves, which rise quite abruptly to a height of from 3,000 to 9,000 feet.

Irrigation. Irrigation of the lands in the county is a very important factor in the production of crops, water being pumped from the river, creeks and wells. In the Los Molinos Colony a good-sized gravity system of irrigation is now completed, the water being taken from Mill Creek by the construction of a dam, and from the same stream there are several other diversions irrigating several thousand acres. From Deer Creek they are irrigating many thousand acres including the Leland Stanford Junior University Ranch at Vina, California. From Antelope Creek water is diverted for use of the city of Red Bluff and for the irrigation of the Cone Ranch and a portion of Los Molinos Colony.

Industries. The principal industries are horticulture, agriculture, stock raising and lumbering. Mining of chrome ore in the western part of the county has become of considerable importance in the building up of the community, and more mines are being opened now on account of the great demand for chrome, caused by the war.

Olives. The growing of olives in the county has developed into an industry that will make the county famous as a producer of fine olives and olive oil. Two plants for pickling olives are now in operation at Corning, and we have over 500 acres of bearing trees.

Alfalfa. In agriculture there has been a gradual change from the growing of wheat and other grains, to fruits, alfalfa, etc. Alfalfa, also grain hay, is grown in quantities to feed the stock and supply the demand of the Alfalfa Meal Company, where large quantities of alfalfa are ground into meal and shipped to all parts of the world.

TEHAMA COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.—
Continued.

Goats—	
Number	15,015
Value	\$62,064
Total value all domestic animals	\$4,908,676
Poultry and bees—	
Poultry of all kinds	89,680
Value	\$121,529
Colonies of bees	1,655
Value	\$6,194
Poultry products—	
Poultry raised, number	97,430
Eggs produced, dozen	282,580
Value poultry and eggs produced ..	\$254,145
Honey and wax—	
Honey produced, pounds	83,263
Wax produced, pounds	2,298
Value of honey and wax produced	\$17,549
Wool—	
Wool, fleeces shorn	150,154
Mohair and goat hair, fleeces shorn	17,799
Value wool and mohair produced ..	\$654,586

Principal Crops.

	Acres	Bushels
Corn	293	5,278
Oats	1,629	30,147
Wheat	25,112	284,962
Barley	18,895	322,345
Dry edible beans	408	6,218
Potatoes	55	4,499
Kafir corn, milo maize, etc.	1,651	26,821
Rough rice	150	8,000
Hay and forage—	Acres	Tons
Timothy alone	5	12
Timothy and clover mixed ..	178	158
Clover alone	67	114
Alfalfa	11,162	34,123
Other tame and cultivated		
grasses	467	565
Wild, salt, or prairie grasses	1,255	1,128
Grains cut green	12,369	13,849
All other forage	398	776
Totals	19,537	41,268

Special crops—

Potatoes, acres	55
All other vegetables, acres	83

	Number
Orchard fruits—	bearing trees
Apples	22,063
Apricots	19,425
Peaches	155,217
Pears	24,697
Prunes and plums	94,526
Total	318,577

	Number
Subtropical fruits—	bearing trees
Lemons	302
Oranges	6,831

Grapevines—	
Number in bearing	73,057

Small fruits—	
Total acres	39

	Number
Nuts—	bearing trees
Almonds	54,039
Walnuts	2,565
Total	56,634

Irrigation.

Acres irrigated in 1919	23,260
Acres enterprises were capable of	
irrigating in 1920	39,387
Acresage included in projects	44,720

TRINITY COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,096 square miles.	Population--	3,719	4,383	3,301	2,551
County seat, Weaverville (t'nship).	Population--	768	968	674	694
Population per square mile, 0.8.					
L.					
		Highest	Lowest	Inches	Inches
Elevation, 2,162 feet.	1917: Temperature---	107	5	Rainfall...24.82	Snow 24.0
	1918: Temperature---	107	9	Rainfall...25.63	Snow 0

Trinity County is situated in the Coast Range of mountains and is well drained by the Trinity, Mad, Eel, and Van Duzen rivers, and is well watered by the numerous creeks that carry streams of water from the mountain snows to the rivers and their tributaries. The higher mountain ranges, being covered with snow during the winter season, give ample supply for irrigation, and also provide an abundance of pasturage on the mountains. Trinity is bounded on the north by Siskiyou, on the east by Shasta and Tehama, on the south by Mendocino, and on the west by Humboldt County, thus being on the great mineral belt of the northwestern part of the state. Mining for gold has been the principal industry for fifty years. Hydraulic, placer, drift placer, dredge, and quartz mining have produced profitable results. In 1917 the production of gold was valued at \$602,048. Many other valuable minerals have been found, but owing to the lack of cheap transportation facilities, none of them has been developed to any extent. With an abundance of sugar pine, yellow pine, and fir timber ready for the market, the lumbering interests will be extensive as soon as railroad transportation is provided.

TRINITY COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	308	Cattle—	
Total in 1920.....	377	Beef	10,731
		Dairy	723
Land and Farm Areas.		Total	11,454
Approximate land, acres.....	1,981,440	Value	\$514,466
Land in farms in 1910.....	91,310		
Land in farms in 1920.....	130,200	Horses—	
Improved land in farms in 1910.....	13,300	Number	1,196
Improved land in farms in 1920.....	15,078	Value	\$6,305
Woodland in farms.....	40,246		
Other unimproved land.....	74,966	Mules—	
		Number	157
		Value	\$12,505
Value of All Farm Property.		Asses and burros—	
Total value in 1910.....	\$1,591,460	Number	17
Total value in 1920.....	\$2,091,851	Value	\$910
Land in 1910.....	970,855		
Land in 1920.....	1,633,087	Swine—	
Buildings in 1910.....	274,260	Number	6,392
Buildings in 1920.....	474,275	Value	\$76,921
Implements and machinery in 1910.....	69,119		
Implements and machinery in 1920.....	155,505	Sheep—	
Domestic animals, poultry and bees		Number	2,344
in 1910.....	347,235	Value	\$24,075
Domestic animals, poultry and bees			
in 1920.....	728,924		

TULARE COUNTY.

Date of creation, April 20, 1852.

Land area, 4,856 square miles.	Population--	1890	1900	1910	1920
County seat, Visalia (city).	Population--	24,574	18,375	35,440	59,031
Population per square mile, 12.2.		2,885	3,085	4,550	5,753

	Highest	Lowest	Inches	Inches	
Elevation, 334 feet.	1917: Temperature...	106	16	Rainfall... 5.19	Snow... T
Lemon Cove, 600 feet.	1918: Temperature...	108	27	Rainfall... 13.60	Snow... 0

Tulare County is one of the largest counties of the great San Joaquin Valley. The valley sweeps southward 250 miles to where the Tehachapi Mountains intersect with the Sierra and Coast ranges, forming the line between the so-called northern and southern California.

About one-half of the county is mountainous. Its eastern boundary, commencing at the crest of the Sierras, embraces Mount Whitney, whose hoary head reaches an altitude of 14,522 feet and is the highest summit in the United States. Out of these mountains flow many streams that furnish water to irrigate the level and fertile acres.

Wheat and small grain are grown without irrigation. Tulare County was at one time the banner wheat county, some individuals sowing five, ten, and twenty thousand acres, but farming on that scale is rapidly passing away. Still there are many thousand acres sown to wheat annually.

The principal agricultural products of Tulare County are wheat, barley, alfalfa, Egyptian corn and beans.

Tulare County produces large quantities of peaches and prunes, also pears, apricots, apples, olives, figs, plums, almonds, walnuts, raisins, table and wine grapes, oranges, lemons, and berries of all kinds. The citrus orchards in the districts around Exeter, Porterville, and Lindsay are the largest and most successful in northern California.

Some of the largest raisin vineyards are to be found in Tulare County. The Muscat, Sultana, and Thompson's seedless are the principal varieties grown. In the vicinity of Dinuba, Orosi, and Sultana this industry is especially flourishing.

About 50 miles northeast of Visalia lies the Sequoia National Park, a reservation by the government of the largest forest of *Sequoia gigantea* trees in existence. The reservation contains about 250 square miles. There are more than 3,000 sequoias in this forest that measure over 45 feet in circumference and 300 feet in height. The General Sherman in this forest is said to be the largest living tree in the United States. Over 100 feet from its base it is 80 feet in circumference.

"The sugar beet factory has been dismantled, not because the beets would not grow successfully, but because they seldom yielded any profit to the grower.

Avocados are gradually being introduced, between 400 and 500 trees are now growing in the county, nearly one-half of which were planted last season.

TULARE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	4,021	Poultry products—	
Total in 1920.....	6,372	Poultry raised, number.....	305,267
Land and Farm Areas.		Eggs produced, dozen.....	1,442,416
Approximate land, acres.....	3,107,840	Value poultry and eggs produced..	\$850,029
Land in farms in 1910.....	1,045,231	Honey and wax—	
Land in farms in 1920.....	1,084,234	Honey produced, pounds.....	172,215
Impr. ved land in farms in 1910.....	507,024	Wax produced, pounds.....	5,416
Impr. ved land in farms in 1920.....	544,593	Value honey and wax produced..	\$36,555
Woodland in farms.....	186,846	Wool—	
Other unimproved land.....	352,790	Wool, fleeces shorn.....	14,674
Value of All Farm Property.		Goat hair, fleeces shorn.....	455
Total value in 1910.....	\$76,539,642	Value wool and mohair produced..	\$105,187
Total value in 1920.....	193,984,811	Principal Crops.	
Land in 1910.....	64,455,551	Corn.....	Acres 3,725 Bushels 82,448
Land in 1920.....	167,123,963	Oats.....	655 13,455
Buildings in 1910.....	4,195,452	Wheat.....	74,784 732,739
Buildings in 1920.....	13,422,035	Barley.....	31,052 529,726
Implements and machinery in 1910....	1,805,419	Kafir corn and milo maize.....	15,570 424,387
Implements and machinery in 1920....	8,651,262	Dry edible beans.....	253 3,353
D. mestie animals, poultry and bees in 1910.....	6,083,217	Potatoes.....	189 13,892
D. mestie animals, poultry and bees in 1920.....	9,787,531	Hay and forage—	
Domestic Animals on Farms and Ranges.		Acres Tons	
Cattle—		Timothy and clover mixed..	85 51
Beef.....	45,144	Clover alone.....	77 263
Dairy.....	47,401	Alfalfa.....	53,533 277,135
Total.....	92,545	Other tame and cultivated	
Value.....	\$5,678,487	grasses.....	454 515
Horses—		Wild, salt, or prairie grasses	2,638 2,075
Number.....	20,177	Grains cut green.....	40,340 46,342
Value.....	\$1,601,440	All other hay and forage....	6,119 20,673
Mules—		Totals.....	103,246 347,066
Number.....	4,476	Special crops—	
Value.....	\$325,130	Potatoes, acres.....	189
Asses and burros—		All other vegetables, acres.....	279
Number.....	106	Cotton, acres.....	297
Value.....	\$9,623	Orchard fruits—	
Swine—		Number bearing trees	
Number.....	60,828	Apples.....	55,263
Value.....	\$908,067	Apricots.....	49,395
Sheep—		Peaches.....	717,195
Number.....	45,191	Pears.....	11,866
Value.....	438,941	Prunes and plums.....	422,228
Goats—		Total.....	1,265,901
Number.....	1,683	Subtropical fruits	
Value.....	16,042	Number bearing trees	
Total value all domestic animals	\$9,237,730	Lemons.....	107,230
Poultry and bees—		Oranges.....	2,041,277
Poultry of all kinds.....	290,896	Grapevines—	
Value.....	\$473,057	Number in bearing.....	
Colonies of bees.....	6,342	13,022,270	
Value.....	\$46,741	Small fruits—	
Dairy products—		Total acres.....	
Value.....	\$2,564,735	39	
		Nuts—	
		Number bearing trees	
		Almonds.....	14,256
		Walnuts.....	2,639
		Total.....	16,895
		Irrigation.	
		Acres irrigated in 1919.....	327,591
		Acraage enterprises were capable of irrigating in 1920.....	551,182
		Acraage included in projects.....	657,149

TUOLUMNE COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 2,190 square miles.	Population..	6,082	11,166	9,979	7,768
County seat, Sonora (city).	Population..	1,441	1,922	2,029	1,684
Population per square mile, 4.6.					

	Highest	Lowest	Inches	Inches	
Elevation, 1,825 feet.	1916: Temperature.	98	17	Rainfall...44.09	Snow. 4.5
Lake Eleanor, 4,700 feet.	1917: Temperature.	96	-4	Rainfall...27.43	Snow. 124.6
	1918: Station discontinued.				

Tuolumne County lies in the central part of the state in the Sierra Nevada Range and about 90 miles due east of San Francisco by air line. The entire area is of rugged character with many fertile valleys and meadows and sloping hills covered with forests. In the lower altitude the area is range land where stock are kept during the winter months. The main rivers are the Stanislaus and Tuolumne and along these rivers are many reservoirs and reservoir sites. There is an abundance of water and large numbers of fine sites for hydro-electric power houses. The city of San Francisco is building the Hetch-Hetchy dam and the Turlock Irrigation District is building another large dam at Don Pedro. Oakdale has made surveys for one near Melones on the Stanislaus. Practically all available water and storage sites have been applied for by power and irrigation companies and it is apparent that other large dams will be under construction.

The opportunities that Tuolumne County offers for recreation are worthy of considerable attention to the interested public. The scenery is equal to some of the best in the world—there is good hunting, fishing and camping along the rivers, in the big timber, and around the lakes. The Yosemite National Park lies partly within Tuolumne County. The Big Oak Flat road leads through Tuolumne County, and is considered one of the best means of reaching the valley. Tuolumne County is generally recognized as having the best roads of any of the counties in the foothill section of the state of California, and these lead to all the best sections in the county.

The Mother Lode series of gold bearing veins run through the west side of the county for a distance of 23 miles. The mines along this famous gold formation have only gone about one-half as deep as they have further north along the same series of veins, and the mines in Tuolumne County offer opportunities for considerable development. There exists, under Table Mountain, a stream containing gold bearing gravels and because of the amount of water it has prevented and retarded active mining operations. Considerable silver and copper are also found with the gold.

Near Columbia there are immense deposits of marble and the Columbia Marble Company and the Bell Marble Company are actively operating. There are also large deposits of granite and considerable of it is being mined, and there is good demand for it on the market.

Some of the highest grade limestone in the world is found in Tuolumne County and three different companies are producing ground limestone and quicklime. They operate at Shaws Flat, Browns Flat, and one-half mile south of Sonora. The Pacific Lime and Plaster Com-

pany is turning out large quantities and, due to the demand, they are greatly enlarging their plant.

Lumbering is one of the most important industries of the county. Two large lumber companies are in very active operation, The West Side Lumber Company at Tuolumne, and the Standard Lumber Company at Sonora. These companies hold about 100,000 acres of white pine, sugar pine, fir, and cedar, and they cut around 100,000,000 feet annually, and employ about 2,000 men. The Standard Lumber Company is beginning new construction which will about double the capacity of the present plant.

Stock raising is another important industry and thousands of head of cattle and sheep are ranged in the mountains in summer and graze the lower foothills during the winter. There is apparently considerable profit in cattle raising because of the fine feed and cheap grains that are made.

Grain, hay and garden truck are raised to a considerable extent and big yields are obtained. The wheat is very high in protein and has good flour-making qualities. Hales & Symons are now operating a flour mill in Sonora and are turning out an excellent product known as Tuolumne County flour. This mill commenced operations in 1920.

The horticultural products of Tuolumne County have the reputation of being of the highest quality. Apples, pears, peaches, grapes, plums, figs, and walnuts, as well as other fruits, all produce maximum yields of the best quality. Citrus, olives, and almonds produce good in the lower altitudes. The big red apple is Tuolumne County's most prominent and profitable fruit. It is nowhere excelled in the world. The orchardists of Tuolumne County have agreed on three varieties for all future large commercial orchards, and these are the Rome Beauty, Delicious, and Winesap. While the orchard plantings at present are only about 350 acres, sufficient stock was received in the county this spring of 1921 to plant about 800 acres of apples, 150 acres of pears, and about 50 acres of miscellaneous fruits. The county is no longer in the agricultural experiment stage. The most profitable fruits and other crops for growing in the county are now known, and the county is at the beginning of a new area. Apples are placed first on the list because of their high red color and quality and demand for them on the market. One grower sold \$15,258 worth of apples from 20 acres of 14-year-old orchard. Pears, also, are a very profitable crop.

Tuolumne County soils are of granodiorite and lava origin. The potash content east and north of Sonora is 2.29 per cent, and the phosphorus is 0.19 per cent, and south and west of Sonora the potash is 4.46 per cent and the phosphorus 0.55 per cent. The soil is strong in limestone, high in nitrogen and no noticeable amount of either alkali or acid. Alkali has never given any trouble in the county and likely never will because there is good under-drainage.

Good transportation facilities exist in the county. The Sierra Railway Company extends from Oakdale to Tuolumne, 12 miles beyond Sonora. The concrete state highway is now under construction from Sonora to the county line where it will connect up with the state highway out of Oakdale. The county has turned over to the state 150 miles of its roads.*

*By Horticultural Commissioner H. H. Sherrard.

TUOLUMNE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	389		
Total in 1920.....	393		
Land and Farm Areas.			
Approximate land, acres.....	1,401,600		
Land in farms in 1910.....	193,072		
Land in farms in 1920.....	220,730		
Improved land in farms in 1910.....	35,407		
Improved land in farms in 1920.....	35,380		
Woodland in farms.....	73,117		
Other unimproved land.....	112,233		
Value of All Farm Property.			
Total value in 1910.....	\$2,942,322		
Total value in 1920.....	5,015,180		
Land in 1910.....	1,779,470		
Land in 1920.....	3,236,750		
Buildings in 1910.....	451,955		
Buildings in 1920.....	624,870		
Implements and machinery in 1910.....	114,830		
Implements and machinery in 1920.....	192,308		
Domestic animals, poultry and bees in 1910.....	593,067		
Domestic animals, poultry and bees in 1920.....	961,252		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	14,185		
Dairy.....	1,337		
Total.....	15,522		
Value.....	\$752,485		
Horses—			
Number.....	1,409		
Value.....	\$68,852		
Mules—			
Number.....	43		
Value.....	\$3,340		
Asses and burros—			
Number.....	25		
Value.....	\$1,170		
Swine—			
Number.....	3,690		
Value.....	\$47,228		
Sheep—			
Number.....	2,051		
Value.....	\$20,506		
Goats—			
Number.....	2,292		
Value.....	\$13,141		
Total value all domestic animals.....	\$936,722		
Poultry and bees—			
Poultry of all kinds.....	19,438		
Value.....	\$22,456		
Colonies of bees.....	280		
Value.....	\$2,074		
Poultry products—			
Poultry raised, number.....	14,738		
Eggs produced, dozen.....	72,209		
Value poultry and eggs produced.....	\$46,480		
Honey and wax—			
Honey produced, pounds.....	12,150		
Wax produced, pounds.....	365		
Value of honey and wax produced.....	\$2,572		
Wool—			
Wool, fleeces shorn.....	1,474		
Mohair and goat hair, fleeces shorn.....	1,381		
Value wool and mohair produced.....	\$5,263		
Principal Crops.			
	Acres	Bushels	
Corn.....	81	1,804	
Oats.....	369	8,172	
Wheat.....	1,246	16,403	
Barley.....	526	6,475	
Dry edible beans.....	12	126	
Potatoes.....	461	33,630	
Hay and forage—		Acres	Tons
Timothy alone.....	75	63	
Timothy and clover mixed.....	16	25	
Clover alone.....	91	166	
Alfalfa.....	492	1,245	
Other tame and cultivated grasses.....	120	139	
Wild, salt, or prairie grasses.....	1,542	1,217	
Grains cut green.....	3,108	3,003	
All other hay and forage.....	54	98	
Totals.....	5,498	5,959	
Special crops—			
Potatoes, acres.....	461		
All other vegetables, acres.....	59		
Orchard fruits—		Number bearing trees	
Apples.....	28,491		
Apricots.....	59		
Peaches and nectarines.....	9,316		
Pears.....	1,618		
Prunes and plums.....	821		
Total.....	40,618		
Subtropical fruits—		Number bearing trees	
Lemons.....	7		
Oranges.....	80		
Grapevines—		Number in bearing.....	62,427
Small fruits—		Total acres.....	23
Nuts—		Number bearing trees	
Almonds.....	118		
Walnuts.....	509		
Total.....	627		
Irrigation.			
Acres irrigated in 1919.....	2,892		
Acraage enterprises were capable of irrigating in 1920.....	2,943		
Acraage included in projects.....	25,371		

VENTURA COUNTY.

Date of creation, March 22, 1872.

	1890	1900	1910	1921
Land area, 1,858 square miles.	Population-- 10,071	14,367	18,347	28,724
County seat, Ventura (city).	Population-- 2,320	2,470	2,945	4,342
Population per square mile, 15.5.				

Ojai Valley (Station):	Highest	Lowest	Inches	Inches
Elevation, 900 feet.	1916: Temperature...105	25	Rainfall...36.25	Snow... 0
	1917: Temperature...119	23	Rainfall...11.04	Snow... 0
	1918: Station discontinued.			

Of Ventura County's 1,858 square miles, less than one-fourth is under cultivation. Back from the coast in all directions rise rugged mountain ranges, whose hearts are pierced in every direction with canyons and valleys of varying lengths. The entire northern section of the county is mountainous, but between the ranges here and there are to be found little valleys, whose soil is most productive.

"Ventura County, one of the group of eight of the southernmost counties of the state, lies between Santa Barbara County on the west and Los Angeles County on the east and extends from a 50-mile front on the shores of the Pacific Ocean (Santa Barbara Channel), north to the summit of the Coast Range mountains (Kern County line).

Its southern half is mainly under cultivation. In its northern portion, situated in the foothills of the Coast Range, are many valleys occupied and organized into (four) school districts.

Its principal streams are the Santa Clara River, having its source in the Coast Range and flowing across the county in a western direction and entering the sea about five miles south of the county seat; this is fed by large lateral streams of considerable length, known as the San Francisquito, Casitas, Piru, Sespe, and the Santa Paula rivers. The San Buenaventura River, flowing southerly from the foothills, with San Antonio Creek of the Ojai Valley as a feeder, enters the sea at Ventura; also the Cuyama River, with its source and many lateral streams, situated in the northwest quarter of the county, flowing westerly.

Every variety of plant life does well in this county. It produces more lima beans than any other county in the state. There is a large acreage in sugar beets, which supplies the Oxnard sugar factory. Apricots, walnuts, lemons and oranges are some of the principal products of the county.*

*Information supplied by the Chamber of Commerce.

VENTURA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	1,293		
Total in 1920.....	1,543		
Land and Farm Areas.			
Approximate land, acres.....	1,189,120		
Land in farms in 1910.....	550,199		
Land in farms in 1920.....	384,885		
Improved land in farms in 1910.....	213,868		
Improved land in farms in 1920.....	109,624		
Woodland in farms.....	15,049		
Other unimproved land.....	179,892		
Value of All Farm Property.			
Total value in 1910.....	\$48,232,645		
Total value in 1920.....	98,182,961		
Land in 1910.....	41,826,120		
Land in 1920.....	85,363,272		
Buildings in 1910.....	2,365,140		
Buildings in 1920.....	5,850,929		
Implement and machinery in 1910.....	1,112,812		
Implement and machinery in 1920.....	4,473,843		
Domestic animals, poultry and bees in 1910.....	2,958,573		
Domestic animals, poultry and bees in 1920.....	2,494,916		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	8,783		
Dairy.....	3,493		
Total.....	12,276		
Value.....	\$653,815		
Horses—			
Number.....	8,357		
Value.....	\$996,534		
Mules—			
Number.....	2,622		
Value.....	\$107,163		
Asses and burros—			
Number.....	37		
Value.....	\$3,610		
Swine—			
Number.....	8,453		
Value.....	\$165,125		
Sheep—			
Number.....	9,121		
Value.....	\$91,217		
Goats—			
Number.....	2,522		
Value.....	\$28,973		
Total value all domestic animals.....	\$2,346,487		
Poultry and bees—			
Poultry of all kinds.....	63,569		
Value.....	\$84,015		
Colonies of bees.....	7,272		
Value.....	\$34,414		
Poultry products—			
Poultry raised, number.....	40,477		
Eggs produced, dozen.....	275,231		
Value poultry and eggs produced.....	\$172,587		
Honey and wax—			
Honey produced, pounds.....	105,233		
Wax produced, pounds.....	3,520		
Value honey and wax produced.....	\$22,420		
Wool—			
Wool, fleeces shorn.....	2,899		
Mohair and goat hair, fleeces shorn.....	1,336		
Value wool and mohair produced.....	\$10,644		
Principal Crops.			
		Acres	Bushels
Corn.....	735	10,412	
Oats.....	25	553	
Wheat.....	2,685	23,612	
Barley.....	3,341	47,461	
Dry edible beans.....	118,217	1,649,988	
P.atoes.....	104	4,110	
Kafir corn, milo maize, etc.....	491	3,599	
Hay and forage—		Acres	Tons
A falfa.....	3,304	8,912	
Other tame and cultivated grasses.....	44	61	
Wild, salt, or prairie grasses.....	123	118	
Grains cut green.....	26,838	22,834	
All other hay and forage.....	5,907	4,542	
Totals.....	36,216	36,467	
Special crops—			
Potatoes, acres.....	104		
All other vegetables, acres.....	402		
Sugar beets, acres.....	10,621		
Orchard fruits—		Number	bearing trees
Apples.....	11,659		
Apricots.....	343,543		
Peaches and nectarines.....	20,258		
Pears.....	2,398		
Prunes and plums.....	10,541		
Total.....	388,998		
Subtropical fruits—		Number	bearing trees
Lemons.....	407,369		
Oranges.....	229,886		
Grapevines—			
Number in bearing.....	59,126		
Small fruits—			
Total acres.....	16		
Nuts—		Number	bearing trees
Almonds, etc.....	13,378		
Walnuts.....	175,375		
Total.....	188,753		
Irrigation.			
Acres irrigated in 1919.....	31,716		
Acres enterprises were capable of irrigating in 1920.....	35,925		
Acres included in projects.....	50,737		

YOLO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1920
Land area, 1,014 square miles.	Population.. 12,684	13,618	13,926	17,105
County seat, Woodland (city).	Population.. 3,069	2,886	3,187	4,147
Population per square mile, 16.9.				

Davis (Station):	Highest	Lowest	Inches	Inches
Elevation, 51 feet.	1917: Temperature...111	25	Rainfall... 9.50	Snow... 0
	1918: Temperature...112	24	Rainfall...16.69	Snow... 0

Yolo County is situated in a delta of the Sacramento River, where it changes from a southerly to a westerly course on its way to the Pacific. About 75 per cent of the county consists of level land, the balance being rolling hills and mountains. The principal industries are farming, stock raising and fruit growing.

Hops are produced along the river bottoms. There is considerable acreage in barley, wheat and rice, and in fruits, apricots, peaches and prunes are the leading crops.

The acreage in rice has increased from 1,500 acres in 1915, to 15,000 in 1918.

In 1916 the county packed 800 tons of Sultanas, 200 tons of Thompson's seedless and 200 tons of Muscat raisins; in 1917, 800 tons of Thompsons, and in 1918 only 300 tons of Thompson's seedless, the rains having damaged most of the crop.

Eucalyptus trees have been planted upon 1,790 acres. These trees, of which 320 acres are only a few years old, show a marvelous growth and bid fair to add great value to our forest products. The former value of land where these trees are now planted has increased fivefold. This industry is in its infancy, but is receiving much attention, as an increased acreage will be planted.

The county has a navigable river front of 90 miles along the Sacramento River, which affords at all seasons a cheap and ready means of transportation for the numerous products grown along its banks.

The reclamation of overflowed lands, which are very fertile, grows apace with other developments. Many large tracts have either been reclaimed, or are in course of reclamation.

At Davis, upon 685 acres of very fertile land, is located the State Agricultural Farm, which is affiliated with the State University, and which is presided over by competent professors, who instruct in various branches of agriculture, dairying, etc. This college is very popular, and its courses are being taken advantage of by a large number of students.

Yolo is one of the two counties in California that produces no minerals in commercial quantities, the other being Sutter County.

YOLO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		
Total in 1910.....	1,255	
Total in 1920.....	1,613	
Land and Farm Areas.		
Approximate land, acres.....	648,960	
Land in farms in 1910.....	463,383	
Land in farms in 1920.....	398,166	
Improved land in farms in 1910.....	317,268	
Improved land in farms in 1920.....	300,094	
Woodland in farms.....	29,805	
Other unimproved land.....	68,266	
Value of All Farm Property.		
Total value in 1910.....	\$31,798,096	
Total value in 1920.....	63,248,770	
Land in 1910.....	25,684,710	
Land in 1920.....	54,145,140	
Buildings in 1910.....	2,799,277	
Buildings in 1920.....	5,082,115	
Implements and machinery in 1910.....	795,162	
Implements and machinery in 1920.....	2,712,207	
Domestic animals, poultry and bees in 1910.....	2,518,947	
Domestic animals, poultry and bees in 1920.....	4,309,308	
Domestic Animals on Farms and Ranges.		
Cattle—		
Beef.....	11,461	
Dairy.....	11,429	
Total.....	22,890	
Value.....	\$1,883,470	
Horses—		
Number.....	6,338	
Value.....	\$579,560	
Mules—		
Number.....	1,758	
Value.....	\$195,578	
Asses and burros—		
Number.....	27	
Value.....	\$3,087	
Swine—		
Number.....	26,196	
Value.....	\$371,343	
Sheep—		
Number.....	93,598	
Value.....	\$1,118,881	
Goats—		
Number.....	208	
Value.....	\$4,865	
Total value all domestic animals.....	\$4,156,774	
Poultry and bees—		
Poultry of all kinds.....	95,644	
Value.....	\$127,031	
Colonies of bees.....	3,168	
Value.....	\$25,503	
Poultry products—		
Poultry raised, number.....	67,976	
Eggs produced, dozen.....	520,829	
Value poultry and eggs produced.....	\$277,887	
Honey and wax—		
Honey produced, pounds.....	129,313	
Wax produced, pounds.....	2,196	
Value of honey and wax produced.....	26,720	
Wool—		
Wool, fleeces shorn.....	78,019	
Value wool and mohair produced.....	\$265,831	
Principal Crops.		
	Acres	Bushels
Corn.....	714	16,420
Oats.....	657	15,708
Wheat.....	55,520	1,301,515
Barley.....	78,308	2,027,053
Kafir corn and milo maize.....	121	2,689
Dry edible beans.....	9,444	196,939
Potatoes.....	131	12,799
Rice.....	9,511	469,257
Hay and forage—	Acres	Tons
Clover alone.....	78	114
Alfalfa.....	14,826	44,751
Other tame and cultivated grasses.....	432	767
Wild, salt, or prairie grasses.....	1,792	1,738
Grains cut green.....	14,096	17,971
All other hay and forage.....	853	5,017
Totals.....	32,079	70,358
Special crops—		
Potatoes, acres.....		131
All other vegetables, acres.....		2,507
Sugar beets, acres.....		120
Orchard fruits—		Number bearing trees
Apples.....		6,003
Apricots.....		89,582
Peaches.....		67,718
Pears.....		53,535
Prunes and plums.....		152,485
Total.....		381,436
Subtropical fruits—		Number bearing trees
Lemons.....		156
Oranges.....		1,956
Grapevines—		
Number in bearing.....		951,063
Nuts—		Number bearing trees
Almonds.....		335,862
Walnuts.....		1,517
Total.....		337,379
Irrigation.		
Acres irrigated in 1919.....	42,273	
Acreege enterprises were capable of irrigating in 1920.....	65,249	
Acreege included in projects.....	104,376	

YUBA COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 632 square miles.	Population	9,636	8,620	10,042	10,375
County seat, Marysville (city).	Population	3,991	3,497	5,430	5,461
Population per square mile, 16.4.					

		Highest	Lowest	Inches	Inches
Elevation, 67 feet.	1917: Temperature	108	24	Rainfall...10.89	Snow... 0
	1918: Temperature	110	25	Rainfall...19.30	Snow... 0

“Yuba County is about half valley and half mountainous. In the mountainous portion the industries at present are mining, lumbering, and stock raising. The proposed paved road through the mountainous section will permit the marketing of deciduous fruits, as apples and pears and olives in the foothills, many thousands of acres not now in use being especially adapted for the culture of the fruits mentioned. At Hammonton and Marigold on the Yuba River, dredge mining is carried on extensively, the immense dredge boats operating day and night. Many important quartz mines are in operation. Yuba’s production of gold is three and one-half million dollars per annum. The Feather River forms the western boundary of the county and is navigable as far up as Marysville. Bear River is the southern boundary. The Yuba River flows west through the center of the county. These streams are never failing in water supply. Subterranean water is available in most parts of the county. Several irrigation districts take water from the three rivers. Farm crops are abundant, barley formerly having the largest acreage, now being replaced to a large extent by wheat and rice. In fruits, pears take the lead, with peaches, prunes, olives, figs and citrus fruits following. Much of the desirable area of the county is undeveloped awaiting the advent of paved roads. The Yuba River bottom lands once silted by hydraulic mining are now being cleaned and planted to pear orchards and truck crops. Enormous returns from crops on such lands have been received in the past seasons.”*

YUBA COUNTY SUMMARY

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910.....	436	Total value in 1910.....	\$3,666,211
Total in 1920.....	487	Total value in 1920.....	14,274,307
Land and Farm Areas.		Land in 1910.....	4,911,611
Approximate land, acres.....	408,960	Land in 1920.....	10,926,093
Land in farms in 1910.....	249,108	Buildings in 1910.....	688,565
Land in farms in 1920.....	223,797	Buildings in 1920.....	1,116,177
Improved land in farms in 1910.....	94,250	Implements and machinery in 1910.....	171,735
Improved land in farms in 1920.....	98,597	Implements and machinery in 1920.....	697,089
Woodland in farms.....	65,881	Domestic animals, poultry and bees in 1910.....	894,300
Other unimproved land.....	63,919	Domestic animals, poultry and bees in 1920.....	1,534,948

*W. Harrison, Farm Adviser.

YUBA COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.		Barley	2,895	45,542
Cattle—		Dry edible beans	1,811	36,689
Beef	9,966	Potatoes	50	2,466
Dairy	3,008	Kafir corn, milo maize, etc.	716	14,508
		Rough rice	2,277	80,895
Total	12,974	Hay and forage—	Acres	Tons
Value	\$529,347	Timothy alone	90	121
Horses—		Timothy and clover mixed	87	90
Number	2,234	Clover alone	326	508
Value	\$164,850	Alfalfa	2,347	5,886
Mules—		Other tame and cultivated		
Number	328	grasses	200	189
Value	\$22,784	Wild, sa't, or prairie grasses	1,014	955
Asses and burros—		Grains cut green	5,603	7,154
Number	74	All other hay and forage	411	680
Value	\$976	Totals	10,088	15,563
Swine—		Special crops—		
Number	5,035	Potatoes	124	50
Value	\$36,300	Sweet potatoes	6	115
Sheep—		All other vegetables	235	
Number	66,606	Orchard fruits—		Number
Value	\$710,251	bearing trees		
Goats—		Apples		3,287
Number	427	Apricots		272
Value	\$2,097	Peaches and nectarines		30,175
Total value all domestic animals		Pears		7,336
		Prunes and plums		11,065
Poultry and bees—		Total		53,147
Poultry of all kinds	29,588	Subtropical fruits—		Number
Value	\$37,528	bearing trees		
Colonies of bees	140	Lemons		105
Value	\$806	Oranges		1,409
Poultry products—		Grapevines—		
Poultry raised, number	15,949	Number in bearing		216,233
Eggs produced, dozen	106,030	Small fruits—		
Value poultry and eggs produced	\$58,943	Total acres		12
Honey and wax—		Nuts—		Number
Honey produced, pounds	3,344	bearing trees		
Wax produced, pounds	101	Almonds		6,609
Value honey and wax produced	\$708	Walnuts		684
Wool—		Total		7,293
Wool, fleeces shorn	72,653			
Goat hair, fleeces shorn	199			
Value wool and mohair produced	\$193,885			
Principal Crops.				
	Acres	Bushels	Acres irrigated in 1919	20,773
Corn	782	14,610	Acres enterprises were capable of	
Oats	4,529	57,006	irrigating in 1920	24,049
Wheat	17,036	209,618	Acres included in projects	71,185
			Irrigation.	

APPENDIX A.

CALIFORNIA STATE BOARD OF AGRICULTURE.

State Boards of Agriculture and Agricultural Experiment Stations in the United States.

There are 43 official bodies or organizations in the United States charged with the promotion of agriculture. Of these 20 are "State Boards of Agriculture;" 19 are governed by a "Commissioner of Agriculture;" 3, California, Georgia and Minnesota have a "State Agricultural Society," and Pennsylvania a "Secretary of Agriculture." Of the above, California is the only one with a dual title, that of the "State Agricultural Society" and "State Board of Agriculture," added in 1863. There are also 60 agricultural experiment stations, conducted, in most cases, under the authority of the state universities.

The first agricultural experiment stations were formed some forty-five years ago, one of the pioneers being that of the State University at Berkeley in 1873. They were subsequently reorganized under the Hatch Act of 1887, which largely extended the number of these most valuable institutions.

Stallion Registration Boards.

The first law regulating the registration of stallions was passed by the state of Wisconsin in 1906, since which time twenty-three other states have taken this important step to improve the breed of their horses. The Stallion Registration in California dates from August 1, 1911.

California State Agricultural Society.

(Incorporated May 13, 1854. State Board of Agriculture appointed March 12, 1863.)

The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.

The first State Fair was held in the Music Hall at San Francisco from the fourth to about the twelfth of October, 1854, and the stock show was held on the Pioneer race course. A fair has been held annually ever since—in 1855 at Sacramento, 1856 at San Jose, 1857 at Stockton, 1858 at Marysville, and since then at Sacramento, except in 1915, when it was omitted on account of the Panama-Pacific International Exposition at San Francisco.

Many of the books and records of the Society were destroyed by a disastrous flood on the ninth of December, 1861, and ninth of January, 1862, caused by a break in the levee on the north side of Sacramento, and the Library, together with a complete set of the Annual Reports, was destroyed by fire on the 3d of September, 1916, when the main building was burned to the ground.

CALIFORNIA STATE FAIRS 1854-1921.

Year	Place	Date	Pre- miums	Races	Total	Presidents
1854	San Francisco	Oct. 4	\$4,631	-----	\$4,661	F. W. Macondry, San Francisco.
1855	Sacramento	Sept. 25-Oct. 1	6,550	-----	6,550	C. T. Hutchinson, Sacramento.
1856	San Jose	Oct. 7-10	6,746	-----	6,746	E. L. Beard, Alameda.
1857	Stockton	Sept. 19 Oct. 2	7,911	-----	7,991	C. M. Weber,* Stockton.
1858	Marysville	Aug. 23-28	7,435	-----	7,455	John C. Fall, Marysville.
1859	Sacramento	Sept. 13-23	8,139	-----	8,139	C. T. Hutchinson, Sacramento.
1861	Sacramento	Sept. 19-26	8,827	-----	8,827	T. G. Phelps, San Mateo.
1861	Sacramento	Sept. 16-21	7,231	-----	7,231	Jerome C. Davis, Yolo County.
1862	Sacramento	Aug. 31-Sept. 4	-----	-----	5,000	A. Haraszthy, Sonoma.
1863	Sacramento	Sept. 25-Oct. 3	4,844	-----	4,894	Judge Isaac Davis, Yolo County.
1864	Sacramento	Oct. 17-22	6,705	-----	6,105	C. F. Reed, Grafton, Yolo County.
1865	Sacramento	Sept. 18-23	10,658	-----	10,658	C. F. Reed, Grafton, Yolo County.
1865	Sacramento	Sept. 10-15	9,742	-----	9,742	C. F. Reed, Grafton, Yolo County.
1866	Sacramento	Sept. 9-14	9,954	-----	9,954	C. F. Reed, Grafton, Yolo County.
1868	Sacramento	Sept. 15-25	-----	-----	10,070	C. F. Reed, Grafton, Yolo County.
1869	Sacramento	Sept. 6-11	-----	-----	-----	C. F. Reed, Grafton, Yolo County.
1870	Sacramento	Sept. 12-17	-----	-----	30,000	C. F. Reed, Grafton, Yolo County.
1871	Sacramento	Sept. 18-23	-----	-----	40,600	C. F. Reed, Grafton, Yolo County.
1872	Sacramento	Sept. 19-28	-----	-----	20,000	C. F. Reed, Grafton, Yolo County.
1873	Sacramento	Sept. 15-20	8,255	14,200	23,125	R. S. Carey, Yolo.
1874	Sacramento	Sept. 21-28	9,619	15,950	25,569	R. S. Carey, Yolo.
1875	Sacramento	Sept. 15-26	9,214	13,330	22,544	R. S. Carey, Yolo.
1876	Sacramento	Sept. 18-23	-----	-----	-----	R. S. Carey, Yolo.
1877	Sacramento	Sept. 17-22	-----	-----	-----	Marion Biggs, Butte.
1878	Sacramento	Sept. 16-21	10,955	13,775	24,740	Marcus D. Boruck, San Francisco.
1879	Sacramento	Sept. 8-13	-----	-----	12,260	Hugh M. Larue, Sacramento.
1880	Sacramento	Sept. 20-25	6,502	14,885	21,387	Hugh M. Larue, Sacramento.
1881	Sacramento	Sept. 19-24	6,833	12,525	19,128	J. M. McShafter, San Francisco.
1882	Sacramento	Sept. 11-16	8,651	14,292	22,913	Hugh M. Larue, Sacramento.
1883	Sacramento	Sept. 10-15	8,915	14,005	22,921	P. A. Fingan, Alameda.
1884	Sacramento	Sept. 8-20	11,437	23,165	34,692	P. A. Fingan, Alameda.
1885	Sacramento	Sept. 10-19	13,612	25,145	38,757	Jesse D. Carr, Salinas.
1886	Sacramento	Sept. 9-18	13,370	22,900	36,270	Jesse D. Carr, Salinas.
1887	Sacramento	Sept. 15-24	14,538	23,470	38,608	L. U. Shippee, Stockton.
1888	Sacramento	Sept. 6-15	14,256	25,560	38,813	L. U. Shippee, Stockton.
1889	Sacramento	Sept. 12-21	17,056	30,861	47,916	Christopher Green, Sacramento.
1890	Sacramento	Sept. 11-20	15,761	27,016	42,777	Christopher Green, Sacramento.
1891	Sacramento	Sept. 8-19	17,628	30,981	47,709	Frederick Cox, Sacramento.
1892	Sacramento	Sept. 5-17	17,106	29,950	47,056	Frederick Cox, Sacramento.
1893	Sacramento	Sept. 4-16	13,244	32,715	45,959	John Boggs, Princeton, Colusa Co.
1894	Sacramento	Sept. 3-15	13,447	29,220	42,697	John Boggs, Princeton, Colusa Co.
1895	Sacramento	Sept. 2-14	11,416	32,880	44,295	C. M. Chase, San Francisco.
1896	Sacramento	Sept. 1-19	12,971	47,222	60,193	C. M. Chase, San Francisco.
1897	Sacramento	Sept. 6-18	20,252	35,247	55, 99	C. M. Chase, San Francisco.
1898	Sacramento	Sept. 5-17	20,163	28,170	48,333	A. B. Spreckels, San Francisco.
1899	Sacramento	Sept. 4-16	10,529	38,745	49,274	A. B. Spreckels, San Francisco.
1900	Sacramento	Sept. 3-15	9,768	38,745	48,513	A. B. Spreckels, San Francisco.
1901	Sacramento	Sept. 2-14	8,974	30,355	39,329	A. B. Spreckels, San Francisco.
1902	Sacramento	Sept. 8-20	15,000	40,280	55,280	A. B. Spreckels, San Francisco.
1903	Sacramento	Aug. 31-Sept. 12	15,000	31,435	46,435	Benjamin F. Rush, Suisun.
1904	Sacramento	Aug. 22-Sept. 3	15,000	28,597	43,597	Benjamin F. Rush, Suisun.
1905	Sacramento	Sept. 2-9	6,656	24,419	31,075	Benjamin F. Rush, Suisun.
1906	Sacramento	Aug. 25-Sept. 1	7,568	10,640	18,238	Benjamin F. Rush, Suisun.
1907	Sacramento	Sept. 2-14	11,153	14,914	26,067	Benjamin F. Rush, Suisun.
1908	Sacramento	Aug. 29-Sept. 5	11,277	13,410	24,687	H. A. Jastro, Bakersfield.
1909	Sacramento	Aug. 28-Sept. 4	14,183	14,665	28,848	H. A. Jastro, Bakersfield.
1910	Sacramento	Sept. 3-10	14,465	6,930	21,395	H. A. Jastro, Bakersfield.
1911	Sacramento	Aug. 26-Sept. 2	14,790	26,300	41,090	A. L. Scott, San Francisco.
1912	Sacramento	Sept. 14-21	20,000	17,000	37,000	A. L. Scott, San Francisco.
1913	Sacramento	Sept. 13-20	25,000	37,000	62,000	A. L. Scott, San Francisco.
1914	Sacramento	Sept. 12-19	18,609	37,000	55,609	A. L. Scott, San Francisco.
1915	Sacramento	†	-----	-----	-----	John M. Perry, Stockton.
1915	Sacramento	Sept. 2-9	41,536	16,500	58,036	John M. Perry, Stockton.
1917	Sacramento	Sept. 8-15	27,171	20,048	47,219	John M. Perry, Stockton.
1918	Sacramento	Aug. 31-Sept. 8	24,716	21,378	46,094	George C. Roeding, Fresno.
1919	Sacramento	Aug. 30-Sept. 9	29,527	21,244	49,771	George C. Roeding, Fresno.
1920	Sacramento	Sept. 4-12	32,740	15,964	48,704	George C. Roeding, Fresno.
1921	Sacramento	Sept. 3-11	58,000	15,200	73,200	H. A. Jastro, Bakersfield.

*Resigned March 10. Wm. Garrard appointed.

†No fair owing to the Panama-Pacific Exposition at San Francisco.

STATE BOARDS OF AGRICULTURE AND DEPARTMENTS OF AGRICULTURE
IN THE UNITED STATES.*

State	Description and location	Organized
Alabama	Commissioner of Agriculture, Montgomery	1888
Arkansas	Commissioner of Agriculture, Little Rock (Society)	1898
California	State Board of Agriculture, Sacramento	1854
California	State Department of Agriculture	1919
Colorado	State Board of Agriculture, Fort Collins	1877
Connecticut	Commissioner of Agriculture, Hartford	1866
Delaware	State Board of Agriculture, Dover	1901
Florida	Commissioner of Agriculture, Tallahassee	1889
Georgia	Georgia State Agricultural Society, Experiment	1846
Georgia	Commissioner of Agriculture, Atlanta	1874
Idaho	Commissioner of Immigration, Labor and Statistics, Boise	1910
Illinois	State Board of Agriculture, Springfield	1853
Indiana	State Board of Agriculture, Indianapolis	1851
Iowa	State Board of Agriculture, Des Moines	1900
Kansas	State Board of Agriculture, Topeka	1862
Kentucky	Commissioner of Agriculture, Frankfort	1892
Louisiana	Commissioner of Agriculture, Baton Rouge	1880
Maine	Commissioner of Agriculture, Augusta	1855
Massachusetts	State Board of Agriculture, Boston	1852
Michigan	State Board of Agriculture, East Lansing	1881
Minnesota	State Agricultural Society, Hamline	1854
Mississippi	Commissioner of Agriculture, Jackson	1907
Missouri	State Board of Agriculture, Columbia	1865
Montana	Commissioner of Agriculture (Bureau of Agriculture, Labor, Industry and Publicity), Helena	1880
Nebraska	State Board of Agriculture, Lincoln	1858
Nevada	State Board of Agriculture, Carson City	
New Hampshire	State Board of Agriculture, Concord	1870
New Jersey	State Board of Agriculture, Trenton	1873
New York	Commissioner of Agriculture, Albany	1893
North Carolina	Commissioner of Agriculture, Raleigh	1877
North Dakota	Commissioner of Agriculture, Bismarck	1889
Ohio	State Board of Agriculture, Columbus	1846
Oklahoma	State Board of Agriculture, Stillwater	1907
Oregon	State Board of Agriculture, Salem	1861
Pennsylvania	Secretary of Agriculture, Harrisburg	1895
Rhode Island	State Board of Agriculture, Providence	1892
South Carolina	Commissioner of Agriculture, Columbia	1904
South Dakota	State Board of Agriculture, Huron	1884
Tennessee	Commissioner of Agriculture, Nashville	1875
Texas	Commissioner of Agriculture, Austin	1906
Vermont	Commissioner of Agriculture, Plainfield	1872
Virginia	Commissioner of Agriculture, Richmond	1888
West Virginia	Commissioner of Agriculture, Charleston	1891
Wisconsin	State Board of Agriculture, Madison	1897

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

AGRICULTURAL EXPERIMENT STATIONS.*

State	Description and location	Date of original organization	Organized under Hatch Act of March 2, 1887
Alabama	(College) Auburn	1872	Feb. 24, 1888
Alabama	(Canebrake) Uniontown	1885	April 1, 1888
Alabama	(Tuskegee Institute) Tuskegee	Feb. 15, 1897	
Arizona	(State University) Tucson	1885	1890
Arkansas	Fayetteville		Mar. 7, 1889
California	(State University) Berkeley	1873	Mar., 1885
Colorado	Fort Collins		Feb., 1888
Connecticut	(State) New Haven	Mar. 21, 1877	May 18, 1887
Connecticut	(Storrs) Storrs		May 18, 1887
Delaware	Newark		Feb. 21, 1888
Florida	Gainesville		1888
Georgia	Experiment	1888	July 1, 1889
Idaho	Moscow		Feb. 23, 1892
Illinois	Urbana		Mar. 21, 1883
Indiana	Lafayette		Jan. 1, 1888
Iowa	Ames		Feb. 17, 1888
Kansas	Manhattan		Feb. 8, 1888
Kentucky	Lexington	Sept. 25, 1885	April, 1888
Louisiana	(Sugar) New Orleans	Sept., 1886	
Louisiana	(State) Baton Rouge	April, 1887	1888
Louisiana	(North) Calhoun	May, 1887	
Louisiana	(Rice) Crowley		July 1, 1900
Maine	Orono	Mar., 1885	Oct. 1, 1887
Maryland	College Park		Mar. 9, 1888
Massachusetts	Amherst	1882	Mar. 2, 1888
Michigan	East Lansing		Feb. 26, 1888
Minnesota	(University Farm) St. Paul	Mar. 7, 1885	1888
Mississippi	(Agricultural College)		Jan. 27, 1888
Missouri	(College) Columbia		Jan., 1888
Missouri	(Fruit) Mountain Grove	Feb. 3, 1900	
Montana	Bozeman		Feb. 16, 1893
Nebraska	Lincoln	Dec. 16, 1884	June 14, 1887
Nevada	Reno		Dec., 1887
New Hampshire	Durham		Aug. 4, 1887
New Jersey	(State) New Brunswick	Mar. 10, 1880	
New Jersey	(College) New Brunswick		April 26, 1883
New Mexico	(College of Agriculture) State College		Dec. 14, 1889
New York	(State) Geneva	Mar. 1, 1882	
New York	(Cornell University) Ithaca	1879	April 1, 1888
North Carolina	(College) West Raleigh	Mar. 12, 1877	Mar. 7, 1878
North Carolina	(State) Raleigh	July 1, 1907	
North Dakota	(Agricultural College)		Mar., 1890
Ohio	Wooster	April 25, 1882	April 2, 1888
Oklahoma	Stillwater		1891
Oregon	Corvallis		July, 1888
Pennsylvania	(State College)		June 30, 1887
Pennsylvania	Institute of Animal Nutrition		July 1, 1907
Rhode Island	Kingston		July 30, 1888
South Carolina	(Clemson College)		Jan., 1888
South Dakota	Brookings		Mar. 13, 1887
Tennessee	Knoxville	June 8, 1882	Aug. 4, 1887
Texas	(College Station)		Jan. 25, 1889
Utah	Logan		April, 1890
Vermont	Burlington		Feb. 28, 1888
Virginia	(College) Blackburg		Oct. 16, 1888
Virginia	(Truck) Norfolk	Feb., 1907	
Washington	Pullman		1892
West Virginia	Morgantown		1887
Wisconsin	Madison	1883	1887
Wyoming	(State University) Laramie		Mar. 1, 1891

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

APPENDIX B.

COUNTY COMMISSIONERS OF HORTICULTURE.

County	Horticultural Commissioners	Address
Alameda	Fred Soulberger, 418 Fourteenth st. D. P. Macdonald, Deputy Commissioner, 418 Fourteenth st.	Oakland. Oakland.
Amador	J. E. Kelly	Ione.
Butte	Earle Mills T. F. Stile, Deputy Commissioner.	Oroville. Chico.
Calaveras	J. B. Luddy	San Andreas.
Colusa	L. R. Boedsfeld	Colusa.
Contra Costa	V. G. Stevens	Concord.
El Dorado	John A. Winkleman	Placerville.
Fresno	Fred P. Roullard	Fresno.
Glenn	H. W. Kingswell	Orland.
Humboldt	John F. Benton	Eureka.
Imperial	F. W. Waite	El Centro.
Inyo	John W. Dixon	Bigpine.
Kern	Harold L. Pomeroy	Bakersfield.
Kings	Lawrence O. Haupt, Court House	Hanford.
Lake	Fred G. Stokes	Kelseyville.
Lassen	F. H. Taylor	Susanville.
Los Angeles	H. J. Ryan, Hall of Records	Los Angeles.
Madera	Geo. Marchbank	Madera.
Marin	Thos. P. Redmayne	San Rafael.
Mendocino	E. W. Dutton	Ukiah.
Merced	Arthur E. Beers	Merced.
Modoc	Thos. Bries	Davis Creek.
Monterey	J. B. Hickman J. O. McKinney, Deputy Commissioner, P. O. box 242	Aromas. Salinas.
Napa	W. D. Butler	Napa.
Nevada	D. F. Norton	Grass Valley.
Orange	Earl L. Morris	Santa Ana.
Placer	O. K. Turner	Auburn.
Riverside	D. D. Sharp	Riverside.
Sacramento	Fred C. Brosius, Court House	Sacramento.
San Benito	Donald Currier	Hollister.
San Bernardino	John P. Coy	San Bernardino.
San Diego	G. R. Gorton, Court House	San Diego.
San Francisco	Dudley Moulton, Board of Supervisors, Clerk's Office	San Francisco.
San Joaquin	H. H. Ladd, Court House	Stockton.
San Luis Obispo	H. E. Alley	San Luis Obispo.
San Mateo	A. W. Tate	Redwood City.
Santa Barbara	Eugene S. Kellogg	Santa Barbara.
Santa Clara	L. R. Cody	San Jose.
Santa Cruz	Donald D. Penny	Watsonville.
Shasta	B. F. Stroup	Anderson.
Siskiyou	W. L. Kleaver	Yreka.
Solano	Frank Owen	Suisun.
Sonoma	O. E. Bremner	Santa Rosa.
Stanislaus	A. L. Rutherford	Modesto.
Sutter	H. P. Stabler	Yuba City.
Tehama	G. H. Flourney	Red Bluff.
Tulare	Chas. F. Collins C. H. Doyle, Deputy Commissioner.	Visalia. Porterville.
Tuolumne	H. H. Sherrard	Sonora.
Ventura	A. H. Call	Santa Paula.
Yolo	Wm. Gould Harold Van Tassel, Deputy Commissioner, P. O. box 199	Woodland. Sacramento.
Yuba	G. W. Harney	Marysville.

FARM ADVISERS OF CALIFORNIA.

County	Name	Address
Alameda	Prof. M. A. W. Lee, Chamber of Commerce	Hayward.
Butte	H. E. Drobish, Chamber of Commerce	Oroville.
Contra Costa	A. M. Burton	Martinez
El Dorado	Prof. Burle J. Jones	Placerville.
Fresno	Dr. J. P. Benson, 317 Holland Building	Fresno.
Glenn	G. A. Goatley, Federal Building	Willows.
Humboldt	Dr. J. W. Logan, 622 Third Street	Eureka.
Imperial	E. L. Garthwaite, Court House	El Centro.
Kern	M. A. Rice, Court House	Bakersfield.
Kings	W. Sullivan	Hanford.
Los Angeles	R. W. Hodgson, 361 Court House	Los Angeles.
Madera	S. F. Smyth, Chamber of Commerce	Madera.
Marin	Mr. Bosavaine	San Rafael.
Mendocino	Prof. Chas. S. Myszka	Ukiah.
Merced	J. F. Grass, Jr., F. B. Office	Merced.
Monterey	T. C. Mayhew, City Hall	Salinas.
Napa	Prof. H. J. Baade, Court House	Napa.
Nevada	H. I. Graser	Grass Valley.
Orange	H. E. Wahlberg, 5/8 N. Main st.	Santa Ana.
Placer	Roy McCullum, Court House	East Auburn.
Riverside	R. E. Nebelung, Telephone Building	Riverside.
San Bernardino	Prof. D. S. Fox, 438 Court Street	San Bernardino.
Sacramento	L. Y. Leonard, Court House	Sacramento.
San Diego	J. G. France, Chamber of Commerce	San Diego.
San Joaquin	J. W. Adriance, Chamber of Commerce	Stockton.
Santa Barbara	D. R. Batchelder	Santa Barbara.
Santa Cruz	H. L. Washburn, 4 Cooper st.	Santa Cruz.
Shasta	Prof. Parker Talbot, Court House	Redding.
Solano	J. W. Mills, Court House	Fairfield.
Sonoma	Prof. H. A. Weinland	Santa Rosa.
Stanislaus	A. A. Jungermann, P. O. box 877	Modesto.
Sutter	C. E. Sullivan, Mission Hall	Yuba City.
Tehama	E. W. Curtis, Chamber of Commerce	Red Bluff.
Tulare	Prof. C. M. Conner, Auditorium	Visalia.
Ventura	C. C. Staunton, Court House	Ventura.
Yolo	W. D. Norton, Court House	Woodland.
Yuba	Wm. Harrison, Chamber of Commerce	Marysville.

APPENDIX C.

NATIONAL AND CALIFORNIA AGRICULTURAL ASSOCIATIONS.*

Horses.

American Hackney Horse Society	Hempstead, New York
American Shire Horse Society	Bushnell, Illinois
American Saddle Horse Breeders' Association	Lexington, Kentucky
Arabian Horse Club of America	1729 G St., Washington, D. C.
Coach Horse Association of America	Lafayette, Indiana
French Coach Horse Society of America, Maple Ave. and Harrison St., Oak Park, Ill.	
German, Hanoverian and Oldenburg	
Standard Bred: American Trotting Registered Association	
	137 South Ashland Ave., Chicago, Ill.
Thoroughbreds: The Jockey Club	New York, New York
Percheron Society of America	Stockyards, Chicago, Illinois
Pacific Coast Saddle Horse Breeders' Association, Dr. W. J. Smyth, Secretary	
	Union Savings Bank, Oakland, California
Pacific Coast Trotting Horse Breeders' Association	Oakland, California

STATES HAVING STALLION REGISTRATION LAWS.

State	Name and location	Date of organization
California	Stallion Registration Board, Sacramento	Aug. 1, 1911
Colorado	State Board of Stock Inspection Commissioners, Denver	Aug. 5, 1911
Idaho	Stallion Registration Board, Moscow	Mar. 15, 1909
Illinois	Stallion Registration Board, Springfield	Jan. 1, 1910
Iowa	Stallion Registration Board, Des Moines	Mar. 30, 1907
Kansas	State Livestock Registry Board, Manhattan	April 3, 1910
Michigan	Agricultural College, East Lansing	Aug. 1, 1911
Minnesota	Stallion Registration Board, St. Paul	April 25, 1907
Missouri	Missouri Stallion Registration Board, Columbia	Jan. 1, 1918
Montana	Bureau of Agriculture, Labor, Industry and Publicity, Helena	Mar. 8, 1909
Nebraska	Stallion Registration Board, Lincoln	July 7, 1911
New Jersey	Stallion Registration Board, New Brunswick	Sept. 1, 1908
New York	New York Stallion Registration Board, Albany	Aug. 1, 1916
North Dakota	Stallion Registration Board, Fargo	Jan. 1, 1910
Oklahoma	Oklahoma State Live Stock Registration Board, Stillwater	Feb. 25, 1915
Oregon	Stallion Registration Board, Corvallis	May 20, 1911
Pennsylvania	Stallion Registration Board, Harrisburg	Jan. 1, 1908
South Dakota	Stallion Registration Board, Brookings	Mar. 9, 1919
Utah	Stallion Registration Board, Logan	May 13, 1917
Washington	Stallion and Jack Registration Office, State College, Pullman	June 8, 1910
Wisconsin	Stallion Registration Board, Madison	Jan. 1, 1906

Cattle.

American National Livestock Association	Denver, Colorado
American Hereford Cattle Breeders' Association	
	625 Finance Building, Kansas City, Missouri
American Polled Hereford Cattle Breeders' Association	Des Moines, Iowa
American Jersey Cattle Club, R. M. Gow, Secretary	
	324 West Twenty-third Street, New York, N. Y.
American Polled Jersey Cattle Club	R. F. D. No. 4, Springfield, Ohio
American Guernsey Cattle Club, Wm. H. Caldwell	Peterboro, New Hampshire
American Devon Cattle Club, L. P. Sisson, Secretary	Charlottesville, Virginia
American Polled Durham Breeders' Association, J. H. Martz, Secretary	Greenville, Ohio
American Shorthorn Breeders' Association, F. W. Harding, Secretary	
	No. 13 Dexter Park Avenue, Union Stockyards, Chicago, Illinois
Holstein-Friesian Association of America, L. F. Houghton, Secretary	
	Brattleboro, Vermont
Red Polled Cattle Club of America, H. A. Martin, Secretary	Gotham, Wisconsin
American Aberdeen-Angus Breeders' Association	
	317 Exchange Avenue, Chicago, Illinois
American Galloway Breeders' Association	Carrollton, Missouri

*This is only a partial list, as there are many county and local organizations too numerous to include in this summary.

American Kerry and Dexter Cattle Club, C. S. Plum, Secretary.....	Ohio State University, Columbus, Ohio
Ayrshire Breeders' Association, C. M. Winslow, Secretary.....	Brandon, Vermont
Dutch Belted Cattle Association of America, G. G. Gibbs, Secretary.....	Marksboro, New Jersey
Brown Swiss Cattle Breeders' Association, Ira Inman, Secretary.....	Beloit, Wisconsin
California Cattlemen's Association.....	320 Sharon Building, San Francisco, California
California Holstein-Friesian Association.....	Sacramento, California
California Jersey Breeders' Association.....	Lockeford, California

Sheep.

American Southdown Breeders' Association.....	510 Monroe St., Springfield, Illinois
American Shropshire Register Association.....	Lafayette, Indiana
American Oxford Down Record Association.....	Hamilton, Ohio
The Continental Dorset Club.....	Mechanicsburg, Ohio
American Cheviot Sheep Society.....	Fayetteville, New York
American Tunis Sheep Breeders' Association.....	Crawfordsville, Indiana
American Cotswold Registry Association.....	Waukesha, Wisconsin
National Lincoln Sheep Breeders' Association.....	Charlotte, Michigan
American Leicester Breeders' Association.....	Cameron, Illinois
American Romney Breeder's Association.....	Mechanicsburg, Ohio
American and Delaine, Merino Record Association.....	Delaware, Ohio
American Rambouillet Sheep Breeders' Association.....	Milford Center, Ohio
American Hampshire Sheep Association.....	36 Woodland Avenue, Detroit, Michigan

Goats.

American Angora Goat Breeders' Association.....	Lawrence, Kansas
American Milk Goat Record Association, J. C. Darst, Secretary.....	Dayton, Ohio
California Woolgrowers' Association, Prof. Robt. F. Miller, Secretary.....	University Farm, Davis, California
National Association of Wool Manufacturers.....	50 State Street, Boston, Massachusetts

Swine.

American Berkshire Association.....	Springfield Illinois
American Hampshire Swine Record Association.....	Peoria, Illinois
American Yorkshire Club.....	White Bear Lake, Michigan
American Poland China Record Association.....	Union Stockyards, Chicago, Illinois
National Poland China Record Association.....	Winchester, Indiana
National Duroc-Jersey Record Association.....	Peoria, Illinois
National O. T. C. Chester White Record Association.....	Hastings, Nebraska
California Swine Breeders' Association, R. P. Boyce, Secretary.....	University Farm, Davis, California

Poultry and Dairy.

American Poultry Association.....	St. Louis, Missouri
Poultry Keepers' Association.....	Petaluma, California
Poultry Producers of Central California.....	612 Underwood Building, San Francisco, California
Southern California Poultrymen's Association, Jos. Davis, Secretary.....	Los Angeles, California
Poultry Producers of Southern California.....	Los Angeles, California
Stanislaus Poultry and Pet Stock Association.....	Modesto, California
San Joaquin Poultry Association.....	Stockton, California
Pasadena Poultry, Pigeon and Pet Stock Association.....	Pasadena, California
Associated Milk Producers, Inc.....	53 Clay St., San Francisco, California
A. J. Homen, Secretary.	
California Milk Producers' Association of Central California.....	Bacon Blk., Oakland
C. H. Geer, President.	
H. J. Faulkner, General Manager.	
California Milk Producers.....	1505 S. Main St., Los Angeles, California
B. A. Rhoades, President.	
T. H. Brice, Secretary-Manager.	
Northern California Milk Producers' Assn.....	Fruit Bldg., Sacramento, California
J. M. Henderson, Jr., President, Sacramento Bank, Sacramento.	
H. M. Elli, Secretary.	
San Joaquin Valley Milk Producers' Association.....	Cory Bldg., Fresno, California
Fred W. Hansen, President and Manager.	
J. A. Schlotthauer, Secretary.	
Milk Producers' Association of San Diego County.....	
Douglas Young, Manager.	310 Central Mortgage Bldg., San Diego, California

Hares and Rabbits.

National Association of Commercial Giant Breeders.....	323 Richland Ave., San Francisco, California
California Rabbit Breeders' Association.....	2157 Encinal Ave., Alameda, California

Fruit Associations.

California Fruit Growers' Exchange	Los Angeles,	California
Citrus Protective League of California	Los Angeles,	California
California Fruit Exchange	Sacramento,	California
California Fruit Distributors	Sacramento,	California
California Associated Raisin Company	Fresno,	California
California Pear Growers' Association	510 Battery St., San Francisco,	California
California Prune and Apricot Growers' Association	San Jose,	California
California Peach Growers' Association	Fresno,	California
California Fig Growers' Association	Cory Building, Fresno,	California
California Avocado Association	Experiment Station, Riverside,	California
American Date Company	206 Wright & Callendar Bldg., Los Angeles,	California
Coachella Valley Co-operative Date Growers' Syndicate	Indio,	California
California Associated Olive Growers, Incorporated		
	721 Balboa Building, San Francisco,	California
American Olive Company, Adam St. and Long Beach Ave.,	Los Angeles,	California
California Ripe Olive Company	Oroville,	California
Los Angeles Olive Growers' Association, 522 Higgin's Bldg.,	Los Angeles,	California
Olive Products Company	Oroville,	California
Imperial Valley Melon Growers' Association	El Centro,	California
Sebastopol Apple Growers' Union	Sebastopol,	California
Watsonville Apple Distributors	Watsonville,	California

Nuts.

California Almond Growers' Exchange, 311 California Street,	San Francisco,	California
California Walnut Growers' Association		
	1326 East Seventh Street, Los Angeles,	California

Bees and Honey, and Wine.

California State Beekeepers' Association		
	232 West First Street, Los Angeles,	California
California National Honey Producers' Association		California
California Honey Producers' Co-operative Exchange	Box 688, Molesto,	California
Northern California Beekeepers' Association	Fair Oaks, Sacramento,	California
California Wine Association	216 Pine Street, San Francisco,	California

Vegetables.

The American Beet Sugar Company	625 Market Street, San Francisco,	California
The Lima Bean Growers' Association	Oxnard,	California
California Castor Bean Association	Santa Barbara,	California
California Bean Growers' Association	Stockton,	California
California Tomato Growers' Association, 510 Battery Street,	San Francisco,	California
West Coast Potato Association	Stockton,	California
Celery Growers' Association	Santa Ana, Orange County,	California
California Vegetable Union	812 Union Oil Building, Los Angeles,	California
Alfalfa Growers of California, Inc.	525 Central Bldg., Los Angeles,	California
Imperial Valley Long Staple Cotton Growers' Exchange	El Centro,	California
Pacific Rice Growers' Association	Fruit Building, Sacramento,	California

Miscellaneous.

National Agricultural Society	Second West Forty-fifth Street, New York, N. Y.	
California Farmers' Institutes	University of California, Berkeley,	California
California Farmers' Union, Incorporated	112 Market Street, San Francisco,	California
California State Grange, Joseph Holmes, Master		Cupertino, California
California Association of Nurserymen	237 Franklin Street, Los Angeles,	California
California Irrigation Association		
	Merchants National Bank Building, San Francisco,	California
California Grape Protective Association	216 Pine Street, San Francisco,	California
San Joaquin County Grape Growers' Protective League		Lodi, California
Valley Fruit Growers' Association	Griffith-McKenzie Building, Fresno,	California
Japanese Agricultural Association	444 Bush Street, San Francisco,	California

Agricultural Newspapers.

Pacific Rural Press (W)	525 Market Street, San Francisco,	California
California Fruit News (W)	341 Montgomery Street, San Francisco,	California
California Home and Farmer	706 Chronicle Building, San Francisco,	California
Orchard and Farm (W)	Examiner Building, San Francisco,	California
California Cultivator (W)	115 North Broadway, Los Angeles,	California
Pacific Fruit World (W)	706 Hollingsworth Building, Los Angeles,	California
Rural World	237 South Broadway, Los Angeles,	California
Western Empire (M)	132 North Broadway, Los Angeles,	California
Fig and Olive Journal	311 East Fourth Street, Los Angeles,	California
Pacific Dairy Review (W)	78 Clay Street, San Francisco,	California
Breeder and Sportsman	235 Pacific Building, San Francisco,	California
Pacific Poultry Craft (M)	223 Central Building, Los Angeles,	California
Pacific Poultry Breeder (M)		San Jose, California
California Poultry Journal (M)	105½ North Spring Street, Los Angeles,	California
Live Stock and Dairy Journal (M)		Sacramento, California
Sacramento Valley Monthly		Sacramento, California

APPENDIX D.

Acts Relating to the Management and Control of the State Agricultural Society.*

Chapter 60—To provide for the management and control of the State Agricultural Society by the state. Approved April 15, 1880.

Chapter 307—An act to amend the above act. Approved June 11, 1913.

Chapter 570—An act to amend the above act. Approved May 29, 1915.

STATISTICS.

Chapter 584—An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the state of California, and making an appropriation therefor. Approved April 25, 1911.

CHAPTER 60.

An act to provide for the management and control of the state agricultural society by the state.

[Approved April 15, 1880.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The state agricultural society is hereby declared to be a state institution.

SEC. 2. Within ten days after the passage of this act, the governor shall appoint twelve resident citizens of the state, who shall, when organized constitute a state board of agriculture, who shall, except as hereinafter provided, hold office for the term of four years, and until their successors are appointed and qualified. Vacancies occurring from any cause in the board shall be filled by appointment of the governor for the unexpired term of the office vacated.

SEC. 3. Within ten days after their appointment, the persons so appointed shall qualify, as required by the constitution, and shall meet at the office of the state agricultural society and organize by the election of one of their number as president of the board and said society, who shall hold said office of president for the term of one year, and until his successor is elected and qualified. The board shall also elect a secretary and treasurer, not of their number, who shall each hold office at the discretion of the board.

SEC. 4. At the same meeting, the members of the board shall, by lot or otherwise, classify themselves into four classes of three members each. The terms of office of the first class shall expire at the end of the first fiscal year; of the second class, of the second year; of the third class, of the third year; of the fourth class, at the end of the full term of four years. The fiscal year shall be from the first of February to the first of February.

SEC. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the

*The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.

Incorporated May 13, 1854.

State Board of Agriculture appointed March 12, 1863.

secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society, to adapt the same to the provisions of this act, and to the management of the society, its meetings and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture.

SEC. 6. The board shall have power to appoint all necessary marshals and police to keep order and preserve peace at the annual fairs of the society; and the officers so appointed shall be vested with the same authority for the preservation of order and peace, on the grounds and in the buildings of the society, that executive peace officers are vested with by law.

SEC. 7. Said board shall use all suitable means to collect and disseminate all kinds of information calculated to educate and benefit the industrial classes, develop the resources, and advance the material interests of the state, and shall, on or before the first day of February of each year, report to the governor a full and detailed account of their transactions, statistics, and information gained, and also a full financial statement of all funds received and disbursed. They shall also make such suggestions and recommendations as experience and good policy may dictate for the improvement and advancement of the agricultural and kindred industries.

SEC. 8. The superintendent of state printing shall, each year, print and bind in cloth, four thousand volumes of said transactions, and deliver the same to said board of agriculture for distribution and exchange. He shall also do such job printing as sa'd board may require to carry out the provisions of this act.

SEC. 9. The directors or boards of managers of each county and district agricultural society or association, and of county, district, or state horticultural and stock breeding association or society, organized, and acting under the laws of this state, shall report annually, on or before the first day of April, to the state board of agriculture, the name and post-office address of each officer of such society or association; and, on or before the first day of December, shall report to said board of agriculture the transactions of said society, including the premiums offered, the list of stock and articles exhibited, and the premiums paid; the amount of receipts and expenditures for the year, the new industries inaugurated, and any and all facts and statistics showing the development and extent of the industries, products, and resources of the county or district embraced within the management of such society or association; *provided*, that the provisions of this act shall not apply to any board of commissioners or other body organized under the laws of this state, the object of which is to promote viticultural industries, unless such board or body shall voluntarily request the privilege of making such reports as are called for by this act, in which case such board or body shall enjoy equal privileges as are accorded to other institutions devoted to agriculture.

SEC. 10. To facilitate such reports, the state board of agriculture shall have prepared, and shall furnish such societies with necessary schedules and blanks for such reports; said state board shall include such reports from societies and associations, or so much thereof as they may deem advisable, in their report to the governor.

SEC. 11. When said state board of agriculture shall have been organized and classified as provided herein, the secretary of the board shall report such organization and classification to the governor. He shall also report any vacancy that may occur in said board at any time.

SEC. 12. All laws and parts of laws in conflict with this act are hereby repealed.

SEC. 13. This act shall take effect and be in force from and after its passage.

CHAPTER 307.

An act to amend an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880.

[Approved June 11, 1913.]

The people of the State of California do enact as follows:

SECTION 1. Section five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, is hereby amended to read as follows:

Sec. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society; to

adapt the same to the provisions of this act, and to the management of the society, its meetings, and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture; *provided, further*, that the collections and receipts from other sources than state appropriations shall be reported monthly by the secretary to the controller of state and shall be paid into the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be for the use of the society.

CHAPTER 570.

An act to amend sections one and five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended and approved June 11, 1913.

[Approved May 29, 1915.]

The people of the State of California do enact as follows:

SECTION 1. Section one of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended June 11, 1913, is hereby amended to read as follows:

Section 1. The state agricultural society is hereby declared to be a state institution; *provided*, that all rights and privileges which have heretofore accrued to members of said society under its rules, either through payments made or by services rendered, are hereby recognized and continued.

SEC. 2. Section five of said act is hereby amended to read as follows:

Sec. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property and be intrusted with the direction of its entire business and financial affairs. It shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules for the society, to adapt the same to the provisions of this act and to the management of the society, its meetings and exhibitions. It shall provide for an annual fair or exposition by said society of the industries and industrial products of this state and commercial products exported and imported through the ports of this state at the city of Sacramento each year; *provided*, that in any year during which an international exposition conducted in whole or in part under the auspices of the State of California and endorsed by the United States government, is held within the State of California and the state board of agriculture deems it inexpedient to hold a state fair, the funds of the state agricultural society for that year only may be expended in cooperation with the management of said exposition to provide for a proper exploitation of the industries of California at such exposition; *provided, further*, that in no event shall the state be liable for any premium awarded or debt created by the said state board of agriculture; *provided, further*, that the collections and receipts from sources other than state appropriations, shall be reported monthly by the secretary to the controller of state, and shall be paid to the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be solely for the use of the society.

CHAPTER 584.

An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the State of California, and making an appropriation therefor.

[Approved April 25, 1911.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The board of directors of the state agricultural society are authorized, and it is hereby made their duty, to collect, compile and publish annually, on or before the 31st day of January in each year, statistics showing the yield of agri-

cultural and other farm and industrial products of the State of California for each preceding year, and shall, as nearly as may be practicable, ascertain and publish each year the number of acres of land within the state that are under irrigation, and the number, location and extent of any new irrigation enterprises, exclusive of individual pumping plants, that may have been started within the state during the preceding year.

SEC. 2. For the purpose of carrying out the provisions of this act, the sum of five thousand (\$5,000.00) dollars per annum is hereby appropriated out of any money in the state treasury not otherwise appropriated, and the controller is hereby authorized to draw his warrant from time to time up to the amount of said appropriation in favor of the board of directors of the state agricultural society, and the state treasurer is hereby authorized and directed to pay the same.

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STATISTICAL REPORT

OF THE

California State Board of Agriculture

For the Year 1921



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

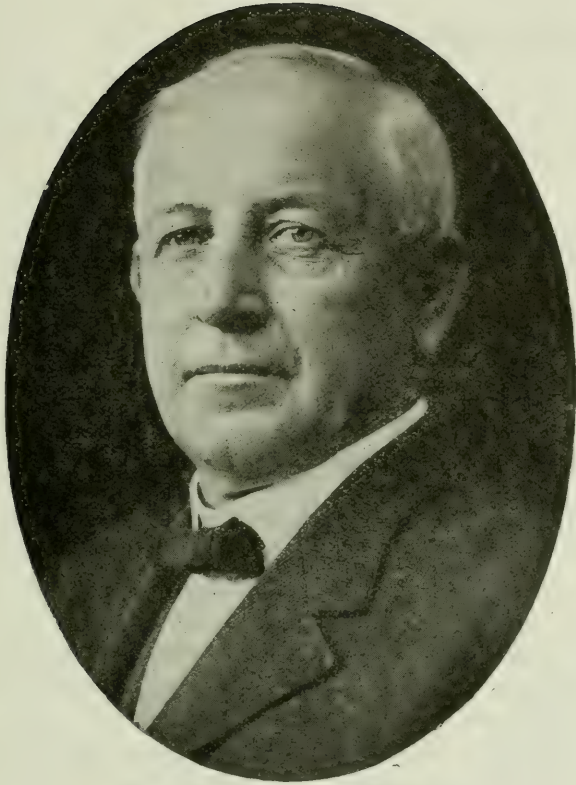
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WILLIAM D. STEPHENS, Governor of California.

LETTER OF TRANSMITTAL.

SACRAMENTO, CALIFORNIA, July 1, 1922.

To His Excellency,

HONORABLE WM. D. STEPHENS,

Governor of the State of California.

DEAR SIR: We have the honor to submit herewith the sixty-eighth annual report of the State Board of Agriculture together with data relative to the sixty-seventh California State Fair.

California fared remarkably well agriculturally in 1919, 1920, and 1921. A crop value of \$490,600,000 in 1919 placed the state in eleventh place, but with an increased value of \$50,000,000 in 1920 California advanced to second place, a position that it occupied in 1921 also, with a crop value of \$383,000,000. These figures go to show that fruits and vegetables withstood the falling price movement better than grains and animal products. California in 1921 ranked fourteenth in animal production and sixth in total value of farm products.

The statistical figures submitted with this report do not cover the entire resources of California, which is to be regretted, but with the limited appropriation allowed, it is impossible to do justice to all subjects, therefore, the subjects that are in our opinion the most important, have been chosen, and represent as a whole a fairly complete and useful compendium of California's wealth and diversity. The report also contains articles relative to the production, cultivation and raising of various products, written by men who are authorities on the particular subjects treated, and will prove of value to those engaged in their production.

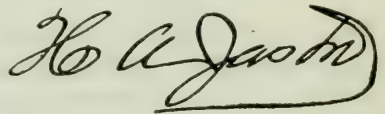
The figures and tables used in the report were gathered and compiled from the most reliable sources possible, and are very conservative. The statistics regarding population, area of farm land and county summaries are compiled from the reports of the last census, which contains the only reliable figures by actual count. It is very difficult to obtain reliable information from county sources as figures so obtained have a tendency to exaggerate which does more harm than good and statistics to be of any real value must be as accurate as possible.

That this report is of increasing importance to California is evidenced by the fact that a great many requests are made from educators of various schools and universities for numbers of copies to be used as

text books, and the requests for copies from officials of foreign governments and individuals desiring information with a view of settlement in California.

The sixty-seventh State Fair was acknowledged to be the greatest aggregation of agricultural, horticultural, livestock and mining exhibits ever brought together in the West, and its educational value was of inestimable worth to the citizens. As shown by the financial statement the gate receipts were not quite as large as in 1920, due to the general readjustment following the war, but the gross receipts were some \$5,000 in excess of 1920.

Respectfully submitted.

A handwritten signature in cursive script, reading "H. A. Jordan". The signature is written in dark ink and is positioned above the title "President."

President.

A handwritten signature in cursive script, reading "Angus W. Paine". The signature is written in dark ink and is positioned above the title "Secretary."

Secretary.

STATISTICAL SUMMARY

OF THE

Agricultural Production, Population
and Resources

OF THE

STATE OF CALIFORNIA

PREFACE.

The great importance and value of statistics that cover the whole state is now universally recognized, and since the first report was issued there has been a steadily increasing demand for copies not only from California, but from all parts of the world.

The first statistical report of the whole state was issued in 1911, and statistics were carried back to 1850 when the state was first organized, but in later issues the figures of earlier years have been omitted, it being necessary to limit the size of this report in order to keep within the amount of appropriation.

Acknowledgment and appreciation are due to the United States Department of Agriculture, The Bureau of Statistics, Bureau of Census, Department of Commerce, Fish and Game Commission, California Co-operative Crop Reporting Service and other federal and state offices, for much of the valuable information contained in this report.

The writer desires to express his special obligation to the professors of the University of California, and all others who have contributed the very valuable special articles herein contained, some of which have been reproduced from last year's report.

Valuable information has been received from the various growers' associations, chambers of commerce, farm and dairy publications, and from other sources to all of which I acknowledge appreciation.

GEO. K. EDWARDS,
Statistician.

Sacramento, California, July 1, 1922.

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COUNTIES AND COUNTY SEATS, ACREAGE AND PROPERTY VALUE, 1921.

Counties	County seat	Elevation, county seats	Approximate county land area, acreage	Number of acres of land assessed	Value of real estate	Grand total of all property
Alameda	Cakland	36	468,480	459,796	\$149,324,640	\$314,044,299
Alpine	Markleeville	*	496,640	48,185	549,367	812,937
Amador	Jackson	1,975	384,640	302,899	2,955,078	6,925,588
Butte	Oroville	250	1,102,080	898,996	24,287,920	43,305,078
Calaveras	San Andreas	*	657,280	510,804	5,071,310	8,587,433
Colusa	Colusa	60	729,600	630,575	15,646,225	24,200,735
Contra Costa	Martinez	125	456,960	459,426	33,574,640	87,374,877
Del Norte	Crescent City	50	655,360	222,673	8,326,785	9,453,336
El Dorado	Placerville	1,875	1,121,920	680,776	7,248,655	11,805,740
Fresno	Fresno	293	3,808,000	2,176,500	92,862,169	188,332,264
Glenn	Willows	136	805,760	626,779	17,937,634	27,603,956
Humboldt	Eureka	64	2,325,760	1,681,457	26,756,640	42,560,904
Imperial	El Centro	-2	2,616,960	1,171,800	27,752,902	47,510,133
Inyo	Independence	3,907	6,412,160	262,813	6,605,452	17,033,180
Kern	Bakersfield	404	5,121,920	3,486,956	121,278,353	186,312,776
Kings	Hanford	249	741,760	835,159	16,399,130	28,206,785
Lake	Lakeport	*	817,920	371,883	4,642,465	6,755,820
Lassen	Susanville	4,175	2,899,840	940,743	8,674,425	16,639,784
Los Angeles	Los Angeles	293	2,602,880	1,177,766	612,073,810	1,414,564,717
Madera	Madera	272	1,351,680	820,098	14,677,370	22,465,890
Marin	San Rafael	*	338,560	308,975	14,800,175	26,668,602
Mariposa	Mariposa	2,018	936,320	382,858	3,242,112	5,286,386
Mendocino	Ukiah	620	2,209,920	1,836,668	18,555,910	29,886,216
Merced	Merced	173	1,276,800	1,186,380	19,079,934	34,868,653
Modoc	Alturas	4,460	2,446,720	740,526	5,071,800	8,450,770
Mono	Bridgeport	6,500	1,939,200	187,349	1,544,525	4,102,570
Monterey	Salinas	40	2,131,200	1,487,594	25,748,335	46,316,112
Napa	Napa	20	501,120	417,709	11,820,220	24,695,190
Nevada	Nevada City	2,580	623,360	476,775	3,402,530	9,305,221
Orange	Santa Ana	137	508,800	444,388	58,924,805	128,569,920
Placer	Auburn	1,360	890,800	627,543	8,144,055	18,506,624
Plumas	Quincy	3,400	1,660,160	540,134	10,617,013	21,220,247
Riverside	Riverside	851	4,633,600	1,770,679	23,571,400	50,837,731
Sacramento	Sacramento	71	629,120	584,535	67,693,874	133,003,882
San Benito	Hollister	284	890,580	610,998	8,130,225	14,256,227
San Bernardino	San Bernardino	1,054	12,900,480	523,563	30,529,990	89,511,779
San Diego	San Diego	93	2,701,440	1,180,067	54,467,132	90,434,293
San Francisco	San Francisco	207	27,520	29,769	297,625,295	869,187,114
San Joaquin	Stockton	24	926,720	836,858	59,105,825	110,791,099
San Luis Obispo	San Luis Obispo	291	2,133,760	1,662,998	19,415,050	36,161,472
San Mateo	Redwood City	8	286,080	305,850	22,514,810	39,064,733
Santa Barbara	Santa Barbara	130	1,733,600	1,040,135	26,772,485	56,934,231
Santa Clara	San Jose	95	849,920	748,897	51,695,425	115,933,819
Santa Cruz	Santa Cruz	20	278,400	259,796	11,681,155	23,733,625
Shasta	Redding	552	2,469,120	1,541,640	10,276,390	20,645,005
Sierra	Downieville	3,150	590,720	327,582	1,784,795	2,930,890
Siskiyou	Yreka	2,635	4,003,840	1,931,216	13,984,185	28,312,556
Solano	Fairfield	12	526,080	527,055	16,917,820	34,570,425
Sonoma	Santa Rosa	181	1,009,280	922,889	28,799,480	53,335,210
Stanislaus	Modesto	90	928,000	870,505	32,640,470	58,022,514
Sutter	Yuba City	57	389,120	374,513	13,273,895	21,732,757
Tehama	Red Bluff	307	1,851,520	1,358,379	10,703,660	19,841,981
Trinity	Weaverville	2,046	2,026,240	601,687	2,585,740	3,844,235
Tulare	Visalia	334	3,107,840	1,410,316	42,114,810	81,738,864
Tuolumne	Sonora	1,825	1,401,600	454,348	5,181,472	11,566,968
Ventura	Ventura	43	1,201,920	602,134	32,477,070	49,443,641
Yolo	Woodland	58	648,960	594,571	17,971,700	31,309,761
Yuba	Marysville	67	408,960	356,691	8,784,410	19,961,953
Totals			99,617,280	47,830,645	\$2,288,294,947	\$4,929,479,508

NOTES REGARDING CHANGES IN BOUNDARIES OF COUNTIES AND INCORPORATED PLACES.

- COLUSA—Part taken to form Glenn in 1891.
 DEL NORTE—Part annexed to Siskiyou between 1880 and 1890.
 FRESNO—Part taken to form Madera in 1893, and part annexed to Kings in 1909.
 GLENN—Organized from part of Colusa in 1891.
 HUMBOLDT—Part of Klamath annexed in 1874.
 IMPERIAL—Organized from part of San Diego in 1907.
 KINGS—Organized from part of Tulare in 1893, and part of Fresno annexed in 1909.
 LAKE—Part annexed to Napa in 1872.
 LOS ANGELES—Part taken to form Orange in 1889.
 MADERA—Organized from part of Fresno in 1893.
 MODOC—Organized from part of Siskiyou in 1874.
 MONTEREY—Part taken to form San Benito in 1874.
 NAPA—Part of Lake annexed in 1872.
 ORANGE—Organized from part of Los Angeles in 1889.
 RIVERSIDE—Organized from parts of San Bernardino and San Diego in 1893.
 SAN BENITO—Organized from part of Monterey in 1874.
 SAN BERNARDINO—Part taken to form part of Riverside in 1893.
 SAN DIEGO—Part taken to form part of Riverside in 1893, part taken to form Imperial in 1907.
 SANTA BARBARA—Part taken to form Ventura in 1871.
 SISKIYOU—Part taken to form Modoc in 1874; part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890.
 TULARE—Part taken to form Kings in 1893.
 VENTURA—Organized from part of Santa Barbara in 1871.

INCORPORATED PLACES.

- BAKERSFIELD—Part of township 3 (Kern City) annexed in 1909.
 BERKELEY—Part of Oakland township annexed in 1906 and 1908.
 FRESNO—Part of township 3 annexed in 1910.
 LOS ANGELES—Parts of Ballona, Burbank, Cahuenga, and San Antonio townships annexed between 1890 and 1900; part of Ballona township annexed in 1906; part of Wilmington township (including San Pedro City) annexed in 1909, and parts of Burbank and Cahuenga townships annexed in 1910.
 OAKLAND—Parts of Brooklyn and Oakland townships annexed in 1909.
 ONTARIO—Parts of Ontario township annexed in 1901.
 PASADENA—Parts of Pasadena township annexed in 1904 and 1906.
 SAN LEANDRO—Part of Brooklyn township annexed in 1909.

THE STATE OF CALIFORNIA.

(Date of organization as a Territory, March 1, 1847; as a State, September 9, 1850.)

PART I.

LANDS AND FARMS.

California and Other States; Agricultural Diversity; Leading Counties of United States; Agricultural Comparison and Value of Farm Products by States; Organization of State; National Parks and Monuments; Natural Recreation Grounds; Vacant Public Lands; School and Railroad Lands; Homesteads; Land Settlement; Irrigation; Drainage; Farms and Farm Lands; United States Census Value of Farm Lands.

The State of California is about 780 miles in length; its breadth varies from 150 to 350 miles and its total area is 158,297 square miles, of which 2,645 are water surface. The coast line is more than 1000 miles long. In size it ranks second among the states of the Union, Texas being the only one to exceed it. It is almost as large in total area of land and water as the following seven Eastern states combined:

State	Square miles
New York.....	49,204
Ohio.....	41,040
Maine.....	33,040
Vermont.....	9,564
New Hampshire.....	9,341
Massachusetts.....	8,266
New Jersey.....	8,224
Total.....	158,679
California.....	158,297

Among the forty-eight commonwealths comprising the United States of America, the State of California ranks as follows:

Horticultural products.....	First
General agriculture.....	Fourth
Number of new farms, 1910 to 1920.....	First
Population.....	Eighth
Banking capital.....	Fifth
Gold production.....	First
U. S. revenue collections.....	Seventh
University attainment.....	First
Greatest cities.....	Tenth

If we average these items California ranks nearly fourth among all the states—judged by her attainment in these diverse measures of development, and it has all been accomplished within the scriptural limit of the age of man; in fact, many eyes still brightly shine which saw the light a decade or two before California was born! It is a wonderful achievement in the building of a state.

Nature gave situation and resources to the one hundred million acres of earth surface now known as California, which qualify and endow it to become the first commonwealth of the United States.

California Most Diversified Agricultural State in the Union.

Of all states, California is the most varied agriculturally. Within her boundaries are grown 102 distinct classes of soil products, according to the list of the last census. Other states such as Illinois and Iowa have large departments of agriculture and efficient agricultural experimental stations, but their problems are simpler because the number of their important agricultural products is less. For example, in Iowa, which leads all states in the total value of her agricultural products, the census lists 76 classes, 26 less in number than are listed for California. The extremes of climate and other agricultural conditions which make California adaptable to such a variety of products, also increases the difficulties of efficient supervision, standardization and experimentation. The Agricultural Experiment Station is carrying on 116 experimental projects, ranging from the Imperial Valley in the south, to Shasta County in the north, while the Department of Agriculture finds it necessary to meet every ship that touches our shores from foreign or inter-territorial points; every rail shipment of agricultural products coming across the state, for protection, and standardizes the vegetables, fruits and animal industry over the entire state.

FIFTY LEADING AGRICULTURAL COUNTIES IN THE UNITED STATES CLASSIFIED ACCORDING TO RANK
—1920 U. S. CENSUS

County and State	Value of crops and livestock products		Value of crops		Principal products
	Rank	Amount	Rank	Amount	
Los Angeles, Cal.	1	\$71,579,899	1	\$61,864,479	Oranges, lemons, hay and forage, walnuts.
Fresno, Cal.	2	55,110,101	3	51,861,252	Grapes, peaches, hay and forage, dairy products
Aroostook, Me.	3	54,376,256	2	52,541,205	Potatoes, hay and forage, oats, dairy products.
San Joaquin, Cal.	4	41,191,240	4	37,956,866	Potatoes, grapes, barley, hay and forage.
Lancaster, Pa.	5	40,776,212	5	32,191,536	Tobacco, corn, hay and forage, wheat.
Yakima, Wash.	6	34,741,710	6	32,458,658	Apples, hay and forage, potatoes, peaches.
Tulare, Cal.	7	34,036,167	8	30,547,341	Grapes, oranges, hay and forage, dairy products
Sonoma, Cal.	8	32,300,623	42	17,477,370	Eggs, chickens, plums, prunes, apples, grapes.
Whitman, Wash.	9	31,921,047	7	30,824,407	Wheat, hay and forage, oats, barley.
Dane, Wis.	10	29,395,753	25	20,978,957	Dairy products, hay and forage, corn, oats.
McLean, Ill.	11	29,161,454	9	26,938,018	Corn, oats, wheat, hay and forage.
San Bernardino, Cal.	12	27,957,448	10	26,517,455	Oranges, lemons, grapes, hay and forage.
Maricopa, Ariz.	13	26,819,662	12	24,054,416	Cotton, hay and forage, dairy products, wheat.
St. Lawrence, N. Y.	14	26,809,540	108	13,582,476	Dairy products.
Orange, Cal.	15	26,635,748	11	25,572,032	Grapes, walnuts, lemons, sugar beets.
York, Pa.	16	26,600,746	26	20,953,838	Corn, wheat, hay and forage, eggs and chickens.
Santa Clara, Cal.	17	26,135,980	14	23,792,684	Plums and prunes, apricots, hay and forage, dairy products.
La Salle, Ill.	18	25,828,420	15	23,604,661	Corn, oats, wheat, hay and forage.
Champaign, Ill.	19	25,619,290	13	23,800,535	Corn, oats, wheat, hay and forage.
Livingston, Ill.	20	24,153,905	19	22,199,150	Corn, oats, eggs and chickens, wheat.
Bolivar, Miss.	21	23,703,571	16	23,114,901	Cotton, corn.
Iroquois, Ill.	22	23,627,284	22	21,474,008	Corn, oats, eggs and chickens, wheat.
Anderson, S. C.	23	23,528,158	20	22,012,165	Cotton, corn.
Orangeburg, S. C.	24	23,427,879	18	22,994,576	Cotton, corn.
Robeson, N. C.	25	23,389,828	17	22,955,950	Cotton, tobacco, corn.
Weld, Colo.	26	23,203,475	23	21,198,360	Sugar beets, hay and forage, wheat, potatoes.
Dodge, Wis.	27	23,049,660	90	14,331,352	Dairy products, hay and forage, oats, corn.
Stanislaus, Cal.	28	22,758,641	47	17,140,414	Hay and forage, dairy products, barley, wheat.
Hartford, Conn.	29	22,751,488	35	18,779,160	Tobacco, dairy products, hay and forage, corn
Williamson, Tex.	30	22,324,436	21	21,500,490	Cotton, corn, oats, hay and forage.
Chautauqua, N. Y.	31	22,316,250	74	14,983,214	Dairy products, hay and forage, grapes, eggs and chickens.
Chester, Pa.	32	22,261,956	83	14,567,299	Dairy products, corn, hay and forage, wheat.
Sacramento, Cal.	33	21,981,958	27	19,845,858	Dry beans, wheat, hay and forage, grapes.
Pitt, N. C.	34	21,486,117	24	21,052,441	Tobacco, cotton, corn.
Otter Tail, Minn.	35	21,474,949	41	17,568,127	Wheat, hay and forage, dairy products, potatoes.
Berks, Pa.	36	21,447,279	71	15,232,909	Corn, dairy products, hay and forage, potatoes.
Eric, N. Y.	37	21,294,818	87	14,443,243	Dairy products, hay and forage, potatoes, eggs and chickens.
Spartanburg, S. C.	38	20,887,542	28	19,556,658	Cotton, corn.
Ellis, Tex.	39	20,375,681	29	19,262,474	Cotton, corn, oats, wheat.
Riverside, Cal.	40	20,253,304	33	18,934,265	Oranges, cotton, hay and forage, lemons.
Imperial, Cal.	41	20,195,367	46	17,200,734	Cotton, kafir, milo, etc., hay and forage dairy products.
Fannin, Tex.	42	20,163,821	30	19,246,092	Cotton, corn, oats, wheat.
Steuben, N. Y.	43	19,938,904	77	14,805,641	Hay and forage, potatoes, dairy products, cats.
Jefferson, N. Y.	44	19,918,631	239	10,694,423	Dairy products, hay and forage, oats.
Johnston, N. C.	45	19,812,510	31	19,229,785	Cotton, tobacco, corn, sweet potatoes.
Delaware, N. Y.	46	19,832,943	—	7,972,256	Dairy products, hay and forage.
Marlboro, S. C.	47	19,419,921	32	19,136,190	Cotton, corn.
Onondaga, N. Y.	48	19,395,595	97	14,112,780	Hay and forage, dairy products, potatoes eggs and chickens.
Lamar, Tex.	49	19,395,636	36	18,270,287	Cotton, corn, hay and forage.
Ventura, Cal.	50	19,160,414	34	18,829,031	Dry beans, walnuts, lemons, oranges.

Value of Farm Products of the United States.

The estimated value of the farm products produced in the West North Central States—Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas—was equal to one-fifth of the total value of the farm products produced during 1921 in the United States. The estimated value of the animal products produced, including animals raised, in 1921 in this same geographical division of the country, was equal to a little less than one-third of the total value of all animal products produced.

As announced last April, the United States Department of Agriculture estimated the value of all crops produced during 1921 at \$7,027,500,000, and the value of animal products at \$5,338,800,000, making a grand total for farm products of \$12,366,300,000, compared with a grand total of \$18,263,500,000 in 1920, and \$23,783,200,000 in 1919. A total of the values of crops and animal products, of course, involves duplications, as in the case of grains when fed to animals which are later marketed.

The states mentioned above contributed \$1,421,100,000 to the 1921 total for crops and \$1,610,000,000 to the total for animal products. In 1920 these states contributed \$2,418,600,000 for crops and \$2,217,900,000 for animal products. In 1919 the figures were \$3,584,100,000 and \$2,521,400,000, respectively.

Second in the value of farm crops and animal products in 1921 were the East North Central States—Ohio, Indiana, Illinois, Michigan, and Wisconsin—with a total of \$1,175,700,000 for crops and \$1,301,000,000 for animal products. These amounts were 17 per cent of the national total for crops and 24 per cent of the national total for animal products.

The South Atlantic States—Delaware, District of Columbia, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida—stood third in the value of farm crops in 1921 with a total of \$967,800,000, or 14 per cent of the total for the country. In the value of animal products, however, this group of states ranked fifth with \$368,000,000, or 6.9 per cent of the national total.

Fourth place in the value of farm crops in 1921 was held by the West South Central States—Arkansas, Louisiana, Oklahoma, and Texas—with \$938,200,000 or 13 per cent of the grand total. This group also ranked fourth in the value of animal products with a production valued at \$461,100,000, or 8.6 per cent of the country's total.

The East South Central States—Kentucky, Tennessee, Alabama, and Mississippi—ranked fifth in the production of farm crops in 1921, having contributed \$673,100,000, or 9.6 per cent of the national total. In animal products this group of states stood in sixth place, being but 0.2 per cent below the South Atlantic States.

The Pacific States—Washington, Oregon, and California—stood sixth in the value of farm crops with a production valued at \$646,200,000, and eighth in the value of animal products with \$268,600,000.

Seventh in the value of farm products were the Middle Atlantic States—New York, Pennsylvania, and New Jersey—with a production of \$601,400,000. This group, however, ranked third in the estimated value of animal products with a production of \$503,900,000, or a little over 9 per cent of the national total.

The Mountain States—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada—ranked eighth in the value of farm crops with a production valued at \$352,700,000, or 5 per cent of the country's total. This group stood seventh in the value of animal products with an output estimated at \$304,000,000.

The New England States—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut—stood ninth in the value of farm crops with a production valued at \$251,300,000. The value of the animal products produced in these states stood at \$162,500,000.

Among the states, Iowa led in the combined value of crops and animal products, ranking first in the value of animal products, and sixth in

the value of crops. In 1921, Iowa's animal products, including animals raised, amounted in value to \$475,700,000, an amount equal to nearly 9 per cent of the national total. The value of Iowa's crops totaled \$282,600,000, an amount equal to about 4 per cent of the national total. These two sums compare with the high mark reached in 1919, when Iowa's animal products were valued at \$745,000,000 and its crops at \$811,200,000.

Texas ranked first in the value of crops alone, the value of the 1921 crop production amounting to \$463,800,000, a little more than 6 per cent of the total for the United States. This amount represents a decrease of \$742,300,000 from the high point reached in 1919, when the crops of Texas were valued at \$1,206,100,000. Texas, moreover, is the only state that ever reached the billion dollar mark in the value of crops alone.

California fared remarkably well during 1919, 1920, and 1921 in crop value and in the shifting of the states for relative position. A crop value of \$490,600,000 in 1919 gave that state eleventh place, but the value of California's crops increased nearly \$50,000,000 in 1920, an extraordinary occurrence, raising this state to second place, a position that it occupied in 1921 also, with a crop value of \$383,000,000. These figures go to show that fruits and vegetables withstood the falling price movement of 1920 and 1921 better than grains or animal products.

Illinois has held second place in the value of animal products and third place in the value of crops throughout the three years. For 1921 the value of that state's animal products totaled \$360,500,000, an amount equal to a little more than 6 per cent of the national total. The crop value for Illinois in 1921 stood at \$322,200,000, or nearly 5 per cent of the national total for crops.

Although New York occupied fourteenth place among the states in crop value in 1919, it rose to fourth place in 1921, with crops valued at \$294,700,000. North Carolina, with crops valued at \$287,200,000, stood in fifth place for 1921.

Missouri ranked third in the value of animal products in 1921, having contributed \$325,200,000, or 6 per cent to the total for the United States. Wisconsin stood in fourth place and Ohio in fifth position.

Arranged in the order of total values for farm products—crops and animal products—the states stood as follows for 1921: 1st, Iowa; 2d, Texas; 3d, Illinois; 4th, New York; 5th, Missouri; 6th, California; 7th, Wisconsin; 8th, Ohio; 9th, Kansas; 10th, Pennsylvania; 11th, Nebraska; 12th, Indiana; 13th, Minnesota; 14th, Michigan; 15th, North Carolina; 16th, Oklahoma; 17th, Tennessee; 18th, Kentucky; 19th, Georgia; 20th, Virginia; 21st, Arkansas; 22d, Washington; 23d, Alabama; 24th, Mississippi; 25th, South Dakota; 26th, North Dakota; 27th, South Carolina; 28th, Colorado; 29th, Oregon; 30th, Montana; 31st, Louisiana; 32d, Idaho; 33d, West Virginia; 34th, Maine; 35th, New Jersey; 36th, Massachusetts; 37th, Maryland; 38th, Vermont; 39th, Connecticut; 40th, Florida; 41, New Mexico; 42d, Wyoming; 43d, Utah; 44th, New Hampshire; 45th, Arizona; 46th, Nevada; 47th, Delaware; 48th, Rhode Island; and 49th, District of Columbia.

Estimated Farm Value of Important Products October 1, 1921.

State	Wheat, per bushel	Corn, per bushel	Barley, per bushel	Oats, per bushel	Rye, per bushel	Hay (loose), per ton	Potatoes, per bushel	Sweet potatoes per bushel	Butter, per pound	Eggs, per dozen	Chickens, per pound
	Cts.	Cts.	Cts.	Cts.	Cts.	Dcls.	Cts.	Cts.	Cts.	Cts.	Cts.
Maine	220	90	125	77		25 30	82		50	52	27 6
New Hampshire						24 30	139		51	61	28 3
Vermont	165	102	98	64	112	24 00	142		52	49	29 7
Massachusetts		77		60		25 80	165		49	65	31 9
Rhode Island		153		70	185	26 40	164		49	54	32 5
Connecticut		92		68	150	29 30	171		48	60	36 4
New York	114	79	68	51	126	18 60	123		46	52	28 8
New Jersey	125	67		45	103	21 50	179	138	54	64	27 0
Pennsylvania	108	70	70	42	96	16 90	141	200	47	44	26 1
Delaware	107	72		56	78	17 80	131	125	41	45	26 0
Maryland	113	66		53	93	15 00	128	131	40	40	25 7
Virginia	125	86	84	58	103	17 10	131	126	35	37	26 4
West Virginia	124	82		56	105	19 40	160	164	35	36	21 7
North Carolina	145	98		71	125	20 10	125	127	38	36	22 9
South Carolina	200	91		73	244	20 60	169	102	39	37	23 5
Georgia	187	83		66	172	16 40	178	78	34	32	22 8
Florida		58		68		19 20	190	102	44	41	27 9
Ohio	115	56	57	33	91	11 30	191	172	38	37	20 8
Indiana	114	47	51	29	89	12 80	200	200	33	33	18 9
Illinois	114	44	57	28	94	13 20	180	135	38	33	20 2
Michigan	110	62	54	35	88	13 50	144		40	34	19 7
Wisconsin	114	56	58	36	89	16 40	134		42	32	17 6
Minnesota	115	35	41	24	84	7 10	105		37	30	15 7
Iowa	98	36	46	23	85	9 80	170	250	37	30	17 8
Missouri	110	46		29	97	9 50	158	125	32	28	18 5
North Dakota	109	50	35	23	79	7 30	107		33	23	14 6
South Dakota	104	27	34	21	75	5 60	143		32	26	15 3
Nebraska	96	29	32	22	78	4 60	129	220	34	26	16 4
Kansas	106	36	31	28	85	6 30	157	190	34	27	17 0
Kentucky	125	72	68	56	108	15 40	185	157	31	29	18 6
Tennessee	130	73	90	54	138	16 20	171	120	27	27	18 3
Alabama	200	91	135	71	243	12 70	200	93	33	29	20 4
Mississippi		77		65		14 40	179	91	33	29	20 9
Louisiana		71		78		13 90	174	82	39	29	22 4
Texas	107	49	31	37	115	8 80	175	134	33	25	17 6
Oklahoma	100	34	53	25	82	7 40	200	127	34	26	16 7
Arkansas	101	64		44	120	11 50	207	106	30	26	15 4
Montana	104	96	65	31	82	7 10	98		34	32	17 0
Wyoming	90	38	73	40	70	8 30	158		42	37	23 2
Colorado	88	35	40	37	74	6 20	90		38	36	19 3
New Mexico	125	89	60	65		12 70	225	327	45	36	22 6
Arizona	142		80			12 50	199	252	47	48	30 0
Utah	82	95	42	35	65	6 30	76		38	29	18 6
Nevada	130	150	100	84		11 00	110		38	40	26 0
Idaho	88	55	51	32	60	7 70	107		43	34	17 6
Washington	93	75	55	44	76	10 00	87		45	37	20 5
Oregon	93	83	73	39	85	8 10	110		45	36	21 3
California	115	71	56	51	93	9 70	140	161	46	44	26 9
United States	105.6	51.0	45.4	31.0	88.6	11.36	137.6	108.3	38.2	34.2	20.3

ORGANIZATION OF STATE.

ACT FOR THE ADMISSION OF CALIFORNIA INTO THE UNION

September 9, 1850.

1. The State of California shall be one, and is hereby declared to be one, of the United States of America, and admitted into the Union on an equal footing with the original States in all respects whatever.

2. The said State of California is admitted into the Union upon the express condition that the people of said State, through their Legislature, or otherwise, shall never interfere with the primary disposal of the public lands within its limits, and shall pass no law and do no act whereby the title of the United States to, and right to dispose of, the same shall be impaired or questioned; and that they shall never lay any tax or assessment of any description whatsoever upon the public domain of the United States, and in no case shall non-resident proprietors, who are citizens of the United States, be taxed higher than residents; and that all the navigable waters within the State shall be common highways, and forever free as well to the inhabitants of said State as to the citizens of the United States, without any tax, impost, or duty therefor; provided, that nothing herein contained shall be construed as recognizing or rejecting the propositions tendered by the people of California, as articles of compact in the ordinance adopted by the convention which formed the Constitution of that State.

3. All the laws of the United States which are not locally inapplicable shall have the same force and effect within the said State of California as elsewhere within the United States.

Area of State.

Of the fifty-eight counties into which the state is now divided, the first twenty-seven were organized on February 18, 1850; ten years later the number had increased to forty-two. In 1872 Ventura became the fiftieth county, and Imperial, the latest addition, was formed in 1907.

The land area of the state is about 100,000,000 acres, a great part of which is rough, mountainous country and desert, roughly classified as follows:

	Square miles	Acres
Land surface.....	155,652	99,617,280
Water surface.....	2,645	1,692,800
Totals.....	158,297	101,310,080

Approximately one-half of the land surface of the state is under the control of the federal government, including 24,003,190 acres in the national forests, on June 30, 1920. The areas designated as "National Forests" were formerly called "Forest Reserves," but the title was changed by act of Congress of March 4, 1907.

National Parks and National Monuments.

There are four national parks and six national monuments in California. The former were created by acts of Congress and the latter by proclamation of the President. The name of each, with the date of creation and present area, is shown by the following table:

Name	Date created	Area, acres
Yosemite National Park ¹	Oct. 1, 1890	719,622.40
Sequoia National Park ²	Sept. 25, 1890	161,597.00
General Grant National Park.....	Oct. 1, 1890	2,536.00
Lassen Volcanic National Park.....	Aug. 9, 1916	79,220.00
Devil Postpile National Monument ³	July 6, 1911	800.00
Lassen Peak National Monument ³	May 6, 1907	1,280.00
Cinder Cone National Monument.....	May 6, 1907	5,120.00
Muir Woods National Monument.....	Jan. 9, 1908	295.00
Pinnacles National Monument.....	Jan. 16, 1908	2,080.00
Cabrillo National Monument.....	Oct. 14, 1913	21,910 sq. ft.

¹Boundary changed by Congress in 1905 and again in 1906

²Boundary changed by Congress October 1, 1890.

³Within Lassen Volcanic National Park.

California's Natural Recreation Grounds.

California has provided well for the outdoor recreation of its citizens. One-fourth of the territory of the state is devoted to recreation purposes. Millions of acres of mountain slopes and luxurious meadows, rugged peaks, crystal lakes and tumbling streams provide wonderful opportunities for recreation and rest.

The use of the national forests for recreation purposes is increasing rapidly. This use is not confined to a few well-advertised regions of special attractiveness, but is noticeable in almost all of the 152 forests. It is common to the White Mountains, the southern Appalachians, the forests of Minnesota, the Rocky Mountains, the Cascade and Sierras, and the alluring tablelands of Arizona and New Mexico. As an important use it bids fair to rank third among the major services performed by the national forests, with only timber production and stream-flow regulation taking precedence of it.

The growth of this form of use shows clearly the inadvisability of legislation at one time contemplated, which by opening the national forests to "summer homesteads" would have allowed private acquisition of tracts exceedingly valuable for public recreational purposes. Such a system would have blocked general use of these great forests for public recreation. Instead the act of March 4, 1915, gave the Secretary of Agriculture authority to issue term permits not to exceed five acres of national forest lands for periods not to exceed thirty years. Under this law reasonable tenure can be given where substantial investments are contemplated upon areas not needed in the meantime by the public. In carrying out this act the Forest Service has engaged in a very extensive development. Counsel and advice have been secured from competent landscape engineers, and the guiding policy has been worked out in cooperation with the foremost national authorities on such subjects. Always general use by the public, through the reservation of open camp grounds, has been given first consideration. Special use by individuals who pay rental has been made secondary to the needs of the public.

Yet such secondary use is now becoming a very material source of revenue. At the close of the fiscal year a total of 1329 permits for summer residences and commercial resorts were in effect on a single forest, the Angeles, in southern California. The revenue from this one item on this forest alone amounted last year to approximately \$22,000. The local officers predict that within a few years the revenues obtained from the various recreational settlements within that forest will pay the entire cost of protection and administration. Yet the maximum charge for residence permits within the national forests has been fixed by regulation at \$25 per annum, and the minimum is \$5.

The use of the national forests for recreation is being recognized by many communities as one of their greatest assets and privileges. This is resulting in the establishment of community camps under more or less formal organization. They take every form from the municipal vacation camps erected on the Angeles National Forest under permit from the Forest Service and maintained and managed by the city of Los Angeles to the improvement of some favorite picnic ground in the national forest by local citizens in cooperation with the local forest officers. Space is provided for parking automobiles, simple permanent fireplaces are built, wood is made available for camp fires and cooking without endanger-

ing the forest from fires, rustic tables and seats are located conveniently for different parties, signs indicate the direction and distance to attractive points, and public convenience is given thoughtful consideration. Similar improvements are made by the Forest Service when funds are available and local cooperation can not be obtained to meet a real public need. These camps are made available to the public without charge of any kind by the Forest Service. The vacation camps, such as those maintained by Los Angeles, Oakland and Sacramento, require a charge merely sufficient to cover the expense of feeding and caring for the successive groups of city patrons who enjoy its privileges under municipal direction.

Number of Cattle Grazed on National Forests During the Years 1920 and 1921.

Forest	1920	1921
Angeles	2,452	2,431
California	7,344	7,198
Cleveland	1,564	1,729
El Dorado	10,236	11,171
Inyo	9,061	10,220
Klamath	7,434	8,295
Lassen	12,661	12,993
Modoc	30,392	33,875
Mono	5,966	5,517
Plumas	13,556	14,099
Santa Barbara	8,918	9,188
Sequoia	26,861	27,688
Shasta	9,846	9,465
Sierra	16,542	16,642
Stanislaus	18,123	18,900
Tahoe	8,803	8,399
Trinity	12,619	12,460
Totals	202,378	210,270

Vacant Public Lands.

Practically all the vacant public land which is easily accessible has been already taken up, the areas now remaining being situated at a considerable distance from towns or villages, or in remote mountain valleys.

Before entry, personal inspection of the lands should be made to ascertain if they are suitable, and when the applicant is satisfied on this point, entry can be made at the local land office. Information regarding vacant land in any district can be obtained on application to the register and receiver of the proper local land office, who will give full information regarding vacant land and the steps necessary to be taken in making entry. All vacant unappropriated public lands, nonmineral and non-saline in character, are subject to entry under the homestead laws.

A regulation has recently been issued increasing the area of a homestead from 160 to 320 acres on land having no water supply, in Los Angeles, Imperial, San Diego and Riverside counties.

The total acreage of land unappropriated and unreserved on July 1, 1920, was 19,585,801 acres, of which 15,237,248 acres had been surveyed and 4,348,553 unsurveyed.

While the following figures may not be absolutely correct, owing to liability to error in a work of such magnitude and to the necessity of making estimates of unsurveyed lands, it is believed that they afford a close approximation to the actual areas. The statement is intended to inform correspondents and the general public as to whether there is much or little public land in the several land districts therein and in particular counties and localities.

Vacant Public Lands, by Counties, Unappropriated and Unreserved July 1, 1920.

Counties	Land district	Acreage		Total acres	Brief description of land
		Surveyed	Un-surveyed		
Alameda	San Francisco	614	1,280	1,894	Mountainous.
Alpine	Sacramento	12,435	300	12,735	Mountainous.
Alpine	Independence	10,581		10,581	Mountainous, grazing, mineral.
Total		23,016	300	23,316	
Amador	Sacramento	12,223		12,223	Hilly, grazing, mineral.
Butte	Sacramento	17,764	320	18,084	Hilly, grazing, mineral.
Calaveras	Sacramento	39,253		39,253	Hilly, grazing, mineral.
Colusa	Sacramento	22,328	1,980	24,308	Hilly, grazing.
Colusa	San Francisco	11,175		11,175	Mountainous.
Total		33,503	1,980	35,483	
Contra Costa	San Francisco	1,368		1,368	Mountainous.
Del Norte	Eureka	740		740	Sea beach, forest listings.
El Dorado	Sacramento	29,401		29,401	Hilly, grazing, mineral.
Fresno	Sacramento	4,470	1,380	5,850	Hilly, grazing.
Fresno	San Francisco	32,166	3,862	36,028	Mountainous.
Fresno	Visalia	105,318	2,814	108,132	Mountainous, grazing.
Total		141,954	8,056	150,010	
Glenn	Sacramento	10,982		10,982	Hilly, grazing.
Glenn	San Francisco	2,400		2,400	Mountainous.
Total		13,382		13,382	
Humboldt	Eureka	46,320	16,851	63,171	Mountainous, grazing, timber.
Imperial	El Centro	1,059,504	354,770	1,414,274	Level, rolling mountainous, all desert.
Inyo	Independence	2,693,982	1,156,258	3,850,240	Mountainous, desert, grazing, agricultural.
Kern	Visalia	97,830	26,724	124,554	Mountainous, grazing.
Kern	Independence	561,109	124,760	685,869	Grazing, mineral, agricultural.
Kern	San Francisco	16,578	640	17,218	Mountainous.
Kern	Los Angeles	20,772	5,393	26,165	Arid, level, desert, mountainous.
Total		696,289	157,517	853,806	
Kings	San Francisco	768		768	Mountainous.
Kings	Visalia	12,884		12,884	Mountainous, grazing.
Total		13,652		13,652	
Lake	Sacramento	11,027		11,027	Hilly, grazing.
Lake	San Francisco	131,655	8,060	139,715	Mountainous.
Total		142,682	8,060	150,742	
Lassen	Susanville	983,133	24,521	1,007,654	Grazing, desert, timber, mineral.
Los Angeles	Los Angeles	476,750	5,916	482,666	Arid, level, desert, mountainous.
Madera	Sacramento	1,451	600	2,051	Hilly, grazing, mineral.
Marin					
Mariposa	Sacramento	38,486		38,486	Hilly, grazing, mineral.
Mendocino	Eureka	4,040		4,040	Mountainous, grazing.
Mendocino	San Francisco	166,008	3,158	169,166	Mountainous.
Total		170,012	3,158	173,170	

Vacant Public Lands, by Counties, Unappropriated and Unreserved July 1, 1920—Continued.

Counties	Land district	Acreage		Total acres	Brief description of land
		Surveyed	Un-surveyed		
Merced	Visalia	4,118		4,118	Mountainous, grazing. Hilly, grazing. Mountainous.
Merced	Sacramento	982		982	
Merced	San Francisco	4,565		4,565	
Total		9,665		9,665	
Modoc	Susanville	255,329	16,840	272,169	Grazing, desert, timber, mineral. Hilly, grazing.
Modoc	Sacramento	793	4,342	5,135	
Total		256,122	21,182	277,304	
Mono	Independence	258,316	42,124	300,440	Mountainous, grazing and agricultural.
Monterey	San Francisco	156,643	2,560	159,203	Mountainous.
Monterey	Visalia	1,139		1,139	Mountainous, grazing.
Total		157,782	2,560	160,342	
Napa	Sacramento	17,507		17,507	Hilly, grazing.
Napa	San Francisco	37,110		37,110	Mountainous.
Total		54,617		54,617	
Nevada	Sacramento	38,845		38,845	Hilly, grazing, mineral.
Orange	Los Angeles	19,726	16,24	21,350	Mountainous, hilly.
Placer	Sacramento	8,391		8,391	Hilly, grazing, mineral.
Sacramento	Sacramento	39		39	Hilly, grazing, mineral.
Plumas	Susanville	7,983	2,591	10,574	Mountainous, timber, mineral.
Riverside	Los Angeles	211,196	20,011	231,207	Mountain's, roll'g, level desert.
Riverside	El Centro	900,395	778,560	1,678,955	Mountain's, roll'g, level desert.
Total		1,111,591	798,571	1,910,162	
San Benito	San Francisco	143,907	8,960	152,867	Mountainous.
San Benito	Visalia	4,530		4,530	Mountainous, grazing.
Total		148,437	8,960	157,397	
San Bernardino	Independence	2,033,884	1,213,515	3,297,399	Mountainous, mineral, desert.
San Bernardino	Los Angeles	3,302,762	308,676	3,611,438	Mountain's, roll'g, level desert.
Total		5,336,646	1,522,191	6,908,837	
San Diego	El Centro	317,835	83,715	401,550	Level, rolling, mountainous, all desert.
San Diego	Los Angeles	88,505	2,240	90,745	Mountainous, rolling desert.
Total		406,340	85,955	492,295	
San Joaquin	San Francisco	320		320	Mountainous.
San Luis Obispo	San Francisco	143,590	2,473	146,063	Mountainous.
San Francisco	San Francisco				
Santa Barbara	Los Angeles	1,180		1,180	Mountainous
Santa Barbara	San Francisco	9,993		9,993	Mountainous.
Total		11,173		11,173	

Vacant Public Lands, by Counties, Unappropriated and Unreserved July 1, 1920—Concluded.

Counties	Land district	Acreage		Total acres	Brief description of land
		Surveyed	Un-surveyed		
Santa Clara	San Francisco	37,160	3,660	40,820	Mountainous.
Santa Cruz	San Francisco	164		164	Mountainous.
Shasta	Sacramento	162,780	1,820	164,600	Hilly, grazing, mineral.
Sierra	Susanville	3,186		3,186	Mountainous, timber, mineral.
Siskiyou	Eureka	3,490		3,490	Forest listings, grazing, farming, mineral.
Siskiyou	Sacramento	72,937	32,067	105,004	Mountainous.
Total		76,427	32,067	108,494	
Solano	San Francisco	1,896		1,896	Mountainous.
Sonoma	San Francisco	34,111	4,640	38,751	Mountainous.
Stanislaus	Sacramento	1,529		1,529	Hilly, grazing, mineral.
Stanislaus	San Francisco	10,267	2,600	12,867	Mountainous.
Total		11,796	2,600	14,396	
Sutter	Sacramento	200		200	Hilly, grazing, mineral.
Tehama	Sacramento	42,389	2,000	44,389	Hilly, grazing, mineral.
Trinity	Eureka	18,620		18,620	Mineral, grazing, farming.
Trinity	Sacramento	27,061	4,700	31,761	Hilly, grazing, mineral.
Total		45,681	4,700	50,381	
Tulare	Visalia	30,587	57,598	88,185	Mountainous, grazing.
Tulare	Independence	52,675		52,675	Mountainous, grazing.
Total		83,262	57,598	140,860	
Tuolumne	Sacramento	15,863	1,690	17,463	Hilly, grazing, mineral.
Ventura	Los Angeles	34,293	9,410	43,103	Mountainous.
Ventura	San Francisco	740		740	Mountainous.
Total		35,033	9,410	44,443	
Yolo	Sacramento	21,232		21,232	Hilly, grazing.
Yolo	San Francisco	6,360	640	7,000	Mountainous.
Total		27,592	640	28,232	
Yuba	Sacramento	4,610		4,610	Hilly, grazing, mineral.
Totals		15,237,248	4,348,553	19,585,801	

Summary of Vacant Public Lands, by Districts, June 30, 1920.

Land districts	Area in acres		
	Surveyed	Unsurveyed	Total
El Centro	2,277,734	1,217,045	3,494,779
Eureka	73,210	16,851	90,061
Independence	5,660,547	2,536,657	8,197,204
Los Angeles	4,155,184	353,270	4,508,454
Sacramento	614,978	51,109	666,087
San Francisco	949,558	42,533	992,091
Susanville	1,249,631	43,952	1,293,583
Visalia	256,406	87,136	343,542
Totals	15,237,248	4,348,553	19,585,801

California Desert Land Entries—1915-1920 (Passage of Act March 3, 1877).

Year	Entries		Acres		Amount		Amount, total
	Original	Final	Original	Final	Original	Final	
1915.....	21,711	4,016	4,828,677	744,381	1,223,316	767,500	1,990,815
1916.....	22,044	4,144	4,884,585	766,142	1,237,304	789,251	2,026,794
1917.....	22,523	4,353	4,961,633	797,587	1,256,562	819,909	2,076,471
1918.....	22,690	4,467	4,985,079	813,229	1,262,423	835,566	2,097,989
1919.....	22,887	4,533	5,015,464	822,646	1,270,020	844,982	2,115,002
1920.....	23,124	4,588	5,051,718	830,203	1,279,086	852,543	2,131,629

California Coal Land Entries—1915-1920 (Passage of Act March 3, 1873).

Year	Entries	Acres	Amount	Year	Entries	Acres	Amount
1915.....	38	5,535	81,531	1918.....	38	5,535	81,531
1916.....	38	5,535	81,531	1919.....	38	5,535	81,531
1917.....	38	5,535	81,531	1920.....	38	5,535	81,531

California Timber-Culture Entries—1915-1920 (Passage of Act March 3, 1873).

Year	Entries			Area, acres			Amount			
	Original	Final	Com- muted	Original	Final	Com- muted	Fees (original find)	Fees	Purchase money	Total
1915....	8,264	481	568	1,163,922	63,572	78,849	\$110,014	\$1,910	\$98,649	\$210,573
1916....	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1917....	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1918....	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1919....	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573
1920....	8,264	481	568	1,163,922	63,572	78,849	110,014	1,910	98,649	210,573

California Timber and Stone Entries—1915-1920 (Passage of Act June 3, 1876).

Year	Entries	Area, acres	Amount	Year	Entries	Area, acres	Amount
1915.....	20,193	2,813,308	\$7,149,377	1918....	20,481	2,843,460	\$7,235,377
1916.....	20,316	2,826,653	7,186,766	1919....	20,154	2,846,286	7,244,093
1917.....	20,401	2,835,761	7,212,693	1920....	20,584	2,852,487	7,262,712

Land and Scrip Granted to California for Educational and Other Purposes, 1915-1920.

Year	Acres	Year	Acres
1915.....	6,236,773	1918.....	6,236,773
1916.....	6,236,773	1919.....	8,377,538
1917.....	6,236,773	1920.....	8,389,053

Purposes of Land Grant and Amount Granted California in 1920.

	Acres
Internal improvements	500,000
University	46,080
Public buildings	6,400
Agricultural and mechanical colleges	150,000
Common schools (sections 16 and 36)	5,534,293
Swamp	2,152,280
Total	8,389,053

Public and Indian Lands Originally Entered in California, Years Ending June 30, 1905-1920.

(In acres.)

1905	1,032,758	1913	937,230
1906	809,811	1914	878,874
1907	579,294	1915	1,001,663
1908	766,932	1916	640,361
1909	1,290,579	1917	754,964
1910	1,214,348	1918	288,042
1911	1,064,644	1919	520,593
1912	872,301	1920	913,621

Original Homestead Entries in California, Years Ending June 30, 1905-1920.

(In acres.)

1905	262,973	1913	381,129
1906	211,567	1914	393,702
1907	173,438	1915	498,477
1908	335,816	1916	496,743
1909	216,689	1917	592,103
1910	278,700	1918	249,704
1911	1,062,005	1919	417,725
1912	871,381	1920	721,681

California Lands Certified or Patented on Account of Railroad Grants, Years Ending June 30, 1905-1920.

(In acres.)

1905	426,951	1913	1,040
1906	318,986	1914	313,741
1907	100,971	1915	81,633
1908	3,897	1916	38,641
1909	589,000	1917	85,846
1910	364,084	1918	4,562
1911	442,879	1919	108,578
1912	23,995	1920	

Land Areas Patented in California, Years Ending June 30, 1914-1920.

(In acres.)

1914	202,362	1918	312,004
1915	641,756	1919	335,879
1916	336,656	1920	515,394
1917	311,528		

Vacant Public Lands in California—Areas Unappropriated and Unreserved, Years Ending June 30, 1900-1920.

(In acres.)

Year	Surveyed	Unsurveyed	Total	Year	Surveyed	Unsurveyed	Total
1900	34,423,923	8,043,589	42,467,512	1916	15,777,934	4,248,065	20,025,999
1912	17,671,839	5,343,499	23,015,338	1917	15,103,078	4,402,139	19,505,217
1913	15,633,304	5,220,333	20,853,637	1918	15,900,150	4,628,884	20,529,034
1914	16,183,344	4,719,408	20,902,752	1919	15,654,405	4,485,572	20,139,977
1915	16,244,018	4,391,905	20,635,923	1920	15,237,248	4,348,553	19,585,801

Indian Reservations, Years Ending June 30, 1890-1920.

Area--Unallotted.

(In acres.)

1890.....	494,045	1918.....	434,866
1900.....	406,396	1919.....	434,946
1915.....	430,136	1920.....	*517,118
1917.....	434,866		

*This does not include approximately 9,000 acres purchased for small bands of Indians, from appropriations made by Congress.

The largest allotments are 42,106 acres in the Round Valley reservation; 29,091 in the Hoopa Valley reservation, and 8,010 acres in the Fort Yuma reservation. The allotments on June 30, 1919, numbered 2,593, the acreage amounting to 82,172 acres allotted, 434,946 unallotted, or a total of 517,118 acres.

Sale of School Lands.

Certain school lands if suitable for cultivation are subject to sale to actual settlers thereon, pursuant to the provisions of chapter 395, Statutes of California, 1915. Large areas of land are also available to lease.

Forms for application to lease state lands from the State of California can be obtained from the State Surveyor General, Sacramento, California. A filing fee of \$5 must accompany the application to lease state lands, together with a letter from the applicant stating the maximum amount per acre that the applicant is willing to pay as the annual rental for the land desired to be leased, which letter from the applicant will be submitted to the State Board of Control when the Surveyor General determines the annual rental per acre of the land and submits same to the State Board of Control for approval, in accordance with the provisions of section 2 of chapter 493, Statutes of California, 1917.

Anyone desiring to lease any of these lands can obtain free a copy of the law governing the leasing of said lands and a list of the different tracts of state land subject to lease in the county in which he is interested together with a form for application to lease, on application to Surveyor General.

All money derived from the leasing of these lands goes directly to the support of the public schools.

The state has sold all of its swamp and overflowed land except a few isolated tracts which can be found only by an extensive search of the records of the State Land Office.

Public Auction Sales of School Lands.

State school lands were sold at public auction under the provisions of Chapter 207, Statutes of California, 1919, between August 1, 1920, and December 31, 1920, as follows:

County	Date	Acres	Amount
Inyo.....	Nov. 4, 1920	4,689.65	\$16,796.61
Mono.....	Dec. 22, 1920	8,565.65	53,279.87
Santa Clara.....	Nov. 12, 1920	1,692.83	2,656.71
Santa Cruz.....	Nov. 10, 1920	40.00	270.00
Shasta.....	Sept. 24, 1920	4,960.00	19,190.00
Siskiyou.....	Oct. 1, 1920	3,147.77	9,380.54
Tehama.....	Sept. 21, 1920	5,640.00	19,680.00
Trinity.....	Sept. 27, 1920	1,520.00	3,380.00
Totals.....		30,255.90	\$124,633.73

Unsold School Lands.

The total acreage of unsold school lands on August 1, 1922, amounted to approximately 778,712.26 acres.

The constitution classifies all lands as suitable or not suitable for cultivation.

Lands suitable for cultivation, which are very limited in area, are sold to actual settlers at prices fixed by the State Board of Control and the Surveyor General under the provisions of chapter 208, Statutes of California, 1919.

Lands not suitable for cultivation are sold at public auction to the highest bidder, under the provisions of chapter 207, Statutes of California, 1919.

Railroad Land For Sale.

The following acreage in various counties belonging to the Southern Pacific and Central Pacific railways is also for sale:

County	Acres
Butte	6,524.43
El Dorado	1,181.27
Fresno	33,972.55
Kern	64,779.73
Kings	3,316.94
Los Angeles	24,927.10
Nevada	2,912.11
Riverside	3,226.21
San Bernardino	121,951.66
Shasta	17,472.47
Siskiyou	42,765.54
Stanislaus	2,129.46
Tehama	5,525.88
Tulare	1,120.00
Yuba	3,980.00
Total	335,785.35

Homesteads, 160 to 320 Acres.

A homestead entry is limited to 160 acres. An enlarged homestead may contain 320 acres, provided the land is nonmineral, nontimbered, and nonirrigable. These terms mean land which, as a rule, lacks sufficient rainfall to produce agricultural crops without the necessity of resorting to unusual methods of cultivation, such as the system commonly known as "dry farming," and for which there is no known source of water supply from which land may be successfully irrigated at a reasonable cost.

Stock Raising Lands (640 Acres).

These lands are those the surface of which is chiefly valuable for grazing and raising forage crops, which do not contain merchantable timber, are not susceptible of irrigation from any known source of water supply, and are of such character that 640 acres are reasonably required to support a family. The classification will be made, so far as practicable, to exclude lands that are not chiefly valuable for grazing and raising forage crops, either because too valuable for such use or too poor for such use. Lands which are capable of producing valuable crops of grain or other food cereal or fruit are not subject to designation, being, if otherwise subject to entry, disposable under the 160-acre or 320-acre homestead law, according to their character. Lands of such arid or poor

character that they are worthless or fit only for occasional grazing in connection with large areas of other land are not subject to designation and entry. No tract may be designated which contains a water hole or other body of water, needed or used by the public for watering purposes, nor lands included in national forests.

Any person who desires to obtain a homestead must be a citizen of the United States, or have declared his intention to become such, over the age of 21 years, and not the proprietor of more than 160 acres of land in the United States.

Six months from the date of filing is allowed to establish a bona fide residence on the homestead, which from that time to the date of the final proof must be the home of the applicant to the exclusion of a home elsewhere.

Under the new homestead law the entryman must, within six months after filing, establish actual residence on the land, build a habitable house and actually live on the land to make it a home for seven months out of each year for three years, and cultivate at least one-eighth of the land.

Residence can not be maintained by occasional visits to the land while the actual home is elsewhere. The homesteader must manifest entire good faith in occupying the land as a permanent home to the exclusion of one elsewhere.

The settler must show that he has cultivated one-sixteenth of the area of the land, beginning with the second year from date of entry, and one-eighth of the area the following year and until proof is submitted. A mere breaking of the soil will not meet the terms of the law, but such breaking and stirring of the soil must be accompanied by planting or the sowing of seed and tillage for crops other than native grasses. If his proof is satisfactory, and the government, after investigation, finds that he has complied with the law in good faith, his entry will be clear-listed, and in due time he will receive a patent for the land.

The homesteader may, before three years, by paying the purchase price of the land, at the rate of \$1.25 per acre if it is situate outside the limits of a railroad grant, and at the rate of \$2.50 per acre if it is within the granted limits of a railroad, offer what is known as commutation proof, which must show at least fourteen months of actual and substantially continuous residence, with bona fide cultivation and improvement of the land, immediately prior to his application to make such proof.

The United States Land Office fees and commissions for filing on 160 acres are \$16, if the land is outside of the limits of a railroad grant; if inside the granted limits of a railroad they would amount to \$22. The fees and commissions are computed upon the acreage of the tract entered.

The final proof commissions on 160 acres would be \$6, if the land is outside a railroad grant, and \$12 if inside the limits of a grant. Added to this are fees ranging from \$2 to \$4 based upon the number of words of testimony in the proof. There are no other fees or commissions required of a homesteader by the government.

Those who commute their homesteads must pay the purchase price of the land in addition to the above fees, except the final proof commissions, which are not required on commuted homesteads.

A township diagram, showing only entered lands in any township, can be procured by sending \$1 to the register and receiver of the land office of that district. The diagram required should be specified by township and range number.

In some counties only a few acres are reported as vacant, and in seven all the land has already been taken up. Neither the General Land Office nor the local land officers can furnish information as to the location of such tracts, but such information may be obtained from the records of the local land offices which, when not in official use, are open to inspection by prospective home seekers or their agents. There are a number of detailed regulations issued regarding enlarged homesteads, stock-raising homesteads, soldiers' additional rights, military service by homesteaders, and leave of absence for the purpose of performing farm labor, copies of which can be obtained from the General Land Office, Washington.

The following three counties have no unappropriated or unreserved public lands: Marin, Sacramento, and San Francisco.

Dry Farming.

The United States Government is not only interested in settling its irrigated lands, but also in developing all parts of its territory, and for this reason the various bureaus of the Department of Agriculture have been studying the soils of the West and also scouring the world to find crops suited for these regions. Dry farming is meeting with a certain amount of success in various parts of the country, and the combined efforts of all of these endeavors to make fertile and productive these lands will result in an era of unprecedented prosperity for the entire West.

Reclamation Projects.

If the entry is of a farm unit under the Reclamation Act it may be as small as 10 acres, if the lands are suitable for fruit raising or similar purposes, but in most cases units are fixed at from 40 to 80 acres each.

California Land Settlement Act.

*"The California Land Settlement Act is a homestead law modified to suit present day conditions. It lowers the wall against ownership which high land prices is raising. It helps people who aspire to be farmers, but who, under ordinary conditions, could not make the attempt. It is, as has been well stated, 'a business venture outside the narrow realm of routine government.' It is an innovation but not an experiment.

"The reports of the State Immigration and Housing Commission show that the American farm laborer is disappearing. He will not live in a bunk house. He will not stay on the land if he has to compete with Asiatics, and he will not bring up his family where his wife and children have no social status. These things do not reflect on his industry or his character. On the contrary, they show the strength of economic democracy in the American soul.

"As the conditions of life for tenants and farm laborers have become harder, the conditions of wage earners in the city have become easier.

*From report of State Land Settlement Board.

Wages have risen, hours have become shorter. Everywhere more attention is given by the public to working conditions in city industries—so naturally the American, not tied down to any occupation or mode of life, goes to cities.

“The California act changes this. It makes rural life democratic. It closes the gulf which separates different classes of rural society and makes of rural neighborhoods a real democracy. It does this by making every person, who lives in a community it creates, a land owner. The farms are small, but large enough to give employment to the owner and his family. The farm laborer is enabled to buy enough land for a garden and to keep a cow and to grow nearly everything which goes on his own table. He is loaned money to build a comfortable house. His wife and children can live under the same conditions of comfort, independence, and social recognition as the wives and children of the farm owners.

“The outstanding feature of this act is the generous credit it gives. There is a long time credit to pay for land and permanent improvements. A short time credit to help settlers buy live stock and implements. The basis of both credits is the reputation and personal worth of the borrower.

“The state begins its generosity by only requiring a cash payment of 5 per cent of the cost of the land. It will then loan settlers up to \$3,000 but it will not loan the settler all the money that is needed for development. The Board believes, and experience has shown its belief to be sound, that it can not safely advance more than 60 per cent of the cost of houses, live stock, and implements. The settler must have, therefore, enough money to pay 5 per cent of the cost of the land and 40 per cent of the cost of his improvements and equipment. Moreover, experience shows that the sooner a farm is improved and equipped, the better the settler's chances of success and that means that there must be enough cash to provide a house, a shelter for stock, and to plant and grow crops the first year. An unproductive year at the outset is a financial disaster.

“Before the lands at Durham were thrown open to settlement, the Board asked the advice of people who knew what it would cost to improve and equip a 20- and 40-acre farm, and the consensus of opinion was that it would cost between \$4,000 and \$5,000. This meant that if all of the \$3,000 which the Board could lend was used, the settler must add to that at least \$1,500 to make a safe start and \$1,500 was made the minimum capital which a farm settler must have to be accepted.

“By the time Delhi was ready for settlement, the prices of everything had nearly doubled. Wages, live stock, implements, and cost of living had all gone up and in order to protect the oversanguine and inexperienced, the Board made the minimum capital requirement at Delhi \$2,500. All who have attempted it know that these figures are below actual needs, that there must be not only good fortune, but unusual economy and industry to enable a settler with only \$2,500 to start on the road to farm ownership. Even with this amount, sickness or the loss of a crop would bring an interruption in development or a need to call for help beyond what the Land Board can with financial safety extend.

“The need for \$2,500 or more capital to make a start is apparent to anyone who will try to visualize the expenses a settler must incur. He has to make the 5 per cent payment on his land. He has to pay 40 per cent of the cost of his farm buildings. He has to have farm implements,

cows, horses, chickens, and pigs, and his family has to have food and clothes while the land is being prepared for irrigation and a crop grown. If the settler does not have the money, how is he to squeeze through? The Board could not furnish it and remain a solvent business enterprise. The credit it gives is far beyond that of private colonizers or of the federal land banks. Yet, this requirement, that the farm buyer should have a reasonable amount of money of his own, is the only feature of the Board's policy which has been criticised. Men used to the Homestead Act where land was a gift say, 'Why not take men without money?' The reason this can not be done is that the state is not **giving away either land or money**. It is simply creating conditions that will make it easier for settlers to pay for land.

"The help this act gives is generous and substantial. This is clearly shown when one contrasts the large outlay required under the usual conditions of private bargaining with the much smaller one under the act. The payments on a 40-acre farm costing \$250 an acre or \$10,000 under the two plans would be:

	State	Private
First payment.....	\$500	\$2,000
First year payment (principal and interest).....	570	2,080
Improvements (house, \$1,000).....	400	1,000
Team (\$300).....	120	300
Cows, pigs, chickens, farm implements (\$1,500).....	600	1,500
Leveling 15 acres alfalfa (\$600).....	240	600
	\$2,430	\$7,480

"The advantages of the state plan to the settler of small means do not end with the first two years. Under the state plan, his payments are amortized. The interest rate is only 5 per cent. The settlers pay only 6 per cent a year on their debt to the state. That pays it off, principal and interest, in thirty-six and one-half years. The interest rate on private loans is 7 and 8 per cent."

The Durham Settlement in Butte County.

The first tract now known as the Durham State Land Settlement of 6,415 acres was purchased in Durham, Butte County, and transferred to the state on May 7, 1918. Of this, 5000 acres in round numbers have been subdivided. The subdivided land was cut up into 99 farms and 26 farm laborers' allotments. All of these farms have been sold. The successful result of this undertaking is well shown by the fact that few men on the Durham lands have failed in the agricultural depression. With the period of reverses in agriculture, the time when tried agriculturists have failed and when men with financial backing have quit, the State Land Settlement scheme has been given the acid test. Elwood Mead, Chairman of the State Land Settlement Board, says: "If the plan were going to fail, it would fail now. I do not mean to assert we have had no failures. Every business, in prosperous times as well as in difficult ones, has its failures. But we have had few, very few, and those who have failed have shown a reason so evident we are able to show it is not in the plan."

The Durham settlers have met their payments and an audit of the Board of Control shows that there is an ample surplus of assets over liabilities to insure the return to the state of all the money advanced with interest.

The Cooperative Stock Breeders' Association of the Durham Settlement adopted one breed of dairy cattle, one breed of beef cattle, one breed of hogs and two breeds of sheep. Nothing but pure bred sires can be used in the settlement and these if not owned by the Association must be approved by its executive committee. All cattle are tested every six months for tuberculosis and no tubercular animals are retained in the settlement. The Durham Stock Breeders' Association now owns seven valuable registered Holstein bulls and has a cooperative chilling and separating plant for the sale of the milk of the community.

The Delhi Settlement in Merced County.

The legislature in 1919 provided \$1,000,000 to be used in establishing a colony similar to the one at Durham, where the farms are all sold.

The Land Settlement Board bought a second tract of 8751 acres in Merced County. The first unit of this land has been cut up into 49 farms and 26 farm laborers' allotments and has been sold to actual settlers. Like Durham land, it was overapplied for.

Before the Delhi lands were thrown open to settlement, 100,000 Thompson seedless grape vines were planted on 160 acres. About 200 acres had been seeded to alfalfa and 600 to rye. A considerable area had been graded and prepared for irrigation, but not planted. One million vines are being rooted for next year's planting and 10 acres of land has been given over to a nursery for the propagation of fruit and shade trees for the settlers. One of the first acts in preparing the land for settlement was the planting of 10,000 eucalyptus trees for wind breaks. The second unit at Delhi was improved and offered to settlers in the spring of 1921.

Torrens Land Act.

The Torrens law was first adopted in this state in 1897, California being the first state in the Union to pass a land registration act.

The law was designed to simplify the transfer of real estate and to give the property owners a quick and inexpensive means of transfer after the land has once been bought under the system. The act adopted in 1897 was unsatisfactory, only a few titles being taken out thereunder; the act of 1914 being intended to remedy the defects in the old law.

The initial proceedings to registration are similar to an ordinary suit to quiet title. After a decree of court is obtained a certificate is issued by the registrar of deeds, which certificate is conclusive evidence that the party named thereupon is the owner of the property subject only to such liens or objections as may appear on the certificate. Subsequent transfers are made by deed or by assignment of the certificate, after which the registrar of titles issues a new certificate to the new owner.

Torrens titles are protected by state insurance. When the land is first brought under the act the owner pays into the assurance fund one-tenth of one per cent of the assessed value of the land, including permanent improvements thereon as the same were valued for county taxation the last time said land and permanent improvements or either thereof were assessed. All subsequent purchasers are insured without further cost.

Title to property under the Torrens Act can not be questioned after it has once passed into the hands of an innocent third party for value, but a party sustaining injury through the workings of the act can recover the value of the property from the assurance fund in the hands of the State Treasurer. On December 31, 1920, the assurance fund contained \$17,877.58. On the same date eleven counties had adopted this system of registration: Humboldt, Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Francisco, Santa Cruz and Tulare counties.

Irrigation.

Probably in no field of California agricultural activity, is greater progress being made at this time than in the field of irrigation. More applications for permits to appropriate water for irrigation are being filed with the State Water Commission than at any time since the Water Commission Act became effective in 1914. State authorities are increasingly active in aiding irrigation development and in guiding it along safe lines; each year is adding to the number of communities owning and operating their irrigation systems through the medium of irrigation districts; farmers are thinking more seriously of the vital relationship between irrigation and plant growth; and perhaps more important than all else, the whole state is becoming increasingly conscious that only by the storage of flood waters now going to waste, and by the more careful and the more economical use of irrigation water, can California fully achieve her agricultural heritage.

In at least 65 per cent of the 22,000,000 acres that make up the valleys and agricultural plains and foothills of California, intensive agriculture, if possible at all, is not permanently profitable without more moisture than the normal rainfall supplies; and even in the remaining 35 per cent, possibly excepting the narrow coastal areas of the most northerly counties, irrigation is distinctly a needed advantage.

The outstanding California irrigation projects now under promotion or ready for construction, in which this large scale storage is the principal factor, are the Iron Canyon Project, important to the entire upper Sacramento Valley; the Don Pedro Reservoir; Merced Irrigation District, which will embrace in excess of 200,000 acres; Madera Irrigation District, within excess of 300,000 acres; the Pine Flat Project, intended to supplement or provide new irrigation facilities from Kings River for at least 1,000,000 acres; and possibly also the Kern River Project. All of these projects will have important hydro-electric features which are expected to help finance them through the period the lands are being brought under successful settlement and cultivation.

Since a large portion of California lies on the so-called semi-arid belt of the Pacific Coast, which includes parts of Oregon and Washington, California has had very few so-called "desert" irrigation projects, although the largest desert irrigation project in the west—that in Imperial Valley—is located in this state. The bulk of the irrigation in Southern California has been under practically arid conditions where little, if any, agriculture was possible without irrigation. However, outside of Imperial Valley, irrigation projects have been relatively small and have seldom developed

faster than settlers were available to utilize the new lands. Over the bulk of northern and central California the first farming developed was non-irrigation farming, and the supplying of irrigation facilities has been by way of improving a type of agriculture already established without it. Our problem has been one of subdividing land, already farmed, after irrigation water has been made available. Practically none of our important developments now under way, outside of the Colorado desert areas adjacent to Imperial Valley, present conditions of settlement different from those we have had in the past, and fortunately the State Land Settlement Board, with its organized state community settlements at Durham and Delhi, is pointing to the way in which settlement difficulties are most likely to be best met in the future. The areas the state will settle by use of state funds will, relatively speaking, not be extensive, but the methods and principles they are establishing should set the pace for the future. Many new settlers will be needed to farm the areas that present development movements embrace, and the State Land Settlement Board is sure to exercise a guiding influence.

Irrigation Acreage, by Drainage Basin.

The report of a special census taken in 1902 presented all data by drainage basins rather than by counties. The results of the census of 1920 have been tabulated on the same basis, and the data for 1902 are presented for purposes of comparison. For no other census have the results been tabulated in this form. The acreage reported for each drainage basin in 1919 comprises all the irrigated land in that drainage basin, including that watered from springs and wells. In the 1902 results the acreages irrigated from springs and wells were not reported for the smaller tributary streams, but the acreages for the tributaries were included in those reported for the main streams. This area is so small, however, that the comparison of the areas reported for the tributary streams is not seriously affected.

Average cost per acre in 1920, \$33.06.

Average cost per acre in 1910, \$20.05.

Operation and maintenance per acre in 1919, \$4.40.

ACREAGE IRRIGATED, CLASSIFIED BY DRAINAGE BASIN—1919 AND 1920

Drainage basin	Area irrigated (acres).			Per cent of increase. ¹	Area included in enterprises, 1920 (acres).	Area enterprises were capable of irrigating in 1920 (acres)	Capital invested, 1920 and 1902		Increase	
	1919	1902	1902				1902	Amount	Per cent	
										1920	1902
Total	4,219,040	1,708,720	146.9	7,805,297	5,894,466	\$194,886,388	\$23,772,157	\$171,114,231	719.8	
Colorado River	447,384	10,000	11.2	621,015	494,975	7,420,589	590,000	6,929,589	893.9	
Independent streams, northern California	159,861	125,779	4.8	7,027	4,810	6,257,200	629,548	5,627,652	76.1	
Carson River	4,459	4,683	208.9	18,840	15,931	30,385	32,639	17,446	950.1	
Long Valley Creek	12,543	4,040	3.8	70,377	45,760	5,263,858	15,200	155,297	5,348,658	
Mono Lake and tributaries	4,190	3,818	9.7	36,225	33,313	24,236	39,221	39,221	19.3	
Susan River	31,754	23,533	35.1	42,295	40,355	37,575	196,445	158,870	80.9	
Walker River	39,201	52,975	29.7	84,572	53,037	401,314	175,414	225,900	128.8	
Other independent streams	47,624	336,710	238.3	346,831	237,988	19,896,665	1,354,970	18,541,695	437.3	
Independent streams, southern California	200,818	59,358	753.3	21,523	6,510	616,769	114,800	501,969	5,376,257	
Mojave River	4,608	510	177.5	200,147	182,748	5,785,132	408,875	1,364,257	176.0	
Owens River	144,034	51,902	314.1	34,074	22,203	2,139,257	775,000	2,242,944	9,036,268	
San Jacinto River	20,869	5,040	788.8	37,694	22,382	9,112,563	-56,295	9,036,268	680.0	
Whitewater River	14,643	(3)	17.3	52,583	24,185	2,378,513	394,952	2,073,561	499.9	
Other independent streams	16,674	1,876	869.7	146,070	85,098	1,690,958	2,463	1,409,082	160,167	
Pacific Ocean streams north of San Francisco Bay	66,001	56,272	18.6	122,853	70,275	162,630	2,463	1,409,082	594,332	
Klamath River	62,555	52,709	869.7	12,475	4,200	524,925	20,593	504,332	462.1	
Russian River	3,046	314	94.4	831,490	662,847	53,456,601	9,569,767	43,946,834	690.4	
Other Pacific Ocean streams, north of San Francisco Bay	421	3,249	39.7	10,792	10,623	279,519	20,593	594,332	690.4	
Pacific Ocean streams south of San Francisco Bay	543,385	14,157	353.6	33,620	25,769	1,248,343	148,593	1,079,750	741.7	
Pajaro River	19,771	10,604	523.3	60,989	57,456	2,570,331	101,960	2,468,371	491.1	
Solinas River	48,097	1,541	133.8	22,063	30,460	373,194	32,780	540,814	1,837,322	
Santa Maria River	9,623	1,493	98.9	43,295	30,216	284,037	37,515	250,292	5,198,789	
Santa Ynez River	3,491	1,421	275.6	82,657	73,696	2,211,473	399,611	1,837,322	12,080,732	
Santa Clara River	28,270	5,316	163.9	161,737	115,022	5,508,400	772,597	4,735,803	17,969,019	
Los Angeles River	59,072	3,706	71.8	281,630	218,735	19,918,550	1,919,331	17,999,019	937.7	
San Gabriel River	127,146	70,492	5,430	14,639	10,789	1,789,124	32,100	1,757,024	725,731	
Santa Ana River	185,508	5,430	3122.800	120,628	71,149	6,490,830	5,765,099	725,731	12.6	
San Diego River	8,812	53,595	56.4	120,628	71,149	6,490,830	5,765,099	725,731	12.6	
Other Pacific Ocean streams south of San Francisco Bay	53,595	122,800	56.4	120,628	71,149	6,490,830	5,765,099	725,731	12.6	

Sacramento River and tributaries.....	640,950	206,312	210.7	1,204,769	864,605	28,833,106	1,882,227	26,950,879
Sacramento River direct.....	194,307	10,042		439,169	296,748	11,820,374	43,368	11,781,006
But River.....	89,984	72,072	24.9	129,984	107,476	799,913	274,671	525,242
Cow Creek.....	60,068	2,221	161.4	12,488	7,446	126,946	15,246	111,700
Cottonwood Creek.....	2,972	1,858	60.0	21,016	4,112	573,601	124,473	449,128
Battle Creek.....	2,066	2,642	12.3	6,500	5,108	93,139	34,706	60,433
Stony Creek.....	22,559	4,110	473.2	45,143	36,191	1,539,614	42,250	1,497,364
Yardley River.....	142,841	67,111	112.8	186,756	167,463	3,937,380	869,841	3,067,539
Yuba River.....	19,473	(1)		69,074	23,492	2,518,770	(8)	2,518,770
Cadle Creek.....	24,541	3,756	553.4	56,408	31,242	916,477	28,115	888,362
American River.....	47,156	10,112	266.3	82,695	52,842	2,890,114	112,758	2,777,356
Other tributaries of Sacramento River.....	86,993	31,388	177.2	153,359	132,313	3,694,778	333,709	3,274,069
San Joaquin River and tributaries.....	2,103,694	932,031	125.5	4,294,966	3,248,919	71,694,653	9,103,242	62,591,411
San Joaquin River direct.....	642,261	129,647	395.4	1,082,862	873,300	9,224,164	1,594,268	7,719,926
Furn River.....	200,641	116,189	72.7	432,481	299,665	17,573,637	796,340	16,777,297
Tulare Lake.....	70,634	(5)		204,869	147,444	3,910,620	(3)	3,910,620
Tule River.....	61,223	(4)		175,777	100,412	2,842,495	(8)	2,842,495
Kaweah River.....	149,632	(4)		356,703	290,474	6,186,840	(9)	6,186,840
Kings River.....	552,011	596,091	-7.3	1,052,406	895,263	8,145,446	2,976,688	5,168,758
Pecos River.....	12,414	10,720	15.7	30,004	14,016	415,385	14,971	390,414
Merced River.....	62,411	19,636	222.7	222,715	71,700	3,812,235	1,522,894	2,289,341
Tuolumne River.....	165,533	(7)	231.8	298,418	950,423	7,173,892	(7)	7,173,892
Stanislaus River.....	75,329	13,840	441.5	155,433	111,192	7,810,486	968,964	6,841,522
Chabaras River.....	13,323	(5)		154,598	116,189	818,995	(3)	818,995
Mokelumne River.....	36,848	3,558	563.0	154,480	72,444	1,675,137	305,239	1,369,898
Cosumnes River.....	2,239	(7)		9,011	6,403	153,899	(3)	153,899
Other tributaries of San Joaquin River.....	55,019	31,241	33.4	96,193	81,361	1,921,912	46,845	1,313,067
Tributaries of San Francisco Bay, other than Sacramento and San Joaquin Rivers.....	76,947	38,549	99.6	100,730	86,779	4,940,061	487,451	4,452,610
Coyote Creek.....	25,002	8,483	105.8	30,979	26,226	1,453,138	43,345	1,409,793
Guadalupe River.....	28,248	6,247	346.7	34,549	31,008	1,833,049	73,703	1,807,346
Other tributaries of San Francisco Bay.....	22,697	23,519	-3.9	35,202	29,245	1,663,874	398,311	1,265,563

^aNot reported separately in 1902.

^bIncludes springs and wells.

^cA minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

SUMMARY OF AGRICULTURAL AND IRRIGATED AREAS IN CALIFORNIA AS SHOWN ON REVISION OF IRRIGATION MAP OF CALIFORNIA DECEMBER 31, 1921.

County	Valley		Plains		Foothill		All classes	
	Total Agricultural	Irrigated	Total Agricultural	Irrigated	Total Agricultural	Irrigated	Total Agricultural	Irrigated
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Alameda	118,200	14,200			118,200		118,200	14,200
Alpine	4,800	4,800			4,800		4,800	4,800
Amador			1,400		153,400	200	154,800	200
Butte	304,600	85,600	81,700	3,700	103,900	8,900	559,200	98,200
Calaveras					195,900	100	195,900	100
Colusa	383,000	185,200	42,400	500			425,400	185,700
Contra Costa	101,900	67,300					161,900	67,300
Del Norte	41,000						41,000	
El Dorado							233,000	6,100
Fresno	1,586,000	585,700	75,000	14,700	235,600	6,100	1,612,700	600,400
Glenn	307,000	118,500	77,800	1,000	1,700		384,800	119,500
Humboldt	12,700	3,300					12,700	3,300
Imperial	80,000	463,900					80,000	463,900
Inyo	348,200	70,700					348,200	70,700
Kern	1,809,700	320,100	295,300	1,000			2,105,000	321,100
Kings	720,700	445,000					720,700	445,000
Lake	94,800	1,400					94,800	1,400
Lassen	570,300	62,300					570,300	62,300
Los Angeles	1,004,300	307,300					1,004,300	307,300
Madera	357,000	130,200	180,700	100		38,700	534,400	130,300
Marin	31,900	300					31,900	300
Mariposa			500		180,900		181,400	
Mendocino	86,000	3,500					86,000	3,500
Merced	737,700	384,800	151,700	3,600	79,900	100	969,300	388,500
Modoc	376,100	121,000					376,100	121,000
Mono	962,800	50,500					962,800	50,500
Monterey	519,000	79,000					519,000	79,000
Napa	73,500	2,500					73,500	2,500
Nevada					170,600	4,400	170,600	4,400
Orange	278,600	149,600					278,600	149,600
Placer	80,500	900	61,900	1,900	153,200	33,200	295,600	96,000
Plumas	115,800	33,400			3,100		120,000	33,900
Riverside	430,000	179,100					430,000	179,100
Sacramento	3,300,000	1,100,000	184,600	10,300	61,500	700	626,000	130,400
San Benito	95,000	23,300					95,000	23,300

San Bernardino.....	126,800	1,715,800	126,800	100,000	1,000	28,300	400	565,300	126,800
San Diego.....	42,300	400	400					400	42,300
San Francisco.....	304,000	677,200	3,020,000	100,000	1,000	28,300	400	806,100	304,000
San Joaquin.....	8,200	137,500	8,200					137,500	8,200
San Luis Obispo.....									
San Mateo.....	12,200	54,000	12,200					54,000	12,200
Santa Barbara.....	16,700	247,300	16,700					247,300	16,700
Santa Clara.....	95,400	203,700	95,400					203,700	95,400
Santa Cruz.....	1,700	33,100	1,700					33,100	1,700
Shasta.....	44,700	132,200	44,700	126,900	4,400	135,600	3,800	394,700	32,900
Sierra.....	13,900	39,800	13,900					39,800	13,900
Siskiyou.....	76,000	398,100	76,000					398,100	76,000
Solano.....	89,900	319,300	89,900	85,300	200			404,000	49,100
Sonoma.....	2,000	194,900	2,000					194,900	2,500
Stanislaus.....	221,800	349,400	221,800	137,700	17,300	148,700	5,200	633,800	244,300
Sutter.....	85,400	321,400	85,400	12,300				833,700	83,400
Tehama.....	44,500	171,700	44,500	222,300	3,000	182,300	2,000	376,300	49,500
Trinity.....	7,100	13,500	7,100					13,500	7,100
Tulare.....	487,800	882,800	487,800	124,700	27,600			1,007,300	515,400
Tuolumne.....	47,900	211,300	47,900			81,200	500	81,200	500
Ventura.....	124,600	370,200	124,600	93,900	300			211,300	47,900
Yolo.....	22,400	109,200	22,400	60,400	1,300	109,300	3,400	464,100	124,900
Yuba.....								278,900	27,100
Totals.....	19,741,200	5,837,800	2,045,100	92,500	2,125,800	69,000	23,912,100	5,999,300	

DRAINAGE: CALIFORNIA.**Statistics for the State and its Counties.**

The Sacramento and San Joaquin Drainage District was organized in 1911-1913 by special acts of the legislature, to carry into effect the plans of the California Debris Commission. It embraces lowland along Sacramento, Feather, and San Joaquin rivers from Butte and Glenn counties on the north to Fresno and Madera counties on the south. It is governed by a board of reclamation of seven men appointed by the governor of the state. This board has large powers for the construction of levee and other flood-protection works, the cost to be apportioned according to benefits to the land, and approval of this board must be obtained by any other enterprise for the construction of any new plan of reclamation, drainage, or protection that will affect the land or works of the Sacramento and San Joaquin Drainage District.

Reclamation districts are established by the boards of county supervisors, in accordance with sections 3446 to 3493 of the Political Code of 1872 as amended, upon petition from the holders of title representing one-half or more of any body of swamp, marsh, or tidal land, or land subject to overflow. This part of the code was based on the statute of March 28, 1868 (ch. 415). The supervisors hold public hearing upon the petition before approving it, and may change the boundaries of the district as they find necessary in order that just the area benefited will be included. A district situated in more than one county is established by the supervisors of the county containing the greater part of the land. The county surveyor prepares the plan of drainage works and makes the assessments of damages and of benefits. The supervisors hold public hearings upon the petition for establishment and upon the surveyor's assessments; their determinations of damages and benefits are final. The cost is assessed against the land in proportion to the benefits. The supervisors let contracts for constructing the works, and after these are completed public hearing is held to determine whether the work is acceptable and the amount of bonds that shall be issued. The law of 1903 provided that the supervisors apportion the work of construction to the various landowners, the supervisors to perform the work not completed within the time that had been specified and to assess the cost against the delinquent owners. Districts in more than one county are under the jurisdiction of the supervisors of the county containing the greater portion of the district.

Many reclamation districts have been established by special acts of the legislature that defined the boundaries of each district, sometimes named the trustees of the district, and usually prescribed that the powers of the trustees and the method of procedure should be as provided in the Political Code.

Drainage districts for the improvement of agricultural land other than swamp and overflowed land may be formed under a law of March 20, 1903 (ch. 238). A petition for establishment must be signed by fifty or by a majority of the holders of title or evidence of title to the land that will be affected, and must be submitted to the board of supervisors of the county in which all or the greater portion of the land is situated. After public hearing upon the petition, the landowners vote upon the

question of establishment and for three or five directors to be the officers of the district. Two-thirds of the votes must be favorable in order that the enterprise be organized. The plan of drainage improvements is determined by the directors. The cost of drainage is assessed against the real estate in the district in proportion to its assessed value; the money that will be needed is assessed by the supervisors each year according to estimates prepared by the directors. Bonds may be issued by the directors after approval by a two-thirds vote of the landowners.

A great many amendments have been made to the drainage laws as originally enacted but the character of the enterprises as just described is in most instances the same as was first provided. Several drainage laws have been enacted and repealed or declared unconstitutional, including one of April 23, 1880 (ch. 117), creating a state board of drainage commissioners, and one of March 3, 1881 (ch. 21), authorizing the establishment of drains by the county supervisors.

Location of Enterprises.

Most of the land in drainage enterprises in California lies in the valleys of the lower San Joaquin and Sacramento rivers, within seventy-five miles of their confluence. There are several small tracts in drainage enterprises between this large area and the coast, a few areas in the north end of the state, and several, including some of considerable size, in the extreme southern and southeastern parts of the state.

Land and Capital Invested in All Enterprises, Classified by Drainage Basin—1920.

Drainage basin	Land		Capital		
	Acreage	Per cent of total	To Dec. 31, 1919		Additional required to complete
			Amount	Per cent of total	
All organized enterprises	1,121,219	100.0	\$47,688,153	100.0	\$6,731,474
Operating enterprises.....	1,108,319	98.8	47,687,153	100.0	6,334,474
Colorado River.....	46,000	4.1	175,634	0.4	1,000,000
Sacramento River.....	641,836	57.2	34,659,856	72.7	3,206,645
San Joaquin River.....	344,282	30.7	11,524,721	24.2	1,987,829
Pacific Ocean.....	76,201	6.8	1,326,942	2.8	140,000
Nonoperating enterprises.....	12,900	1.2	1,000	(¹)	400,000
Pacific Ocean.....	12,900	1.2	1,000	(¹)	400,000

¹Less than one-tenth of 1 per cent.

Land and Farm Area		1921										1920
Approximate land area of the county.....acres		1,276,800	2,131,200	501,120	568,800	1,659,520	4,022,720	629,120	890,880			
All land in farms.....acres		1,124,048	1,104,048	263,925	325,703	101,653	676,263	122,603	159,378			
Improved land in farms.....acres		506,582	398,320	116,723	200,145	34,223	348,588	389,024	530,676			
Woodland in farms.....acres		38,873	201,891	40,321	2,453	14,864	26,027	63,155	13,577			
Other unimproved land in farms.....acres		577,065	503,887	130,881	122,205	52,566	301,728	98,324	403,195			
Farm land reported as provided with drainage.....acres		32,008	1,297	2,100	14,240	1,138	1,884	92,053	1,025			
Farm land reported as needing drainage.....acres		43,101	6,691	3,242	1,996	1,613	3,403	4,228	1,025			
Drainage only.....acres		24,664	5,77	1,069	1,392	1,348	1,118	2,984	70			
Drainage and clearing.....acres		18,437	1,033	2,173	604	265	2,375	1,344	3			
5	Number of all farms in the county.....	4,023	4,500	624	1,485	5,016	1,759	949	77	Sierra		
6	Farms reporting land having drainage.....	101	352	11	20	200	62	92	2			
7	Farms reporting land needing drainage.....	87	28	11	30	32	52	75	2			
8	Farms in drainage and levee districts.....	55	275	2	21	14	3	9	6			
Land and Farm Area												
5	Approximate land area of the county.....acres	12,912,000	926,720	286,080	1,753,600	849,920	278,400	2,163,120	590,720			
6	All land in farms.....acres	4,173,338	705,208	117,100	897,553	576,812	144,751	363,255	69,667			
7	Improved land in farms.....acres	173,272	569,403	17,736	240,335	206,890	67,838	103,370	21,007			
8	Woodland in farms.....acres	38,843	18,471	10,291	58,244	70,989	40,619	276,284	14,132			
9	Other unimproved land in farms.....acres	209,633	88,154	20,682	571,184	299,294	30,239	183,381	24,938			
10	Farm land reported as provided with drainage.....acres	9,850	117,262	1,262	865	8,483	1,007	13,249	740			
11	Farm land reported as needing drainage.....acres	3,917	1,448	639	2,860	3,164	4,978	6,157	201			
12	Drainage only.....acres	1,143	794	201	1,007	1,417	619	948	20			
13	Drainage and clearing.....acres	2,774	1,306	698	1,479	1,747	4,359	5,869	181			
Siskiyou												
1	Number of all farms in the county.....	1,358	5,739	1,437	1,414	377	1,543	1,013	14,538	Yolo		
2	Farms reporting land having drainage.....	56	110	330	3	31	47	128	270			
3	Farms reporting land needing drainage.....	19	108	115	13	67	31	20	663			
4	Farms in drainage and levee districts.....	47	223	335	5	5	24	112	32			
Land and Farm Area												
5	Approximate land area of the county.....acres	526,080	928,000	389,120	1,872,000	1,981,440	1,189,120	648,060	15,478,400			
6	All land in farms.....acres	468,288	748,678	288,940	1,124,502	1,300,290	384,865	398,165	5,087,403			
7	Improved land in farms.....acres	166,621	251,730	232,070	324,240	15,078	189,924	300,094	1,732,695			
8	Woodland in farms.....acres	71,912	98,320	9,367	324,240	40,240	15,049	29,815	1,035,262			
9	Other unimproved land in farms.....acres	298,863	291,654	47,503	567,540	74,966	179,892	68,266	2,221,446			
10	Farm land reported as provided with drainage.....acres	427	6,655	66,514	1,718	529	2,920	28,246	2,480			
11	Farm land reported as needing drainage.....acres	2,490	3,871	9,999	1,310	3,553	2,663	7,577	49,495			
12	Drainage only.....acres	1,706	369	4,556	280	84	1,330	7,393	1,561			
13	Drainage and clearing.....acres	784	383	5,443	1,030	3,469	1,273	184	47,984			

*Drainage on farms was reported in all counties in California.

Dry Farming.

Irrigation and dry farming will go together in California, and the profit of the latter will depend on the skill and resources of the agriculturist. The great valleys have a considerable acreage; the coast country below San Francisco has a large area, and southern California has much land which must be farmed without water or not at all. Dry lands may interest some settlers who do not care to irrigate or who will store water in the winter for one good flooding—a profitable practice in a few places. The lands in question are fertile, ready for the plow, are productive under proper treatment, and are lower in price than the irrigable lands. Success in farming them is only a matter of adapting methods to natural conditions. The dry air and sunshine of this state increase evaporation from the soil, but much cultivation is rewarded by better crops than the average farmer gets in humid countries.

Farms and Farm Lands.

California ranks second in land area and eighth in population among the states of continental United States. The soils vary from heavy clay like "adobe" soils to sandy and gravelly loams.

Farm land is divided into (1) improved land, (2) woodland, and (3) all other unimproved land. "Improved land" includes all land regularly tilled or mowed, land pastured and cropped in rotation, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings. "Woodland" includes all land covered with natural or planted forest trees, which produce, or later may produce, firewood or other forest products. "All other unimproved land" includes brush land, rough or stony land, swamp land, and any other land which is not improved or in forest. The census classification of farm land as "improved land," "woodland," and "other unimproved land" is one not always easy for the farmers or enumerators to make and the statistics therefore must be considered at best only a close approximation.

Summary of Population and Farms, 1850-1920.

Year	Population	Number of farms	Land in farms		Per cent of land area in farms
			All land	Improved	
1850	92,597	872	3,893,985	32,454	3.9
1860	379,994	18,716	8,730,034	2,468,034	8.8
1870	560,247	23,724	11,427,105	6,218,133	11.5
1880	864,694	35,934	16,593,742	10,669,698	16.7
1890	1,213,398	52,894	21,427,293	12,222,839	21.5
1900	1,485,053	72,542	28,828,951	11,958,837	28.9
1910	2,377,549	88,197	27,931,444	11,389,894	28.0
1920	3,426,312	117,670	29,365,667	11,878,339	29.5

Summary of Farm Values, 1850-1920.

Year	Total value	Land and buildings	Implements and machinery	Live stock
1850	\$7,328,582	\$3,874,041	\$103,483	\$3,351,058
1860	86,870,327	48,726,804	2,558,506	35,585,017
1870	184,521,470	141,240,028	5,316,690	37,964,752
1880	*311,997,443	262,051,282	8,447,744	*41,498,417
1890	*777,381,767	697,116,630	14,689,710	*65,575,427
1900	796,527,955	707,912,960	21,311,670	67,303,325
1910	1,614,694,584	1,450,601,488	36,493,158	127,599,938
1920	3,431,021,861	3,073,811,109	136,069,290	211,141,462

*Includes estimated value of range animals.

Value of Farms, 1920.

The value of all farms in the United States on January 1, 1920, (value of land and buildings) was \$67,795,965,384, as compared with \$34,801,125,697 on April 15, 1910. The increase in the value of farms during the decade was \$32,994,839,687, or 94.8 per cent. It thus appears that while there was only a slight increase in the number of farms between 1910 and 1920 and an increase of less than 10 per cent in the farm acreage, the value of farms nearly doubled.

Due allowance must be made, of course, for the fact that farm values in many localities were abnormally high at the beginning of the year 1920, and that present values might be considerably less than those reported at the time of the census.

Seven states reported values for farm land and buildings in excess of \$3,000,000,000, as follows: Iowa, \$7,601,772,290; Illinois, \$7,416,583,951; Nebraska, \$3,723,536,255; Texas, \$3,717,799,544; Minnesota, \$3,301,168,325; California, \$3,073,811,109, and Missouri, \$3,062,967,700.

Average Value per Farm.

The average value of land and buildings per farm for the United States as a whole in 1920 was \$10,514, as compared with \$5,471 in 1910.

In five states the average value reported per farm was above \$25,000. These states were Iowa, \$35,616; South Dakota, \$33,122; Illinois, \$31,270; Nebraska, \$29,927, and California, \$26,122.

Average Value per Acre.

The average value of land and buildings per acre of land in farms in the United States in 1920 was \$70.94, as compared with \$39.60 in 1910.

An average value of more than \$100 per acre was reported for eight states, as follows: Illinois, \$231.93; Iowa, \$227.09; Indiana, \$125.98; Ohio, \$113.18; New Jersey, \$109.67; Minnesota, \$109.23; California, \$104.67, and Connecticut, \$100.20.

Average Value of Plow Lands, Per Acre 1916-1920.

	California	United States
Average of poor plow lands—		
1916.....	\$55 00	\$42 67
1917.....	66 00	47 86
1918.....	69 00	51 26
1919.....	70 00	60 76
1920.....	75 00	56 66
Average of good plow lands—		
1916.....	150 00	78 34
1917.....	163 00	85 48
1918.....	165 00	91 83
1919.....	175 00	113 34
1920.....	200 00	106 33
Average of all plow lands—		
1916.....	110 00	62 17
1917.....	120 00	68 38
1918.....	121 00	74 31
1919.....	130 00	90 01
1920.....	135 00	83 78

NUMBER OF FARMS, ACREAGE, AND VALUE.

Number of Farms and Farm Acreage, 1850 to 1920.

Census year	Farms		Land in farms				Per cent of land area in farms.....	Per cent of farm land improved.....
	Number	Per cent of increase.....	All land		Improved land			
			Acres	Per cent of increase.....	Acres	Per cent of increase.....		
1920.....	117,670	33.4	29,365,667	5.1	11,878,339	4.3	29.5	40.4
1910.....	88,197	21.6	27,931,444	-3.1	11,389,894	-4.8	28.0	40.8
1900.....	72,542	37.1	28,828,951	34.5	11,958,837	-2.2	28.9	41.5
1890.....	52,894	47.2	21,427,293	29.1	12,222,839	14.6	21.5	57.0
1880.....	35,934	51.5	16,593,742	45.2	10,669,698	71.6	16.6	64.3
1870.....	23,724	26.8	11,427,105	30.9	6,218,133	151.9	11.5	54.4
1860.....	18,716	.....	8,730,034	124.2	2,468,034	.....	8.7	28.3
1850.....	872	.....	3,893,985	.....	32,454	.....	3.9	0.8

¹A minus sign (—) denotes decrease. Per cent not shown when more than 1,000.

Value of Farm Property, 1850 to 1920

Census year	All farm property		Land and buildings		Implements and machinery		Live stock	
	Value	Per cent of increase	Value	Per cent of increase	Value	Per cent of increase	Value	Per cent of increase
1920	\$3,431,021,861	112.5	\$3,073,811,109	111.9	\$136,069,290	272.9	\$221,141,462	73.3
1910	1,614,694,584	102.7	1,450,601,488	104.9	36,493,158	71.2	127,599,938	89.6
1900	796,527,955	2.5	707,912,960	6.5	21,311,670	45.1	67,303,325	2.6
1890	777,381,767	149.2	697,116,630	166.0	14,689,710	73.9	65,575,427	58.0
1880	311,997,443	69.1	262,051,282	85.5	8,447,744	58.9	41,498,417	9.3
1870 ¹	184,521,470	112.4	141,240,028	189.9	5,316,690	107.8	37,964,752	6.7
1860	86,870,327	-----	48,726,804	-----	2,558,506	-----	35,585,017	961.9
1850	7,328,582	-----	3,874,041	-----	103,483	-----	3,351,058	-----

¹Per cent not shown when more than 1,000.

²Computed gold values, being 80 per cent of the currency values reported.

Average Acreage and Average Value per Farm, 1850 to 1920.

(Averages are based on "all farms" in the state.)

(Census year.)

	1920	1910	1900	1890	1880	1870 ¹	1860	1850
Average acreage per farm—								
All land	249.6	316.7	397.4	405.0	461.8	481.7	466.4	4,465.6
Improved land	100.9	129.1	164.9	231.1	296.9	262.1	131.9	37.2
Average value per farm—								
All farm property	\$29,158	\$18,308	\$10,980	\$14,697	\$8,683	\$7,778	\$4,642	\$8,404
Land and buildings	26,122	16,447	9,759	13,180	7,298	5,953	2,603	4,443
Implements and machinery	1,156	414	294	278	235	224	137	119
Live stock	1,879	1,447	928	1,240	1,155	1,600	1,901	3,843

¹Computed gold values, being 80 per cent of the currency values reported.

Acreage Value per Acre, 1850 to 1920.

(Averages are based on "all land in farms" in the state.)

(Census year.)

	1920	1910	1900	1890	1880	1870 ¹	1860	1850
All farm property	\$116.84	\$57.81	\$27.63	\$36.28	\$18.80	\$16.15	\$9.95	\$1.88
Land and buildings	104.67	51.93	24.56	32.53	15.79	12.36	5.58	.99
Land alone	94.77	47.16	21.87	-----	-----	-----	-----	-----
Buildings alone	9.90	4.78	2.69	-----	-----	-----	-----	-----
Implements and machinery	4.63	1.31	.74	.69	.51	.47	.29	.03
Live stock	7.53	4.57	2.33	3.06	2.50	3.32	4.08	.86

¹Computed gold values, being 80 per cent of the currency values reported.

FARMS BY SIZE.

Number of Farms, by Size, 1920 and 1910.

Size group	Number of farms		Increase ¹		Per cent of total	
	1920	1910	Number	Per cent	1920	1910
Total.....	117,670	88,197	29,473	33.4	100.0	100.0
Under 20 acres.....	34,067	22,525	11,542	51.2	29.0	25.5
Under 3 acres.....	2,904	1,269	1,635	128.8	2.5	1.4
3 to 9 acres.....	13,793	9,324	4,469	47.9	11.7	10.6
10 to 19 acres.....	17,370	11,932	5,438	45.6	14.8	13.5
20 to 49 acres.....	31,723	20,614	11,109	53.9	27.0	23.4
50 to 99 acres.....	15,034	10,680	4,354	40.8	12.8	12.1
100 to 174 acres.....	13,217	12,015	1,202	10.0	11.2	13.6
175 to 499 acres.....	13,671	12,551	1,120	8.9	11.6	14.2
175 to 259 acres.....	5,320	4,689	631	13.5	4.5	5.3
260 to 499 acres.....	8,351	7,862	489	6.2	7.1	8.9
500 to 999 acres.....	5,052	5,119	-67	-1.3	4.3	5.8
1,000 acres and over.....	4,906	4,693	213	4.5	4.2	5.3

¹A minus sign (—) denotes decrease.

Number of Farms and Per Cent Distribution, by Size, 1880 to 1920.

Size group	1920	1910	1900	1890	1880
Total number of farms.....	117,670	88,197	72,542	52,894	35,934
Under 10 acres.....	16,697	10,593	6,846	2,827	1,207
10 to 19 acres.....	17,370	11,932	8,236	4,010	1,430
20 to 49 acres.....	31,723	20,614	13,110	7,691	3,475
50 to 99 acres.....	15,034	10,680	8,067	5,796	3,969
100 to 499 acres.....	26,888	24,566	26,201	24,531	20,214
500 to 999 acres.....	5,052	5,119	5,329	4,367	3,108
1,000 acres and over.....	4,906	4,693	4,753	3,672	2,531
Per cent of all farms.....	100.0	100.0	100.0	100.0	100.0
Under 10 acres.....	14.2	12.0	9.4	5.3	3.4
10 to 19 acres.....	14.8	13.5	11.4	7.6	4.0
20 to 49 acres.....	27.0	23.4	18.1	14.5	9.7
50 to 99 acres.....	12.8	12.1	11.1	11.0	11.0
100 to 499 acres.....	22.8	27.9	36.1	46.4	56.3
500 to 999 acres.....	4.3	5.8	7.3	8.3	8.6
1,000 acres and over.....	4.2	5.3	6.5	6.9	7.0

Farm Acreage and Value, by Size of Farm, 1920 and 1910.

Size group (acres)	All land in farms (acres)		Improved land in farms (acres)		Value of land and buildings	
	1920	1910	1920	1910	1920	1910
Total.....	29,365,667	27,931,444	11,878,339	11,389,894	\$3,073,811,109	\$1,450,601,488
Under 20.....	296,403	200,822	280,508	189,679	321,745,428	133,881,517
20 to 49.....	981,155	625,954	861,487	558,296	543,815,809	192,799,674
50 to 99.....	1,045,972	752,951	855,192	600,140	382,383,474	149,394,265
100 to 174.....	1,841,847	1,709,459	1,152,733	972,519	347,609,049	161,032,374
175 to 499.....	4,095,679	3,816,706	2,386,735	2,226,957	520,990,661	271,773,253
500 to 999.....	3,466,412	3,535,598	1,753,337	1,846,502	290,244,019	164,156,673
1,000 and over.....	17,638,199	17,289,954	4,588,347	4,995,801	667,022,669	377,563,732

Per Cent of Farm Land Improved, and Average Values, by Size of Farm, 1920 and 1910.

Size group	Per cent of farm land improved		Average value of land and buildings			
			Per farm		Per acre	
	1920	1910	1920	1910	1920	1910
Total.....	40.4	40.8	\$26,122	\$16,447	\$104.67	\$51.93
Under 20 acres.....	94.6	94.4	9,444	5,944	1,085.50	666.67
20 to 49 acres.....	87.8	89.2	17,143	9,353	554.26	308.01
50 to 99 acres.....	81.8	79.7	25,435	13,988	365.58	198.41
100 to 174 acres.....	62.6	58.9	26,300	13,403	188.73	94.20
175 to 499 acres.....	58.3	58.3	38,109	21,654	127.20	71.21
500 to 999 acres.....	50.6	52.2	57,451	32,068	83.73	46.43
1,000 acres and over.....	26.0	28.9	135,961	80,453	37.82	21.84

FARMS BY TENURE.

Number of Farms, by Tenure, 1920 and 1910.

Tenure	Number of farms		Increase ¹		Per cent of total	
	1920	1910	Number	Per cent	1920	1910
Total.....	117,670	88,197	29,473	33.4	100.0	100.0
Owners.....	87,580	66,632	20,948	31.4	74.4	75.5
Owning entire farm.....	75,882	56,500	19,382	34.3	64.5	64.1
Hiring additional land.....	11,698	10,132	1,566	15.5	9.9	11.5
Managers.....	4,949	3,417	1,532	44.8	4.2	3.9
Tenants.....	25,141	18,148	6,993	38.5	21.4	20.6
Share tenants.....	9,643	6,135	3,508	57.2	8.2	7.0
Share-cash tenants.....	742	704	38	5.4	0.6	0.8
Cash tenants.....	14,230	9,737	4,493	46.1	12.1	11.0
Unspecified.....	526	1,572	-1,046	-66.5	0.4	1.8

¹A minus sign (—) denotes decrease.

Number of Farms and Per Cent Distribution, by Tenure, 1880 to 1920.

Tenure	1920	1910	1900	1890	1880
Total number of farms.....	117,670	88,197	72,542	52,894	35,934
Farms operated by owners.....	87,580	66,632	52,529	43,489	28,810
Owning entire farm.....	75,882	56,500	44,318	2	2
Hiring additional land.....	11,698	10,132	8,211	2	2
Farms operated by managers.....	4,949	3,417	3,253	2	2
Farms operated by tenants.....	25,141	18,148	16,760	9,405	7,124
Share tenants.....	9,643	6,135	7,686	4,831	3,915
Share-cash tenants.....	742	704			
Cash tenants.....	14,230	9,737	9,074	4,574	3,209
Unspecified.....	526	1,572			
Per cent of all farms.....	100.0	100.0	100.0	100.0	100.0
Operated by owners.....	74.4	75.5	72.4	82.2	80.2
Owning entire farm.....	64.5	64.1	61.1	2	2
Hiring additional land.....	9.9	11.5	11.3	2	2
Operated by managers.....	4.2	3.9	4.5	2	2
Operated by tenants.....	21.4	20.6	23.1	17.8	19.8
Share and share-cash.....	8.8	7.8	10.6	9.1	10.9
Cash and unspecified.....	12.5	12.8	12.5	8.6	8.9

- 1Includes farms operated by managers.
 2Not reported separately.
 3Included with farms operated by owners.

Farm Acreage and Value, by Tenure, 1920 and 1910.

Tenure	All lands in farms (acres)		Improved land in farms (acres)		Value of land and buildings	
	1920	1910	1920	1910	1920	1910
Total.....	29,365,667	27,931,444	11,878,339	11,389,894	\$3,073,811,109	\$1,450,601,488
Owners.....	17,196,215	15,125,339	6,819,212	6,464,472	1,900,924,411	882,447,830
Managers.....	5,485,447	6,604,972	1,587,518	1,728,625	442,032,436	229,544,415
Tenants.....	6,684,005	6,201,133	3,471,609	3,196,797	730,854,262	338,609,243

Per Cent Distribution of Farms and of Farm Acreage and Value, by Tenure, 1920 and 1910.

Tenure	Number of farms		All land in farms		Improved land in farms		Value of land and buildings	
	1920	1910	1920	1910	1920	1910	1920	1910
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Owners.....	74.4	75.5	58.6	54.2	57.4	56.8	61.8	60.8
Managers.....	4.2	3.9	18.7	23.6	13.4	15.2	14.4	15.8
Tenants.....	21.4	20.6	22.8	22.2	29.2	28.1	23.8	23.3

Average Acreage, Per Cent of Farm Land Improved, and Average Values, by Tenure, 1920 and 1910.

Tenure	Average acreage per farm				Per cent of farm land improved		Average value of land and buildings			
	All land		Improved land				Per farm		Per acre	
	1920	1910	1920	1910	1920	1910	1920	1910	1920	1910
Total.....	249.6	316.7	100.9	129.1	40.4	40.8	\$26,122	\$16,447	\$104.67	\$51.93
Owners.....	196.3	227.0	77.9	97.0	39.7	42.7	21,705	13,244	110.54	58.34
Managers.....	1,108.4	1,933.0	320.8	505.9	28.9	26.2	89,318	67,177	80.58	34.75
Tenants.....	265.9	341.7	138.1	176.1	51.9	51.6	29,070	18,658	109.34	54.60

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Columbia	Contra Costa	Del Norte	El Dorado
ALL FARMS.										
Number of farms, 1920	117,670	2,778	21	479	2,219	606	816	1,675	130	729
Number of farms, 1910	88,197	2,422	42	537	1,900	632	667	1,465	114	716
Number of farms, 1900	72,542	2,787	37	560	1,179	575	582	1,511	131	759
All farmers classified by sex, 1920:										
Male, number	111,896	2,582	18	451	2,093	540	780	1,597	125	696
Female, number	5,774	196	3	28	126	66	36	78	5	33
Color and nativity of all farmers, 1920:										
Native white, number	76,995	1,158	14	361	1,763	463	663	906	80	571
Foreign-born white, number	34,189	1,440	5	117	417	141	130	673	41	147
Negro and other nonwhite	6,486	1,800	2	1	39	2	23	96	9	11
All farms classified by size, 1920:										
Under 3 acres, number	2,904	298	1	1	94	12	3	29	2	2
3 to 9 acres, number	13,793	470	18	18	207	11	38	179	3	36
10 to 19 acres, number	17,370	772	11	11	377	11	52	226	4	32
20 to 49 acres, number	31,723	382	1	40	607	39	128	306	11	70
50 to 99 acres, number	15,034	221	2	50	276	50	88	182	16	98
100 to 174 acres, number	13,217	212	5	102	256	146	111	222	30	175
175 to 259 acres, number	5,320	113	1	58	101	50	49	137	20	92
260 to 499 acres, number	8,351	163	6	101	176	137	140	205	23	111
500 to 999 acres, number	5,052	85	5	52	96	80	101	129	12	63
1,000 acres and over, number	4,906	62	1	46	89	81	106	60	9	50
LAND AND FARM AREA.										
Approximate land area, 1920, acres	99,617,280	468,480	496,640	384,640	1,085,720	657,280	729,600	456,960	655,360	1,111,680
Land in farms, 1920, acres	28,365,667	359,742	10,042	312,106	464,625	366,195	438,417	375,065	43,850	240,265
Land in farms, 1910, acres	27,931,444	311,327	32,004	291,740	490,777	271,401	522,376	406,433	35,947	210,881
Land in farms, 1900, acres	28,828,951	398,289	15,681	214,024	677,080	212,820	550,002	400,563	33,115	209,320
Improved land in farms, 1920, acres	11,878,339	188,324	4,306	59,986	253,745	58,957	328,369	238,369	13,252	43,413
Improved land in farms, 1910, acres	11,389,894	177,314	7,579	46,969	247,097	59,104	336,509	262,152	12,439	41,682
Improved land in farms, 1900, acres	11,958,887	226,118	4,391	48,956	302,029	41,402	358,227	262,617	9,787	48,481
Woodland in farms, 1920, acres	4,252,287	21,200	17,815	127,267	70,815	370,685	301,332	31,265	19,207	72,023
Other unimproved land in farms, 1920, acres	15,235,041	153,218	4,706	124,823	140,065	136,553	105,856	106,431	11,371	124,829
Per cent of land area in farms, 1920	29.5	76.8	2.0	81.2	42.8	55.7	60.1	82.1	6.7	18.1
Per cent of land area in farms, 1910	40.4	42.9	4.2	19.2	54.6	16.1	69.0	63.6	30.2	21.6
Per cent of land area improved, 1920	129.5	478.2	47.8	651.6	269.4	604.3	537.3	223.9	337.2	329.6
Average acreage per farm, 1920	240.9	66.7	205.0	135.2	114.4	97.3	370.6	142.3	101.9	59.6
Average improved acreage per farm, 1920	100.9	66.7	205.0	135.2	114.4	97.3	370.6	142.3	101.9	59.6
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars	3,431,021,861	57,341,179	584,524	7,859,755	53,390,133	8,964,768	41,101,229	47,930,387	3,452,392	8,025,401
All farm property, 1910, dollars	1,614,694,584	36,540,669	811,442	4,820,869	2,408,644	3,973,409	19,602,208	31,812,162	1,770,222	2,775,598
All farm property, 1900, dollars	796,527,955	34,619,536	324,441	3,318,830	15,335,404	23,356,659	13,054,453	18,574,387	1,021,040	2,890,574
Land in farms, 1920, dollars	2,783,051,977	43,864,634	416,525	5,638,306	42,421,970	6,124,432	33,903,780	38,373,973	2,592,563	5,230,220
Land in farms, 1910, dollars	1,317,165,448	29,537,298	520,968	3,252,895	19,404,863	23,763,303	16,006,635	26,896,160	1,358,300	2,342,931
Land in farms, 1900, dollars	630,444,960	28,751,390	198,100	2,185,190	12,640,530	11,393,510	10,885,360	15,353,110	687,530	1,640,240
Farm buildings, 1920, dollars	290,756,132	7,133,683	52,275	7,083,115	4,990,352	836,210	1,204,750	1,406,950	314,647	1,241,941
Farm buildings, 1910, dollars	133,406,040	4,463,655	88,475	589,925	2,281,132	664,000	1,204,750	2,493,375	171,380	749,745

Farm buildings, 1900, dollars	77,468,000	3,485,310	45,400	495,630	1,434,870	427,100	838,420	1,675,700	121,840	586,120
Implements and machinery, 1920, dollars	136,069,290	8,017,942	19,685	237,458	2,668,795	311,975	2,039,783	1,783,859	128,385	387,080
Implements and machinery, 1910, dollars	36,493,158	2,844,361	30,445	141,379	532,320	138,950	417,357	680,520	48,265	162,185
Implements and machinery, 1900, dollars	21,311,070	780,040	10,811	127,150	439,390	89,089	417,660	404,590	35,130	116,320
Live stock on farms, 1920, dollars	221,141,462	4,357,321	96,030	1,275,876	3,318,016	1,592,181	2,323,193	3,365,605	416,859	1,169,161
Live stock on farms, 1910, dollars	127,399,338	2,022,045	161,594	839,610	1,808,125	794,201	1,911,836	2,652,137	192,277	519,497
Live stock on farms, 1900, dollars	67,303,325	1,602,395	70,131	510,890	1,200,614	425,929	913,023	1,240,897	176,240	361,894
Average values, 1920:										
All property per farm, dollars	29,158	20,641	27,834	16,409	24,065	14,793	59,369	28,615	26,557	11,013
Land and buildings per farm, dollars	26,122	18,335	22,324	13,249	21,367	11,651	45,022	25,541	22,363	8,578
Land alone per acre, dollars	94.77	121.93	41.48	18.07	91.30	16.72	77.33	102.31	59.15	21.77

FARMS OPERATED BY OWNERS.

Number of farms, 1920	87,530	1,886	18	380	1,833	526	555	1,049	81	622
Number of farms, 1910	66,632	1,690	32	437	1,230	556	449	890	79	642
Number of farms, 1900	52,529	1,792	34	479	901	492	372	867	92	672
Per cent of all farms, 1920	74.4	67.9	85.7	79.3	83.6	86.8	68.0	62.6	62.3	85.3
Land in farms, 1920, acres	17,196,215	192,257	9,202	225,330	311,890	321,167	226,962	170,230	20,462	201,674
Improved land in farms, 1920, acres	6,819,212	95,642	4,084	31,309	136,137	51,193	161,673	100,825	7,408	35,527
Value of land and buildings, 1920, dollars	1,900,923,411	29,374,777	432,800	4,564,751	30,333,752	6,108,712	22,027,592	20,209,772	1,693,300	5,548,785
Degree of ownership, 1920:										
Farmers owning entire land, number	75,882	1,583	17	316	1,588	391	420	818	68	564
Farmers hiring additional land, number	11,698	303	1	64	245	135	135	231	13	58
Color and nativity of owners, 1920:										
Native white owners, number	60,264	787	11	292	1,479	398	472	610	54	481
Foreign-born white owners, number	26,073	1,074	5	88	343	126	82	426	22	135
Negro and other nonwhite owners, number	1,243	25	2		11	2	1	13	5	6

FARMS OPERATED BY MANAGERS.

Number of farms, 1920	4,949	71	13	13	99	23	19	76	12	15
Number of farms, 1910	3,417	86	2	11	53	7	17	73	5	6
Number of farms, 1900	3,253	99	2	11	58	9	7	62		6
Land in farms, 1920, acres	5,485,447	23,423	64,821	21,456	50,922	19,152	64,749	49,146	10,993	8,224
Improved land in farms, 1920, acres	1,587,518	10,058	21,456	1,034,500	41,315	1,939	36,520	27,025	1,207	1,860
Value of land and buildings, 1920, dollars	442,032,436	3,241,450	36,000	1,034,500	6,977,000	405,005	2,954,748	4,965,175	340,000	219,800

FARMS OPERATED BY TENANTS.

Number of farms, 1920	25,141	821	3	86	287	57	242	550	37	92
Number of farms, 1910	18,148	646	8	89	217	69	201	502	30	68
Number of farms, 1900	16,760	896	1	73	220	74	203	582	39	81
Per cent of all farms, 1920	21.4	29.6	14.3	18.0	12.9	9.4	29.7	32.8	28.5	12.6
Land in farms, 1920, acres	6,654,905	144,012	840	21,955	101,813	25,876	146,706	155,689	12,375	30,367
Improved land in farms, 1920, acres	3,471,609	79,624	212	7,221	56,293	5,825	104,236	110,519	4,487	6,026
Value of land and buildings, 1920, dollars	730,854,262	18,381,590	36,000	747,170	10,051,570	546,925	11,755,913	17,605,976	873,850	703,566
Form of tenancy, 1920:										
Share-tenants, number	9,643	271	18	18	132	13	129	203	2	22
Share-cash tenants, number	742	49	7	13	35	1	13	35		
Cash tenants, number	14,230	458	3	68	131	36	88	312	31	70
Unspecified, number	526	43			17	7	12		4	
Color and nativity of tenants, 1920:										
Native white tenants, number	12,818	327	3	59	204	45	175	244	17	79
Foreign-born white tenants, number	7,229	340		21	58	12	46	226	16	9
Negro and other nonwhite tenants, number	5,094	154	1	1	25		21	80	4	4

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900—Continued.

	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen	Los Angeles
ALL FARMS.										
Number of farms, 1920.....	8,917	1,320	1,756	2,843	521	2,020	2,171	771	608	12,444
Number of farms, 1910.....	6,245	663	1,534	1,322	438	1,167	1,837	603	502	7,919
Number of farms, 1900.....	3,290	529	1,500	.....	424	1,098	932	723	555	6,577
All farmers classified by sex, 1920:										
Male, number.....	8,621	1,268	1,681	2,790	486	1,944	2,086	736	584	11,739
Female, number.....	296	52	75	53	35	76	85	35	22	705
Color and nativity of all farmers, 1920:										
Native white, number.....	4,488	982	970	1,956	405	1,459	1,361	639	515	8,436
Foreign-born white, number.....	3,801	331	738	500	91	498	709	128	76	2,441
Negro and other nonwhite, number.....	628	7	48	387	25	63	101	4	15	1,507
All farms classified by size, 1920:										
Under 3 acres, number.....	14	6	31	9	4	8	10	3	6	1,205
3 to 9 acres, number.....	328	41	111	117	25	76	89	36	14	3,398
10 to 19 acres, number.....	887	127	175	158	40	149	198	61	7	2,902
20 to 49 acres, number.....	5,137	411	358	726	84	641	827	164	33	2,437
50 to 99 acres, number.....	1,302	180	264	761	86	309	431	107	31	964
100 to 174 acres, number.....	596	153	288	625	140	356	293	138	134	705
175 to 259 acres, number.....	155	65	129	180	37	68	85	59	58	279
260 to 499 acres, number.....	216	117	153	197	59	177	124	102	151	325
500 to 999 acres, number.....	124	104	97	61	19	49	55	49	90	132
1,000 acres and over, number.....	158	116	150	9	27	128	65	46	82	97
LAND AND FARM AREA.										
Approximate land area, 1920, acres.....	3,808,000	855,680	2,288,000	2,616,960	6,394,240	5,121,920	741,760	792,350	2,809,840	2,633,600
Land in farms, 1920, acres.....	1,319,531	524,407	717,174	347,485	140,029	1,497,045	505,553	241,899	741,220	881,333
Land in farms, 1910, acres.....	1,106,616	491,198	642,536	223,602	110,142	1,406,356	373,823	217,434	593,728	757,985
Land in farms, 1900, acres.....	1,284,736	672,591	98,611	.....	141,059	1,571,106	387,505	251,176	281,100	805,663
Improved land in farms, 1920, acres.....	672,591	336,482	98,064	310,708	38,904	390,332	259,639	140,887	140,887	483,096
Improved land in farms, 1910, acres.....	590,295	309,765	105,248	176,069	38,698	315,387	196,569	45,355	122,057	418,998
Improved land in farms, 1900, acres.....	786,337	355,781	77,238	.....	43,740	324,031	202,148	41,414	133,266	518,744
Woodland in farms, 1920, acres.....	107,456	36,461	225,851	1,365	20,158	45,877	5,870	54,784	233,724	32,070
Other unimproved land in farms, 1920, acres.....	539,454	151,464	363,253	35,412	79,967	1,050,236	240,044	141,763	306,609	367,167
Per cent of land area in farms, 1920.....	34.7	61.3	31.3	13.3	2.2	29.2	68.2	25.6	25.6	33.5
Per cent of land area in farms, 1910.....	51.0	64.2	13.7	89.4	28.5	29.1	51.4	18.7	19.0	54.8
Per cent of farm land improved, 1920.....	148.0	397.3	408.4	122.2	268.8	741.1	232.9	313.7	1,223.1	70.9
Average improved acreage per farm, 1920.....	75.4	254.9	55.8	109.3	76.6	193.5	119.6	58.8	232.5	38.8
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars.....	305,004,622	45,474,611	40,672,483	69,171,545	14,945,798	76,915,646	67,000,505	12,764,520	20,396,238	396,596,914
All farm property, 1910, dollars.....	92,583,058	16,351,413	21,250,881	23,646,067	7,112,903	30,405,013	33,312,292	6,271,615	9,376,899	199,998,200
All farm property, 1900, dollars.....	43,829,479	10,299,300	13,241,799	.....	14,246,125	5,921,907	5,921,907	3,465,090	5,365,615	74,817,646
Land in farms, 1920, dollars.....	260,496,470	35,157,244	28,608,345	54,909,817	10,621,080	61,688,648	56,192,752	9,912,320	13,808,528	340,682,213
Land in farms, 1910, dollars.....	75,136,654	13,425,220	16,378,032	19,852,660	5,210,586	23,062,292	26,007,591	1,702,480	6,331,832	180,354,798
Land in farms, 1900, dollars.....	34,201,520	8,473,830	9,524,850	.....	1,584,750	10,409,540	4,420,410	2,449,580	2,049,510	64,189,220
Farm buildings, 1920, dollars.....	19,364,721	3,781,758	4,079,399	3,118,447	1,295,175	3,470,748	4,143,236	1,205,690	1,544,309	33,995,450
Farm buildings, 1910, dollars.....	6,861,289	1,110,215	2,054,225	704,665	568,740	1,252,139	2,145,975	782,350	763,460	11,798,273
Farm buildings, 1900, dollars.....	3,062,140	719,510	1,282,850	.....	317,060	664,120	811,920	524,180	708,010	6,702,710

Implements and machinery, 1920, dollars.....	10,782,774	884,741	588,190	2,945,635	2,000,973	492,558	2,950,548	1,530,802	2,534,632	12,116,265
Implements and machinery, 1910, dollars.....	2,462,387	289,287	207,211	614,028	614,028	180,810	450,585	444,280	390,333	3,228,706
Implements and machinery, 1900, dollars.....	1,432,050	255,220	111,420	654,971	654,971	95,500	347,640	311,020	260,620	1,593,890
Live stock on farms, 1920, dollars.....	11,132,477	4,160,760	868,320	9,676,277	9,676,277	2,596,985	8,102,733	6,398,937	4,000,977	11,117,166
Live stock on farms, 1910, dollars.....	5,382,472	1,900,280	489,180	4,503,755	4,576,644	1,153,767	2,589,207	2,364,044	1,655,051	7,356,409
Live stock on farms, 1900, dollars.....	2,492,066	1,482,875	440,210	1,341,247	2,829,855	574,229	2,589,207	2,123,040	1,806,340	3,941,919
Average values, 1920:										
All property per farm, dollars.....	33,657	33,657	16,556	38,077	38,077	28,687	24,330	23,162	34,450	33,991
Land and buildings per farm, dollars.....	30,174	30,174	14,628	32,257	32,257	22,757	20,443	18,612	29,499	31,385
Land alone per acre, dollars.....	31,871	31,871	15,396	34,276	34,276	25,757	20,443	18,612	29,499	31,385
Land alone per acre, dollars.....	386.12	386.12	40.98	111.15	41.21	75.85	158.28	39.88	67.04	197.42
FARMS OPERATED BY OWNERS.										
Number of farms, 1920.....	8,578	490	634	1,568	1,566	419	1,343	1,102	1,044	7,291
Number of farms, 1910.....	5,500	414	484	1,391	846	361	824	991	512	5,227
Number of farms, 1900.....	4,825	453	578	654	826	352	1,006	360	2,409	2,409
Per cent of all farms, 1920.....	68.9	82.3	82.2	77.5	77.5	80.4	47.9	62.8	79.1	81.8
Land in farms, 1920, acres.....	529,603	440,565	172,700	280,109	631,461	86,548	158,182	352,472	310,174	686,722
Improved land in farms, 1920, acres.....	265,552	100,650	33,938	133,507	336,857	31,165	133,923	46,642	46,642	189,880
Value of land and buildings, 1920, dollars.....	225,340,315	10,060,757	8,512,160	32,739,081	27,526,301	8,696,055	25,896,162	13,861,922	25,451,222	186,714,404
Degree of ownership, 1920:										
Farms owned entire, farm, number.....	7,508	424	566	1,366	1,376	391	1,172	969	969	6,824
Farms hiring additional land, number.....	980	75	68	192	190	28	171	133	253	467
Color and nativity of owners, 1920:										
Native white owners, number.....	6,796	418	513	1,057	1,180	319	1,086	647	778	3,725
Foreign-born, white owners, number.....	1,773	166	117	481	382	79	180	410	296	3,417
Negro and other nonwhite owners, number.....	69	15	4	20	25	21	68	45	45	149
FARMS OPERATED BY MANAGERS.										
Number of farms, 1920.....	692	26	13	73	87	20	97	71	45	288
Number of farms, 1910.....	352	17	12	58	58	4	77	16	16	279
Number of farms, 1900.....	392	31	12	44	34	0	44	56	46	47
Land in farms, 1920, acres.....	153,317	288,983	5,420	104,416	639,628	30,200	35,922	166,660	79,816	331,482
Improved land in farms, 1920, acres.....	50,769	22,176	895	64,435	107,474	2,954	31,956	6,030	46,507	159,221
Value of land and buildings, 1920, dollars.....	59,040,462	3,996,350	397,300	13,240,760	28,623,020	1,884,250	6,043,950	3,651,869	4,056,380	42,456,061
FARMS OPERATED BY TENANTS.										
Number of farms, 1920.....	3,174	81	124	540	367	82	1,403	583	231	1,318
Number of farms, 1910.....	1,360	71	137	300	263	73	421	497	135	739
Number of farms, 1900.....	1,360	72	133	284	298	63	421	438	150	783
Per cent of all farms, 1920.....	25.5	13.4	16.1	34.5	18.9	13.7	49.3	33.2	17.5	15.0
Land in farms, 1920, acres.....	195,813	42,372	63,089	112,068	225,036	13,191	153,371	198,042	134,417	301,327
Improved land in farms, 1920, acres.....	137,775	18,652	40,362	61,067	56,629	5,875	143,890	45,392	100,031	126,390
Value of land and buildings, 1920, dollars.....	90,296,856	1,200,630	2,458,350	14,266,147	9,010,075	1,275,950	26,470,211	15,168,333	9,451,400	50,690,726
Form of tenancy, 1920:										
Share tenants, number.....	533	38	40	218	153	20	403	22	102	906
Share-cash tenants, number.....	64	6	6	10	6	0	97	2	26	9
Cash tenants, number.....	2,847	41	62	306	208	43	928	550	80	363
Unspecified, number.....	30	2	16	30	19	19	45	9	14	33
Color and nativity of tenants, 1920:										
Native white tenants, number.....	1,133	76	115	247	195	68	787	268	168	577
Foreign-born white tenants, number.....	560	5	9	215	135	10	298	312	324	324
Negro and other nonwhite tenants, number.....	1,381	5	78	37	37	4	318	3	6	437

Number of farms, 1920.....	3,174	81	124	540	367	82	1,403	583	231	1,318
Number of farms, 1910.....	1,360	71	137	300	263	73	421	497	135	739
Number of farms, 1900.....	1,360	72	133	284	298	63	421	438	150	783
Per cent of all farms, 1920.....	25.5	13.4	16.1	34.5	18.9	13.7	49.3	33.2	17.5	15.0
Land in farms, 1920, acres.....	195,813	42,372	63,089	112,068	225,036	13,191	153,371	198,042	134,417	301,327
Improved land in farms, 1920, acres.....	137,775	18,652	40,362	61,067	56,629	5,875	143,890	45,392	100,031	126,390
Value of land and buildings, 1920, dollars.....	90,296,856	1,200,630	2,458,350	14,266,147	9,010,075	1,275,950	26,470,211	15,168,333	9,451,400	50,690,726
Form of tenancy, 1920:										
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Cash tenants, number.....	2,847	41	62	306	208	43	928	550	80	363
Unspecified, number.....	30	2	16	30	19	19	45	9	14	33
Color and nativity of tenants, 1920:										
Native white tenants, number.....	1,133	76	115	247	195	68	787	268	168	577
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Negro and other nonwhite tenants, number.....	1,381	5	78	37	37	4	318	3	6	437

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900—Continued.

	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa	Nevada
ALL FARMS.										
Number of farms, 1920	1,402	718	367	1,759	2,846	743	74	1,712	1,428	481
Number of farms, 1910	573	498	330	1,356	1,856	736	91	1,658	1,537	544
Number of farms, 1900	523	462	381	1,452	999	638	112	1,850	1,336	522
All farmers classified by sex, 1920:										
Male, number	1,347	682	341	1,683	2,769	715	62	1,656	1,318	455
Female, number	55	36	26	76	77	28	12	56	110	26
Color and nativity of all farmers, 1920:										
Native white, number	969	296	313	1,244	1,425	634	46	1,029	875	361
Foreign-born white, number	379	419	51	480	1,357	85	19	565	548	116
Negro and other nonwhite, number	54	3	3	35	64	24	9	88	5	4
All farms classified by size, 1920:										
Under 3 acres, number	12	27	3	2	9	1	1	8	7	8
3 to 9 acres, number	35	104	3	70	109	7	1	57	118	27
10 to 19 acres, number	65	115	4	111	222	8	1	89	254	20
20 to 49 acres, number	473	70	12	276	1,225	22	4	204	384	60
50 to 99 acres, number	204	36	21	211	577	55	8	234	187	60
100 to 174 acres, number	224	43	89	302	272	179	24	278	171	80
175 to 259 acres, number	40	39	26	149	100	56	7	142	70	57
260 to 499 acres, number	150	76	103	253	92	191	12	246	105	68
500 to 999 acres, number	80	106	52	134	104	125	8	204	67	40
1,000 acres and over, number	118	102	57	191	136	99	9	250	65	32
LAND AND FARM AREA.										
Approximate land area, 1920, acres	1,351,680	338,560	936,320	2,264,960	1,276,800	2,446,720	1,939,200	2,131,200	501,120	623,360
Land in farms, 1920, acres	536,726	290,148	235,849	923,087	1,122,550	596,757	42,034	1,104,048	263,925	198,441
Land in farms, 1910, acres	620,663	263,442	206,059	721,325	1,162,167	410,134	115,672	1,147,416	360,580	175,348
Land in farms, 1900, acres	484,659	322,374	160,156	742,924	1,702,967	298,755	186,063	1,087,632	319,327	120,743
Improved land in farms, 1920, acres	262,971	87,846	49,587	101,220	506,582	168,251	8,740	398,320	116,723	26,196
Improved land in farms, 1910, acres	391,085	93,115	37,017	82,578	607,742	164,784	43,382	371,509	101,114	24,542
Improved land in farms, 1900, acres	277,721	47,533	73,907	72,907	613,376	129,647	65,238	373,605	111,966	24,898
Woodland in farms, 1920, acres	86,639	58,876	64,298	261,196	38,873	129,819	735	201,891	59,369	59,369
Other unimproved land in farms, 1920, acres	187,116	143,426	121,964	569,671	577,095	298,087	32,559	503,837	136,881	112,876
Per cent of land area in farms, 1920	39.7	85.7	25.2	40.8	87.9	24.4	2.2	51.8	58.7	31.8
Per cent of land area improved, 1920	49.0	30.3	21.0	11.0	45.1	28.2	20.8	36.1	39.7	13.2
Average acreage per farm, 1920	382.8	404.1	642.6	524.8	394.4	803.2	568.0	644.9	205.8	412.6
Average improved acreage per farm, 1920	187.6	122.3	135.1	57.5	178.0	226.4	118.1	232.7	81.7	54.5
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars	39,485,188	19,954,684	5,107,025	30,267,265	102,044,796	22,009,931	2,596,663	61,899,333	29,478,221	5,125,345
All farm property, 1910, dollars	14,981,395	12,426,158	2,829,235	14,659,913	49,520,913	11,376,263	2,347,747	35,021,930	18,062,006	3,022,685
All farm property, 1900, dollars	5,916,894	10,866,511	1,328,511	8,587,516	22,636,859	5,363,527	1,175,742	19,409,742	12,337,046	1,047,540
Land in farms, 1920, dollars	32,464,406	13,079,670	3,996,817	21,974,951	77,682,809	15,601,701	1,800,885	49,108,783	21,435,821	3,338,537
Land in farms, 1910, dollars	12,263,638	9,384,625	1,817,100	10,774,439	40,047,324	7,379,085	1,587,813	27,885,000	13,063,656	1,817,417
Land in farms, 1900, dollars	4,588,770	8,380,450	752,900	5,840,250	18,449,650	2,825,360	519,040	15,632,700	8,925,780	1,116,960
Farm buildings, 1920, dollars	2,326,091	2,622,960	448,390	3,741,630	9,622,643	1,405,254	159,615	4,022,555	4,747,570	815,258
Farm buildings, 1910, dollars	771,595	1,156,830	276,180	1,816,135	2,338,587	1,004,180	154,700	2,178,728	3,365,470	664,400
Farm buildings, 1900, dollars	433,050	914,020	207,640	1,081,090	984,040	521,900	87,380	1,353,700	2,151,590	447,640

Implements and machinery, 1920, dollars.....	1,695,450	1,027,633	186,302	1,241,956	3,505,015	727,218	75,275	2,886,120	1,469,921	226,192
Implements and machinery, 1910, dollars.....	441,455	343,482	79,403	373,049	804,025	365,560	45,345	811,886	500,921	132,857
Implements and machinery, 1900, dollars.....	214,100	207,110	59,960	376,049	501,380	174,200	26,340	502,460	357,860	102,910
Live stock on farms, 1920, dollars.....	2,999,241	3,314,421	875,516	3,395,728	11,234,338	4,275,738	560,808	5,881,375	1,853,969	743,358
Live stock on farms, 1910, dollars.....	1,507,707	1,541,221	656,552	1,693,844	6,330,377	2,627,448	539,939	4,146,316	1,128,959	408,011
Live stock on farms, 1900, dollars.....	680,974	1,414,431	308,461	1,440,546	2,701,089	1,842,367	542,953	1,920,650	871,696	280,050
Average values, 1920:										
All property per farm, dollars.....	28,163	27,792	13,916	17,207	35,856	29,623	35,090	36,156	20,643	10,656
Land and buildings per farm, dollars.....	24,815	21,745	11,022	14,619	30,677	22,890	26,494	31,033	18,336	8,656
Land alone per acre, dollars.....	60.49	45.08	15.25	23.80	69.20	26.14	42.84	44.48	72.93	16.82
FARMS OPERATED BY OWNERS.										
Number of farms, 1920.....	1,108	373	324	1,400	2,108	604	68	1,086	1,138	399
Number of farms, 1910.....	419	196	292	1,069	1,405	594	75	1,063	1,166	476
Number of farms, 1900.....	357	162	337	1,173	668	502	98	1,199	899	335
Per cent of all farms, 1920.....	79.0	51.9	88.3	79.6	74.1	81.3	91.9	63.4	79.7	83.0
Land in farms, 1920, acres.....	285,983	207,172	101,988	271,224	527,124	423,962	40,911	687,356	164,492	163,445
Improved land in farms, 1920, acres.....	126,800	33,997	45,297	71,257	264,096	127,957	8,320	203,417	73,410	20,919
Value of land and buildings, 1920, dollars.....	17,729,963	5,200,886	3,620,667	18,529,907	42,588,172	11,673,484	1,903,680	25,802,936	17,955,378	3,214,270
Degree of ownership, 1920:										
Farms owned entire farm, number.....	1,014	339	262	1,245	1,694	526	66	839	1,074	319
Farmers hiring additional land, number.....	94	34	62	155	414	78	2	247	64	80
Color and nativity of owners, 1920:										
Native white owners, number.....	749	175	276	974	1,087	514	40	708	676	297
Foreign-born white owners, number.....	317	197	46	396	975	66	19	378	460	99
Negro and other nonwhite owners, number.....	42	1	2	30	46	24	9	2	2	3
FARMS OPERATED BY MANAGERS.										
Number of farms, 1920.....	71	35	5	62	61	30	2	47	77	23
Number of farms, 1910.....	23	11	4	47	58	27	3	61	74	13
Number of farms, 1900.....	18	13	2	39	25	20	4	51	112	9
Per cent of all farms, 1920.....	95.997	84.92	932	145,835	353,439	63,025	400	186,671	54,037	9,471
Land in farms, 1920, acres.....	23,347	8,922	293	6,937	102,497	17,010	80	61,492	13,756	1,886
Improved land in farms, 1920, acres.....	6,145,629	1,517,110	19,500	2,658,104	23,310,786	1,784,686	16,400	8,650,712	4,239,648	504,790
Value of land and buildings, 1920, dollars.....										
FARMS OPERATED BY TENANTS.										
Number of farms, 1920.....	223	310	38	297	677	109	4	579	213	59
Number of farms, 1910.....	131	291	34	240	393	115	13	534	297	55
Number of farms, 1900.....	148	287	42	240	306	116	10	600	325	78
Per cent of all farms, 1920.....	15.9	43.2	10.4	16.9	23.8	14.7	5.4	33.8	14.9	12.3
Land in farms, 1920, acres.....	155,536	192,660	27,745	175,264	241,987	109,770	723	229,921	75,396	25,522
Improved land in farms, 1920, acres.....	112,824	45,857	4,057	29,025	139,989	23,284	340	133,411	29,587	3,391
Value of land and buildings, 1920, dollars.....	10,914,875	8,894,634	405,040	4,529,570	21,406,485	3,548,785	40,500	18,677,690	3,988,365	494,735
Form of tenancy, 1920:										
Share tenants, number.....	117	9	14	72	255	57	6	254	76	6
Share-cash tenants, number.....	105	300	24	214	398	51	4	294	131	53
Cash tenants, number.....	1	1	6	6	12	1	1	5	1	1
Unspecified, number.....										
Color and nativity of tenants, 1920:										
Native white tenants, number.....	167	96	33	220	298	93	4	287	146	45
Foreign-born, white tenants, number.....	47	212	4	75	362	16	1	205	65	13
Negro and other nonwhite tenants, number.....	9	2	1	2	17	87	2	87	2	2

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900—Continued.

	Orange	Placer	Plumas	Riverside	Sacramento	San Benito	San Bernardino	San Diego	San Francisco	San Joaquin
ALL FARMS.										
Number of farms, 1920.....	4,188	1,280	150	3,949	2,375	945	4,023	3,200	74	4,500
Number of farms, 1910.....	3,165	1,062	221	2,688	1,601	921	2,949	2,298	157	3,286
Number of farms, 1900.....	2,388	1,076	267	2,340	1,332	907	2,350	2,009	304	1,966
All farmers classified by sex, 1920:										
Male, number.....	3,944	1,200	149	3,711	2,856	893	3,708	3,033	73	4,344
Female, number.....	244	80	1	238	119	52	315	167	1	156
Color and nativity of all farmers, 1920:										
Native white, number.....	3,228	719	104	3,173	1,579	657	3,218	2,315	15	2,596
Foreign-born white, number.....	791	296	42	681	810	256	772	635	55	1,601
Negro and other nonwhite, number.....	169	265	4	95	586	32	33	250	4	303
Farms classified by size, 1920:										
Under 3 acres, number.....	129	12	1	85	36	7	111	5	37	19
3 to 9 acres, number.....	1,034	41	1	605	370	65	920	526	20	333
10 to 19 acres, number.....	1,222	140	2	821	514	128	1,092	523	3	749
20 to 49 acres, number.....	1,078	423	9	975	773	179	904	573	7	1,401
50 to 99 acres, number.....	310	267	8	463	406	102	343	296	5	654
100 to 174 acres, number.....	151	180	26	430	338	95	329	391	1	422
175 to 259 acres, number.....	83	62	12	150	157	40	89	190	1	235
260 to 499 acres, number.....	88	78	28	175	173	105	160	267	1	384
500 to 999 acres, number.....	60	39	32	122	122	105	44	150	181	181
1,000 acres and over, number.....	33	38	32	114	86	119	40	123	122	122
LAND AND FARM AREA.										
Approximate land area, 1920, acres.....	508,800	903,040	1,659,520	4,622,720	629,120	890,880	12,912,000	2,701,440	26,880	926,720
Land in farms, 1920, acres.....	233,153	233,153	101,653	676,293	555,503	539,378	415,738	925,192	1,295	706,308
Land in farms, 1910, acres.....	371,692	248,080	134,259	520,806	473,044	544,301	208,396	834,426	2,091	763,048
Land in farms, 1900, acres.....	599,436	440,371	184,449	427,067	668,426	112,719	219,132	809,419	8,219	751,065
Improved land in farms, 1920, acres.....	200,945	136,455	34,223	348,538	399,024	522,606	175,272	262,646	840	599,403
Improved land in farms, 1910, acres.....	189,463	98,608	54,281	278,151	275,682	186,573	136,625	234,045	1,562	611,762
Improved land in farms, 1900, acres.....	236,847	121,063	57,351	216,633	327,159	168,698	96,920	229,791	3,829	652,923
Woodland in farms, 1920, acres.....	2,453	48,071	14,864	26,027	63,155	13,577	35,843	60,320	7	18,471
Other unimproved land in farms, 1920, acres.....	122,305	48,927	52,566	301,728	93,324	403,195	204,623	602,226	448	88,434
Per cent of land area in farms, 1920.....	61.0	25.8	6.1	14.6	88.3	60.5	3.2	34.2	4.8	76.2
Per cent of land area in farms, 1910.....	64.0	58.5	33.7	51.5	71.8	22.7	4.2	28.4	64.9	84.9
Per cent of land area in farms, 1900.....	61.7	182.2	67.7	171.3	186.7	570.8	103.3	289.1	17.5	157.0
Average acreage per farm, 1920.....	122.3	106.6	11,101.3	1,171.7	269.5	947.7	3,181.8	843.9	364.7	207.1
Average improved acreage per farm, 1920.....	48.0	106.6	228.2	88.3	134.1	129.7	43.6	82.1	11.4	133.2
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars.....	176,663,249	22,718,017	4,317,073	95,456,776	87,983,650	32,852,189	99,728,993	64,081,885	1,619,862	140,702,764
All farm property, 1910, dollars.....	64,357,852	10,294,101	3,362,955	46,203,795	36,694,682	14,963,867	68,499,103	31,124,814	2,630,428	67,286,628
All farm property, 1900, dollars.....	22,346,595	6,547,761	2,239,876	21,644,081	19,326,626	9,117,058	24,656,402	18,346,077	2,407,893	31,218,424
Land in farms, 1920, dollars.....	156,960,321	17,817,701	2,641,101	80,337,250	72,412,416	25,249,043	83,064,894	49,995,330	1,427,945	115,788,808
Land in farms, 1910, dollars.....	55,852,755	7,747,744	2,201,654	39,365,652	30,425,404	11,272,156	60,681,348	23,934,732	2,097,111	55,909,884
Land in farms, 1900, dollars.....	18,533,640	4,839,730	1,211,530	18,588,110	15,189,870	7,057,190	21,000,370	14,133,990	1,855,030	25,769,590
Farm buildings, 1920, dollars.....	11,370,229	2,576,337	686,525	7,974,641	4,842,007	3,664,630	10,108,443	6,925,547	128,125	11,731,875
Farm buildings, 1910, dollars.....	4,660,795	1,399,840	532,156	3,666,689	3,205,416	1,353,855	5,238,789	3,337,382	326,789	5,673,665
Farm buildings, 1900, dollars.....	2,177,040	998,620	387,010	1,999,850	2,159,630	852,340	2,573,120	2,170,190	228,100	2,297,130

Implements and machinery, 1920, dollars.....	5,288,628	1,044,849	237,985	3,656,194	3,719,948	1,184,012	3,407,629	2,512,000	37,685	5,555,919
Implements and machinery, 1910, dollars.....	1,148,222	320,083	123,300	1,112,189	781,383	391,058	1,077,851	851,591	68,270	1,741,053
Implements and machinery, 1900, dollars.....	436,500	222,060	97,240	399,280	528,780	272,030	395,860	533,980	71,200	907,410
Live stock on farms, 1920, dollars.....	3,044,080	1,279,130	751,402	3,488,691	4,369,279	2,764,304	3,088,027	4,651,038	26,107	7,323,162
Live stock on farms, 1910, dollars.....	2,596,080	766,343	505,845	2,061,265	2,277,479	1,963,798	1,501,046	3,001,109	138,258	3,960,026
Live stock on farms, 1900, dollars.....	1,179,415	487,351	544,056	756,791	1,448,346	935,498	687,057	1,508,517	253,363	2,244,294
Average value, 1920:										
All property per farm, dollars.....	42,183	17,748	28,782	24,172	29,574	34,761	24,790	20,026	21,890	31,267
Land and buildings per farm, dollars.....	40,194	15,933	22,185	22,363	26,855	30,586	23,175	17,787	21,028	28,337
Land alone per acre, dollars.....	481.91	76.42	25.98	118.79	130.35	46.81	189.80	54.04	1,102.66	163.83
FARMS OPERATED BY OWNERS.										
Number of farms, 1920.....	3,457	819	109	3,141	1,840	714	3,340	2,419	45	3,290
Number of farms, 1910.....	2,531	748	183	2,291	1,011	653	2,532	1,845	82	2,370
Number of farms, 1900.....	1,871	807	220	1,747	889	696	1,867	2,231	161	1,197
Per cent of all farms, 1920.....	82.5	64.0	72.7	79.5	61.8	75.6	83.0	75.6	60.8	73.1
Land in farms, 1920, acres.....	153,859	162,321	64,117	346,929	357,984	296,889	289,190	560,475	215	407,040
Improved land in farms, 1920, acres.....	105,640	87,844	22,754	210,019	234,884	73,060	127,017	170,140	215	331,153
Value of land and buildings, 1920, dollars.....	123,272,983	11,818,746	2,152,686	55,197,198	39,739,200	17,338,533	69,223,583	38,903,412	553,270	69,487,378
Degree of ownership, 1920:										
Farms owning entire farm, number.....	3,095	688	96	2,653	1,443	635	3,118	1,914	40	2,723
Farmers hiring additional land, number.....	362	131	13	488	397	79	222	505	5	567
Color and nativity of owners, 1920:										
Native white owners, number.....	2,748	541	70	2,558	1,191	511	2,670	1,816	10	2,019
Foreign-born white owners, number.....	698	241	37	524	573	200	650	499	33	1,259
Negro and other non-white owners, number.....	11	37	2	59	76	3	20	104	2	12
FARMS OPERATED BY MANAGERS.										
Number of farms, 1920.....	235	37	9	214	86	49	379	135	1	127
Number of farms, 1910.....	128	23	10	104	58	35	234	93	6	117
Number of farms, 1900.....	80	23	7	318	46	22	276	157	8	58
Land in farms, 1920, acres.....	88,416	6,537	14,095	152,233	49,957	140,011	70,963	183,232	4	44,447
Improved land in farms, 1920, acres.....	20,294	2,813	3,935	43,995	47,138	12,988	26,339	23,435	4	40,948
Value of land and buildings, 1920, dollars.....	21,285,648	985,100	339,900	17,368,363	12,543,496	5,646,280	15,837,544	7,247,243	3,000	12,413,125
FARMS OPERATED BY TENANTS.										
Number of farms, 1920.....	496	424	32	594	1,049	182	304	646	28	1,083
Number of farms, 1910.....	506	291	28	293	532	233	183	360	69	799
Number of farms, 1900.....	437	246	40	275	457	189	207	310	135	711
Per cent of all farms, 1920.....	11.8	33.1	21.3	15.0	35.3	19.3	7.6	20.2	37.8	24.1
Land in farms, 1920, acres.....	83,428	64,295	23,441	177,131	147,562	102,478	55,585	181,485	1,076	254,821
Improved land in farms, 1920, acres.....	75,011	45,798	7,534	94,524	117,002	36,558	21,916	69,071	621	227,302
Value of land and buildings, 1920, dollars.....	23,771,910	7,580,192	835,100	15,746,330	27,611,727	5,918,860	8,172,210	10,768,192	999,800	45,611,180
Form of tenancy, 1920:										
Share tenants, number.....	245	227	4	318	418	84	130	248	1	522
Share-cash tenants, number.....	17	10	17	19	19	7	7	31	.....	49
Cash tenants, number.....	192	179	27	212	612	91	162	367	27	512
Unspecified, number.....	43	8	1	47	.....	.....	5	.....	.....	.....
Color and nativity of tenants, 1920:										
Native white tenants, number.....	279	150	25	449	325	112	232	391	4	481
Foreign-born white tenants, number.....	61	50	5	110	220	45	60	114	22	320
Negro and other nonwhite tenants, number.....	156	224	5	35	504	25	12	141	2	282

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900—Continued.

	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano	Sonoma
ALL FARMS.										
Number of farms, 1920	1,803	624	1,485	5,016	1,759	949	77	1,052	1,358	5,739
Number of farms, 1910	1,714	665	1,355	4,771	1,466	1,010	110	1,114	1,144	4,772
Number of farms, 1900	1,813	551	1,149	3,995	1,274	1,221	141	931	1,151	3,676
All farmers classified by sex, 1920:										
Male, number	1,754	611	1,430	4,653	1,631	900	70	1,010	1,273	5,343
Female, number	69	13	55	363	128	49	7	42	85	396
Color and nativity of all farmers, 1920:										
Native white, number	1,153	109	856	2,748	1,032	767	49	818	763	3,326
Foreign-born white, number	602	359	565	2,066	629	156	28	186	462	2,365
Negro and other nonwhite, number	48	56	64	202	98	26	—	18	133	48
All farms classified by size, 1920 :										
Under 3 acres, number	10	49	20	141	162	1	—	3	—	7
3 to 9 acres, number	68	94	112	875	328	16	4	22	90	1,331
10 to 19 acres, number	100	65	101	1,392	241	27	4	22	118	1,163
20 to 49 acres, number	214	105	199	1,449	406	103	4	112	268	1,282
50 to 99 acres, number	186	66	206	553	312	96	6	114	212	598
100 to 174 acres, number	255	78	257	273	175	227	15	218	169	477
175 to 259 acres, number	153	42	157	107	55	91	2	79	99	231
260 to 499 acres, number	317	52	201	128	188	188	9	217	160	293
500 to 999 acres, number	257	48	101	58	13	89	16	147	176	176
1,000 acres and over, number	243	25	131	60	20	112	16	118	106	125
LAND AND FARM AREA.										
Approximate land area, 1920, acres	2,133,760	286,080	1,753,000	849,020	278,400	2,469,120	590,720	4,003,840	526,080	1,012,480
Land in farms, 1920, acres	1,377,536	117,109	869,781	576,812	144,751	568,235	60,667	577,306	408,288	748,147
Land in farms, 1910, acres	1,588,660	160,655	1,129,475	731,819	157,308	383,218	84,250	455,876	471,866	744,644
Land in farms, 1900, acres	1,094,480	114,944	922,611	710,686	160,438	347,120	73,699	482,859	480,551	785,064
Improved land in farms, 1920, acres	402,269	77,736	210,353	205,890	67,838	103,470	21,697	166,621	290,261	351,730
Improved land in farms, 1910, acres	326,628	106,800	215,552	237,170	66,875	96,217	30,794	186,147	310,452	248,271
Improved land in farms, 1900, acres	912,856	72,229	202,982	290,285	62,849	86,540	11,652	181,029	344,058	221,374
Woodland in farms, 1920, acres	77,264	10,291	88,244	70,668	46,618	276,234	11,182	17,112	17,142	204,763
Other unimproved land in farms, 1920, acres	898,003	29,082	571,184	209,254	30,295	185,481	24,908	298,863	91,882	291,654
Per cent of land area in farms, 1920	64.6	40.9	49.6	67.9	52.0	22.9	10.3	13.4	77.6	73.9
Per cent of land area in farms, 1910	29.2	66.4	24.2	35.9	46.9	18.3	35.6	51.0	75.3	33.6
Per cent of farm land improved, 1920	764.0	187.7	585.7	115.0	82.3	565.6	787.9	300.7	300.7	130.4
Average acreage per farm, 1920	223.1	124.6	141.7	41.2	38.6	109.0	280.6	158.4	220.4	43.9
Average improved acreage per farm, 1920										
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars	61,515,149	18,676,195	69,254,833	149,875,095	27,109,492	16,095,556	2,172,015	20,315,672	50,393,638	112,294,273
All farm property, 1910, dollars	32,426,353	20,875,536	45,514,076	67,137,349	17,653,136	7,814,929	1,650,799	14,270,302	28,727,683	55,351,019
All farm property, 1900, dollars	14,685,757	10,351,856	56,724,703	11,443,150	4,420,423	1,995,395	20,780,434	33,071,079	30,080,493	33,071,079
Land in farms, 1920, dollars	48,924,414	15,213,880	56,766,718	123,567,623	20,235,412	11,054,979	1,917,050	13,557,450	39,080,249	81,430,294
Land in farms, 1910, dollars	21,745,375	17,448,280	35,556,538	52,882,603	14,107,715	5,403,979	962,575	10,352,995	33,025,081	41,512,708
Land in farms, 1900, dollars	11,133,180	8,201,140	14,814,400	42,270,340	9,094,410	2,080,920	564,990	5,084,110	16,903,310	25,286,750
Farm buildings, 1920, dollars	3,765,162	1,528,120	4,028,733	15,352,000	4,319,998	1,365,565	254,550	2,057,395	4,351,826	17,240,644
Farm buildings, 1910, dollars	2,136,447	2,006,705	3,001,679	9,125,640	2,299,809	851,570	262,125	1,411,810	2,278,540	8,988,787
Farm buildings, 1900, dollars	1,272,820	1,333,330	1,375,290	5,332,710	1,452,020	538,500	179,770	1,056,300	1,905,970	4,646,580

4,668,489	2,586,698	912,515	111,860	685,619	1,242,341	6,061,049	3,088,508	711,413	2,443,250
1,326,832	767,136	420,745	65,524	289,511	461,107	1,042,339	398,327	398,327	742,498
847,240	649,320	37,480	37,480	163,450	246,930	1,287,560	805,274	479,840	479,840
8,954,947	3,774,925	3,788,312	608,555	2,794,437	1,311,741	4,894,033	4,520,874	1,222,772	6,282,223
3,752,724	2,656,926	2,084,812	360,575	1,303,589	788,424	3,236,067	4,178,540	1,017,273	4,802,033
2,291,137	1,391,854	1,279,749	213,155	737,853	649,790	1,834,093	1,681,363	646,726	1,749,917
19,567	37,109	19,311	28,208	16,961	15,412	29,879	46,626	26,630	24,118
17,193	32,424	14,843	18,852	13,206	13,960	27,695	41,546	26,830	29,223
108,84	97,10	25,23	19,73	19,56	139,79	214,23	65,27	129,91	35,52

4,659	887	870	69	789	1,303	4,164	791	213	1,165
3,771	773	948	93	839	1,088	3,622	704	302	1,056
2,629	709	816	133	1,004	2,997	2,997	685	296	1,167
81,2	65,3	82,7	89,6	83,1	74,1	83,0	53,3	54,1	64,6
442,804	255,111	382,395	52,737	412,270	484,973	327,635	294,077	26,728	508,768
160,465	185,474	118,151	19,845	66,008	38,504	140,443	78,677	18,648	172,430
69,648,112	26,078,180	11,875,385	1,305,600	8,438,205	15,189,135	103,462,829	27,920,255	5,139,115	21,804,829
4,342	699	754	59	688	1,185	3,777	603	162	924
317	188	116	101	101	118	387	188	51	241
2,670	554	697	43	628	824	2,237	531	104	779
1,973	322	156	26	137	465	1,787	257	101	386
16	11	17	24	24	14	40	3	8	

143	53	40	5	31	61	197	81	16	59
113	48	37	5	17	40	232	87	47	43
17,13	71	17	2	18	44	295	66	16	40
110,534	33,076	76,552	10,4	91,269	18,750	135,125	311,986	7,932	487,502
28,835	19,778	19,083	24,234	24,234	5,503	22,510	28,914	2,956	58,158
9,498,128	3,720,255	1,483,700	2,757,500	2,757,500	2,614,590	14,876,465	11,269,080	1,452,000	10,721,830

937	418	142	8	129	395	655	613	395	579
888	322	129	12	329	877	877	504	316	616
900	371	98	6	159	365	703	429	239	507
16,3	30,8	13,5	10,4	13,6	22,5	13,1	41,3	63,3	29,1
194,806	120,101	78,449	7,930	63,718	41,028	114,052	263,718	82,449	381,966
62,430	94,012	29,407	1,762	13,228	23,831	43,937	103,762	56,132	173,681
19,524,697	14,233,640	2,255,760	146,000	1,401,795	6,751,685	20,581,158	22,806,116	10,150,895	20,162,917
233	169	58	29	29	106	258	208	54	270
12	9	1	2	2	8	18	82	1	18
603	240	69	8	98	278	374	233	340	290
89	14	14	5	3	3	5	1	1	1
548	172	117	6	112	168	273	266	100	223
357	137	25	2	145	145	226	288	247	208
32	119	82	2	82	150	150	39	48	48

FARMS OPERATED BY OWNERS

Number of farms, 1920
 Number of farms, 1910
 Number of farms, 1900
 Per cent of all farms, 1920
 Land in farms, 1920, acres
 Improved land in farms, 1920, acres
 Value of land and buildings, 1920, dollars
 Degree of ownership, 1920, per cent
 Farmers owning the farm, number
 Farmers hiring additional land, number
 Color and nativity of owners, 1920:
 Native white owners, number
 Foreign-born white owners, number
 Negro and other nonwhite owners, number

FARMS OPERATED BY MANAGERS

Number of farms, 1920
 Number of farms, 1910
 Number of farms, 1900
 Land in farms, 1920, acres
 Improved land in farms, 1920, acres
 Value of land and buildings, 1920, dollars

FARMS OPERATED BY TENANTS

Number of farms, 1920
 Number of farms, 1910
 Number of farms, 1900
 Per cent of all farms, 1920
 Land in farms, 1920, acres
 Improved land in farms, 1920, acres
 Value of land and buildings, 1920, dollars
 Form of tenancy, 1920:
 Share tenants, number
 Share-cash tenants, number
 Cash tenants, number
 Unspecified number
 Color and nativity of tenants, 1920:
 Native white tenants, number
 Foreign-born white tenants, number
 Negro and other nonwhite tenants, number

CALIFORNIA FARMS AND FARM PROPERTY BY COUNTIES, CENSUS OF 1920, WITH SELECTED ITEMS FOR 1910 AND 1900—Continued.

	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba	Indian reservation
ALL FARMS.										
Number of farms, 1920	4,566	1,437	1,414	377	6,372	363	1,543	1,613	487	-----
Number of farms, 1910	2,687	1,006	1,006	308	4,799	386	1,223	1,255	211	-----
Number of farms, 1900	951	728	1,055	272	2,212	457	1,269	1,214	483	287
All farmers classified by sex, 1920:										
Male, number	4,417	1,367	1,356	358	6,148	335	1,480	1,558	466	-----
Female, number	149	70	58	19	224	28	63	55	21	-----
Color and nativity of all farmers, 1920:										
Native white, number	2,815	1,121	1,151	305	4,799	313	1,223	1,149	382	-----
Foreign-born white, number	1,677	269	243	55	1,369	48	293	314	91	-----
Negro and other nonwhite, number	74	47	20	17	1,204	2	27	150	14	-----
All farms classified by size, 1920:										
Under 3 acres, number	25		4	3	17	1	9	10	2	-----
3 to 9 acres, number	329	58	14	8	255	8	109	61	12	-----
10 to 19 acres, number	656	224	180	15	695	13	152	176	35	-----
20 to 49 acres, number	2,083	390	328	47	2,541	28	285	411	484	-----
50 to 99 acres, number	674	212	161	43	1,183	36	235	224	64	-----
100 to 174 acres, number	337	204	172	131	724	78	284	257	84	-----
175 to 259 acres, number	98	96	67	27	232	42	151	110	31	-----
260 to 499 acres, number	118	131	149	61	352	74	191	158	67	-----
500 to 999 acres, number	127	69	109	25	182	43	64	126	58	-----
1,000 acres and over, number	139	53	182	11	191	40	63	80	50	-----
LAND AND FARM AREA.										
Approximate land area, 1920, acres	928,000	384,120	1,872,000	181,440	3,107,840	1,401,900	1,180,120	648,960	404,480	-----
Land in farms, 1920, acres	748,678	288,940	1,124,502	130,240	1,084,234	220,730	1,884,865	398,165	228,797	-----
Land in farms, 1910, acres	649,302	385,462	915,227	91,310	1,045,231	194,072	550,199	463,383	249,108	-----
Land in farms, 1900, acres	830,692	293,287	950,753	76,038	1,059,727	204,758	552,359	552,095	312,321	17,124
Improved land in farms, 1920, acres	477,871	232,070	232,722	15,078	544,598	35,380	100,024	300,094	98,397	-----
Improved land in farms, 1910, acres	512,189	195,510	186,642	13,300	507,024	36,407	213,868	317,268	94,250	-----
Improved land in farms, 1900, acres	622,700	205,877	269,693	14,144	546,289	36,461	174,419	351,213	154,013	5,244
Woodland in farms, 1920, acres	98,320	9,367	324,240	40,246	186,846	73,117	15,049	29,805	65,881	-----
Other unimproved land in farms, 1920, acres	172,487	47,503	567,540	74,996	352,790	112,233	179,892	68,266	67,919	-----
Per cent of land area in farms, 1920	80.7	74.3	60.1	6.6	34.9	15.7	32.4	61.4	56.6	-----
Per cent of farm land improved, 1920	63.8	80.3	20.7	11.6	50.2	16.0	49.3	75.4	43.3	-----
Average acreage per farm, 1920	164.0	291.1	795.3	345.6	170.2	698.1	249.4	246.8	469.8	-----
Average acreage per farm, 1910	104.7	161.5	164.6	40.0	85.5	97.5	123.1	186.0	203.3	-----
VALUE OF FARM PROPERTY.										
All farm property, 1920, dollars	110,505,497	51,378,460	34,960,408	2,991,851	198,984,821	5,015,180	98,182,960	66,248,770	14,274,307	-----
All farm property, 1910, dollars	43,787,887	19,115,563	16,821,178	1,591,469	70,539,642	2,942,222	48,262,645	31,798,096	6,666,211	-----
All farm property, 1900, dollars	17,031,950	9,182,731	16,030,104	1,040,819	20,287,801	2,131,145	21,433,487	19,980,751	4,703,613	400,361
Land in farms, 1920, dollars	85,580,243	41,443,246	25,476,897	1,633,087	167,123,963	3,236,750	85,366,272	54,145,140	10,926,093	-----
Land in farms, 1910, dollars	35,324,243	14,819,242	12,432,446	900,855	64,455,454	1,779,470	38,636,120	25,684,710	4,911,611	-----
Land in farms, 1900, dollars	13,074,850	6,978,330	11,720,120	583,450	15,898,000	1,284,240	18,549,280	15,906,280	3,375,150	218,920
Farm buildings, 1920, dollars	10,665,305	4,925,340	2,900,099	474,275	13,422,065	624,870	5,850,929	5,082,115	1,116,177	-----
Farm buildings, 1910, dollars	3,320,475	2,032,515	1,231,375	274,240	4,195,452	451,955	2,365,140	2,799,277	688,565	-----
Farm buildings, 1900, dollars	1,237,900	987,700	2,091,860	171,550	1,376,960	397,850	1,401,250	1,935,590	637,130	78,590

Implements and machinery, 1920, dollars.....	5,209,161	3,424,801	1,544,013	155,505	8,651,262	192,308	4,473,843	2,712,207	697,089
Implements and machinery, 1910, dollars.....	820,079	458,269	494,932	69,119	1,805,419	114,830	1,113,812	795,162	171,735
Implements and machinery, 1900, dollars.....	537,280	313,780	440,920	31,180	713,490	102,070	482,270	410,430	151,650
Live stock on farms, 1920, dollars.....	9,140,797	2,487,073	5,039,369	728,984	9,787,371	961,252	2,494,016	4,309,308	1,534,948
Live stock on farms, 1910, dollars.....	4,323,090	1,755,447	2,159,425	347,235	6,083,217	598,067	2,658,573	2,518,947	894,300
Live stock on farms, 1900, dollars.....	1,581,920	904,931	1,775,104	254,639	2,296,791	336,965	1,637,451	1,637,451	539,683
Average values, 1920:									
All property per farm, dollars.....	24,222	35,754	24,724	7,836	31,228	13,816	63,631	41,072	29,311
Land and buildings per farm, dollars.....	21,075	31,640	20,069	5,390	28,354	10,638	59,115	36,719	24,727
Land alone per acre, dollars.....	114.31	143.43	22.66	12.53	134.14	14.66	221.80	135.99	47.75
FARMS OPERATED BY OWNERS.									
Number of farms, 1920.....	3,486	1,104	1,186	327	4,949	318	1,078	1,093	363
Number of farms, 1910.....	2,200	674	810	274	3,307	342	895	887	352
Number of farms, 1900.....	611	513	803	252	1,620	400	889	850	374
Per cent of all farms, 1920.....	76.3	76.8	83.9	86.7	77.7	87.6	69.9	67.8	74.5
Per cent of all farms, 1910.....	515,095	195,057	818,218	87,616	801,564	195,473	252,888	226,737	156,394
Land in farms, 1920, acres.....	312,021	149,619	150,641	12,729	361,090	32,045	119,025	172,607	61,789
Improved land in farms, 1920, acres.....	65,377,063	30,153,076	19,273,562	1,671,142	124,990,631	3,182,194	61,844,600	35,378,450	7,746,565
Value of land and buildings, 1920, dollars.....	2,880	858	918	299	4,390	267	878	887	307
Farms owning entire farm, number.....	606	246	208	28	559	51	290	226	56
Farms having additional land, number.....	2,196	896	964	259	3,818	275	856	858	283
Color and nativity of owners, 1920:									
Native white owners, number.....	1,278	206	218	32	1,041	41	219	223	67
Foreign-born white owners, number.....	12	2	4	16	90	2	3	12	3
Negro and other nonwhite owners, number.....									
FARMS OPERATED BY MANAGERS.									
Number of farms, 1920.....	72	47	37	18	488	12	106	48	15
Number of farms, 1910.....	46	18	32	7	218	10	52	43	8
Number of farms, 1900.....	31	4	31	3	74	17	49	55	14
Number of farms, 1900.....	32,034	12,100	128,768	36,483	107,560	3,670	44,577	48,141	13,136
Land in farms, 1920, acres.....	19,030	11,798	13,909	960	67,601	967	16,217	25,463	10,369
Improved land in farms, 1920, acres.....	4,305,400	2,862,450	3,928,572	269,500	27,271,685	186,780	11,376,341	6,171,290	1,199,025
Value of land and buildings, 1920, dollars.....									
FARMS OPERATED BY TENANTS.									
Number of farms, 1920.....	1,008	286	191	32	495	33	359	472	109
Number of farms, 1910.....	441	181	164	27	496	34	346	325	96
Number of farms, 1900.....	309	211	221	17	518	40	331	309	65
Number of farms, 1900.....	22.1	19.9	13.5	8.5	14.7	9.1	23.3	29.3	22.4
Per cent of all farms, 1920.....	200,649	81,783	175,110	6,191	175,110	21,587	87,400	123,287	54,267
Land in farms, 1920, acres.....	146,160	70,653	42,175	1,389	115,988	2,368	54,682	102,024	38,839
Improved land in farms, 1920, acres.....	26,503,076	12,451,080	5,174,862	166,720	28,283,712	491,946	17,993,260	17,677,545	3,090,680
Value of land and buildings, 1920, dollars.....									
Form of tenancy, 1920:									
Share tenants, number.....	487	167	57	4	537	9	281	210	44
Share-cash tenants, number.....	26	27	7	25	55	9	9	20	5
Cash tenants, number.....	495	77	107	24	373	24	59	229	50
Unspecified, number.....		15	20	4			10	13	10
Color and nativity of tenants, 1920:									
Native white tenants, number.....	562	186	155	30	558	28	266	250	74
Foreign-born white tenants, number.....	585	57	20	20	277	5	69	87	24
Negro and other nonwhite tenants, number.....	61	43	16	1	100		24	135	11



PART II.

POPULATION OF CALIFORNIA.

By Census; California Cities; Urban and Rural; Farms by Race and Nativity; Indians of California; Marriages, Births and Deaths; Infant Mortality; Number of Schools, Teachers and Pupils by Counties.

The first settlement in California was made by the Spaniards in 1769, when the Franciscan Fathers founded a mission at San Diego. In 1776 the Mission Dolores was established where San Francisco now stands. California was under Spanish rule until 1822, when, at the termination of the Mexican revolution, it declared its allegiance to Mexico. For several years prior to 1846 large numbers of immigrants from the United States had been arriving in California, and in June of that year a revolt against Mexico was begun by the American settlers. In July and August the American flag was raised at Monterey, San Francisco, Sonoma, Sacramento, San Jose, San Diego, Santa Barbara, Los Angeles, and other places.

On February 2, 1848, the treaty of Guadalupe Hidalgo was signed. By this treaty the war with Mexico was terminated and California ceded to the United States.

Had the discovery of gold, which occurred January 24th, been known at that time, the terms of the treaty would have undoubtedly been very different.

From 1846 to 1849 California was under military and provisional rule by the United States. In October, 1849, a state constitution was adopted at Monterey, and on September 9, 1850, California became a state of the Union.

Population of California by Census Years.

Year	Population	Increase over preceding census		Per cent of increase for the United States
		Number	Per cent	
1850 ¹	92,597			
1860	*379,994	287,397	310.4	35.6
1870	*560,247	180,253	47.4	22.6
1880	864,694	304,447	54.3	30.1
1890	*1,213,398	348,704	40.3	25.5
1900	1,485,053	271,655	22.4	20.7
1910	2,377,549	892,496	60.1	21.0
1920	3,426,312	1,049,312	44.1	14.9

¹Includes population of Indian reservations: 5,268 (1890); 1,686 (1870); 1,803 (1860).

²Returns for 1850 incomplete, those for Contra Costa and Santa Clara counties having been lost and those for San Francisco having been destroyed by fire.

During each decade since 1850 the population of California has increased more rapidly than that of continental United States. The population of the state in 1920 was more than thirty-seven times as large as in 1850, while the population of continental United States was a little less than four times that in 1850.

Rank in Population of the Fifty States and Territories.

California ranked twenty-eighth in 1850, twenty-sixth in 1860, twenty-fourth in 1870 and 1880, twenty-second in 1890, twenty-first in 1900, twelfth in 1910 and eighth in 1920.

The Density of Population Per Square Mile, 1850-1920.

1850.....	0.6	1890.....	7.8
1860.....	2.4	1900.....	9.5
1870.....	3.6	1910.....	15.3
1880.....	5.5	1920.....	22.0

The density of population in California is low, the average number of persons to the square mile in 1920 being 22.0. The average number per square mile for continental United States in 1910 was 30.9. This compares with 508.8 in Rhode Island, 418.8 in Massachusetts, 337.7 in New Jersey, 191.2 in New York, 342.4 in the United Kingdom, and 213.3 in India. The Australian commonwealth has only 1.39 to the square mile, New Zealand 7.8, and Canada 1.4; 589 in Belgium, 436 in Holland, 188 in France, and 270 in Germany.

California Cities.

California has 185 cities, of which Los Angeles, with a population of 576,673, is the largest. San Francisco, with 506,676, and Oakland, with 216,261, are the only other cities having more than 100,000 inhabitants. The following summary shows, for each city having 25,000 or more inhabitants in 1920, the population at each census for which figures are available, together with the number and per cent of increase during the preceding decade:

POPULATION OF PRINCIPAL CITIES FROM EARLIEST CENSUS TO 1920.

City and census year	Popula- tion	Increase over preceding census		City and census year	Popula- tion	Increase over preceding census	
		Number	Per cent			Number	Per cent
Alameda:				Pasadena:			
1920	28,806	5,423	23.2	1920	45,354	15,063	49.7
1910	23,383	6,919	42.0	1910	30,291	21,174	232.2
1900	16,464	5,299	47.5	1900	9,117	4,235	86.7
1890	11,165	5,457	95.6	1890	4,882		
1880	5,708	4,151	266.6	Sacramento:			
1870	1,557	1,097	238.5	1920	65,908	21,212	47.5
1860	460			1910	44,696	15,414	52.6
Berkeley:				1900	29,282	2,895	11.0
1920	56,036	15,602	38.6	1890	26,386	4,966	23.2
1910	40,434	27,220	206.0	1880	21,420	5,137	31.5
1900	13,214	8,113	159.0	1870	16,283	2,498	18.1
1890	5,101			1860	13,785	6,905	102.1
Fresno:				1850	6,820		
1920	45,086	20,194	81.1	San Diego:			
1910	24,892	12,422	99.6	1920	74,683	35,105	88.7
1900	12,470	1,652	15.3	1910	39,578	21,878	123.6
1890	10,818	9,706	872.8	1900	17,700	1,541	9.5
1880	1,112			1890	16,159	13,522	512.8
Long Beach:				1880	2,637	337	14.7
1920	55,593	37,784	212.2	1870	2,300	1,569	214.6
1910	17,809	15,557	690.8	1860	731		
1900	2,252	1,588	299.3	San Francisco:¹			
1890	564			1920	506,676	89,764	21.5
Los Angeles:				1910	416,912	74,130	21.6
1920	576,673	257,475	80.7	1900	342,782	43,785	14.6
1910	319,198	216,719	211.5	1890	298,997	65,038	27.8
1900	102,479	52,084	103.4	1880	233,959	84,486	56.5
1890	50,395	39,212	350.6	1870	149,473	92,671	163.1
1880	11,183	5,455	95.2	1860	56,802		
1870	5,728	1,343	30.6	San Jose:			
1860	4,385	2,775	172.4	1920	39,642	10,696	37.0
1850	1,610			1910	28,946	7,446	34.6
Oakland:				1900	21,500	3,440	19.0
1920	216,261	66,087	44.0	1890	18,060	5,493	43.7
1910	150,174	83,214	124.3	1880	12,567	3,478	38.3
1900	66,960	18,278	37.5	1870	9,089		
1890	48,682	14,127	40.9	Stockton:			
1880	34,555	24,055	229.1	1920	40,296	17,043	73.3
1870	10,500	8,957	580.5	1910	23,253	5,747	32.8
1860	1,543			1900	17,506	3,082	21.4
				1890	14,424	4,142	40.3
				1880	10,282	216	2.1
				1870	10,066	6,387	173.6
				1860	3,679		

¹Returns for San Francisco for 1850 destroyed by fire; population in 1852, according to state census of that year 34,776.

The following table gives the population of incorporated cities in California, showing the population for the past three censuses:

POPULATION OF INCORPORATED PLACES: 1920, 1910 AND 1900

(The absence of population figures for 1910 or 1900 indicates that the place was incorporated at some date between the censuses, unless otherwise explained by footnote.)

City or town	County	1920	1910	1900
Alameda city	Alameda	28,806	23,383	16,461
Albany city	Alameda	2,462	808	
Alhambra city	Los Angeles	9,096	5,021	
Alturas	Modoc	979	916	
Alviso town	Santa Clara	517	402	
Amador city	Amador	377		
Anaheim city	Orange	5,526	2,628	1,456
Angels City, Angels Camp P. O.	Calaveras	941		
Antioch town	Contra Costa	1,936	1,124	674
Arcadia city	Los Angeles	2,239	696	
Arcata town	Humboldt	1,186	1,121	952
Arroyo Grande city	San Luis Obispo	760		
Auburn city	Placer	2,289	2,376	2,050
Avalon city	Los Angeles	586		
Azusa city	Los Angeles	2,460	1,477	864
Bakersfield city	Kern	18,638	12,727	4,836
Banning city	Riverside	1,810		
Beaumont city	Riverside	857		
Belvedere town	Marin	616	481	434
Benicia city	Solano	2,693	2,360	2,751
Berkeley city	Alameda	56,036	40,434	13,214
Beverly Hills city	Los Angeles	674		
Biggs city	Butte	683	403	
Bishop city	Inyo	1,304	1,190	
Blue Lake town	Humboldt	441	507	
Blythe city	Riverside	1,622		
Brawley City	Imperial	5,389	881	
Brea city	Orange	1,037		
Burbank city	Los Angeles	2,913		
Burlingame town	San Mateo	4,107	1,565	
Calexico city	Imperial	6,223	797	
Calpatria city	Imperial	785		
Calistoga town	Napa	850	751	690
Carmel-by-the-Sea city	Monterey	638		
Ceres city	Stanislaus	637		
Chico city	Butte	9,339	3,750	2,650
Chino city	San Bernardino	2,132	1,444	
Chula Vista city	San Diego	1,716		
Claremont city	Los Angeles	1,728	1,111	
Cloverdale town	Sonoma	718	823	750
Clovis city	Fresno	1,157		
Coalinga city	Fresno	2,934	4,199	
Colfax city	Placer	573	621	
Colton city	San Bernardino	4,282	3,980	1,285
Colusa town	Colusa	1,846	1,582	1,441
Compton city	Los Angeles	1,478	922	
Concord town	Contra Costa	912	703	
Coram town	Shasta	32	666	
Corcoran city	Kings	1,101		
Corning city	Tehama	1,449	972	
Corona city	Riverside	4,129	3,540	1,434
Coronado city	San Diego	3,289	1,477	935
Corte Madera town	Marin	607		
Covina city	Los Angeles	1,999	1,652	
Crescent City	Del Norte	955	1,114	699
Culver city	Los Angeles	503		
Daly City	San Mateo	3,779		
Davis city	Yolo	939		
Delano city	Kern	805		
Dinuba city	Tulare	3,400	970	

POPULATION OF INCORPORATED PLACES: 1920, 1910 AND 1900—Continued.

City or town	County	1920	1910	1900
Dixon town	Solano	926	827	783
Dorris town	Siskiyou	424	214	
Dunsmuir town	Siskiyou	2,528	1,719	
Eagle Rock city	Los Angeles	2,256		
East San Diego city	San Diego	4,148		
El Cajon city	San Diego	469		
El Centro city	Imperial	5,464	1,610	
El Cerrito town	Contra Costa	1,505		
El Monte city	Los Angeles	1,283		
El Segundo city	Los Angeles	1,563		
Elsinore city	Riverside	633	488	279
Emeryville town	Alameda	2,390	2,613	1,016
Escondido city	San Diego	1,789	1,334	755
Etna town	Siskiyou	425	518	500
Eureka city	Humboldt	12,923	11,845	7,327
Exeter city	Tulare	1,852		
Fairfield town	Solano	1,008	834	
Ferndale town	Humboldt	919	905	846
Fillmore city	Ventura	1,597		
Firebaugh city	Fresno	(¹)		
Fort Bragg city	Mendocino	2,616	2,408	1,590
Fort Jones town	Siskiyou	331	316	356
Fortuna town	Humboldt	986	883	
Fowler town	Fresno	1,528	675	
Fresno city ²	Fresno	45,086	24,892	12,470
Fullerton city	Orange	4,415	1,725	
Gilroy city	Santa Clara	2,862	2,437	1,820
Glendale city	Los Angeles	13,536	2,746	
Glendora city	Los Angeles	2,028		
Grass Valley city	Nevada	4,006	4,520	4,719
Gridley city	Butte	1,636	987	
Gustine city	Merced	716		
Hanford city	Kings	5,888	4,829	2,929
Hayward town	Alameda	3,487	2,746	1,965
Healdsburg city	Sonoma	2,412	2,011	1,869
Hemet city	Riverside	1,480	992	
Hercules town	Contra Costa	373	279	
Hermosa Beach city	Los Angeles	2,327	679	
Hillsborough town	San Mateo	931		
Hollister city	San Benito	2,781	2,308	1,315
Holtville city	Imperial	1,347	729	
Hornitos town	Mariposa	100	160	205
Huntington Beach city	Orange	1,687	515	
Huntington Park city	Los Angeles	4,513	1,299	
Imperial city	Imperial	1,885	1,257	
Inglewood city	Los Angeles	3,286	1,536	
Jackson city	Annador	1,601	2,035	
Kennett city	Shasta	464		
King City	Monterey	1,048		
Kingsburg city	Fresno	1,316	634	
La Mesa city	San Diego	1,004		
La Verne city ²	Los Angeles	1,698	954	
Lakeport town	Lake	1,024	870	726
Larkspur town	Marin	612	594	
Lemoore city	Kings	1,355	1,000	
Lincoln town	Placer	1,325	1,402	1,061
Lindsay city	Tulare	2,576	1,814	
Livermore town	Alameda	1,916	2,030	1,493
Lodi city	San Joaquin	4,850	2,697	
Lompoc city	Santa Barbara	1,876	1,482	972
Long Beach city	Los Angeles	55,593	17,809	2,252
Los Angeles city	Los Angeles	576,673	319,198	102,479
Los Banos town	Merced	1,276	745	
Los Gatos town	Santa Clara	2,317	2,232	1,915
Loyalton town	Sierra	442	983	

¹Not returned separately.²Name changed from Lordsburg.

POPULATION OF INCORPORATED PLACES: 1920, 1910 AND 1900—Continued.

City or town	County	1920	1910	1900
McKittrick city	Kern	207		
Madera city	Madera	3,444	2,404	
Manhattan Beach city	Los Angeles	859		
Manteca city	San Joaquin	1,286		
Maricopa city	Kern	1,121		
Martinez town	Contra Costa	3,858	2,115	1,380
Marysville city	Yuba	5,461	5,430	3,497
Mayfield town	Santa Clara	1,127	1,041	
Merced city	Merced	3,974	3,102	1,969
Mill Valley town	Marin	2,554	2,551	
Modesto city	Stanislaus	9,241	4,034	2,024
Monrovia city	Los Angeles	5,480	3,576	1,205
Montague town	Siskiyou	453	274	
Monterey city	Monterey	5,479	4,923	1,748
Monterey Park city	Los Angeles	4,108		
Morgan Hill town	Santa Clara	646	607	
Mountain View town	Santa Clara	1,888	1,161	
Napa city	Napa	6,757	5,791	4,036
National City	San Diego	3,116	1,733	1,086
Needles city	San Bernardino	2,807		
Nevada City	Nevada	1,782	2,680	3,250
Newman town	Stanislaus	1,251	892	
Newport Beach city	Orange	894	445	
Oakdale city	Stanislaus	1,745	1,035	
Oakland city	Alameda	216,261	150,174	66,960
Oceanside city	San Diego	1,161	673	330
Ontario city	San Bernardino	7,280	4,274	722
Orange city	Orange	4,884	2,920	1,216
Orland town	Glenn	1,582	836	
Oroville city	Butte	3,340	3,859	
Oxnard city	Ventura	4,417	2,555	
Pacific Grove city	Monterey	2,974	2,384	1,441
Palo Alto city	Santa Clara	5,900	4,486	1,658
Pasadena city	Los Angeles	45,354	30,291	9,117
Paso Robles city	San Luis Obispo	1,919	1,441	1,224
Patterson city	Stanislaus	694		
Perris city	Riverside	499		
Petaluma city	Sonoma	6,226	5,880	3,871
Piedmont city	Alameda	4,282	1,719	
Pinole town	Contra Costa	967	798	
Pittsburg town ¹	Contra Costa	4,715	2,372	
Placerville city	El Dorado	1,650	1,914	1,748
Pleasanton town	Alameda	991	1,254	1,100
Plymouth city	Amador	657		
Point Arena city	Mendocino	394	497	
Pomona city	Los Angeles	13,505	10,207	5,526
Porterville city	Tulare	4,097	2,696	
Potter Valley town	Mendocino	512	576	563
Red Bluff city	Tehama	3,104	3,530	2,750
Redding city	Shasta	2,962	3,572	2,946
Redlands city	San Bernardino	9,571	10,449	4,797
Redondo Beach city	Los Angeles	4,913	2,935	855
Redwood city	San Mateo	4,020	2,442	1,653
Reedley city	Fresno	2,447		
Rialto city	San Bernardino	961		
Richmond city	Contra Costa	16,843	6,802	
Rio Vista town	Solano	1,104	884	682
Riverside city	Riverside	19,341	15,212	7,973
Rocklin town	Placer	643	1,026	1,050
Roseville city	Placer	4,477	2,608	
Ross town	Marin	727	556	
Sacramento city	Sacramento	65,908	44,696	29,282
St. Helena town	Napa	1,346	1,603	1,582
Salinas city	Monterey	4,308	3,736	3,304
San Anselmo town	Marin	2,475	1,531	

¹Name changed from Black Diamond since 1910.

POPULATION OF INCORPORATED PLACES: 1920, 1910 AND 1900—Concluded.

City or town	County	1920	1910	1900
San Bernardino city	San Bernardino	18,721	12,779	6,150
San Bruno city	San Mateo	1,562	-----	-----
San Diego city	San Diego	74,683	39,578	17,700
San Fernando city	Los Angeles	3,204	-----	-----
San Francisco city	San Francisco	506,676	416,912	342,782
San Gabriel city	Los Angeles	2,640	-----	-----
San Jacinto city	Riverside	945	898	583
San Jose city	Santa Clara	39,642	28,946	21,500
San Juan city	San Benito	501	326	449
San Leandro city	Alameda	5,703	3,471	2,253
San Luis Obispo city	San Luis Obispo	5,895	5,157	3,021
San Marino city	Los Angeles	584	-----	-----
San Mateo city	San Mateo	5,979	4,384	1,832
San Rafael city	Marin	5,512	5,934	3,879
Sanger city	Fresno	2,578	-----	-----
Santa Ana city	Orange	15,485	8,429	4,933
Santa Barbara city	Santa Barbara	19,441	11,659	6,587
Santa Clara town	Santa Clara	5,220	4,348	3,650
Santa Cruz city	Santa Cruz	10,917	11,146	5,659
Santa Maria city	Santa Barbara	3,943	2,260	-----
Santa Monica city	Los Angeles	15,252	7,847	3,057
Santa Paula city	Ventura	3,967	2,216	-----
Santa Rosa city	Sonoma	8,758	7,817	6,673
Sausalito town	Marin	2,790	2,383	1,628
Seal Beach city	Orange	669	-----	-----
Sebastopol town	Sonoma	1,493	1,233	-----
Selma city	Fresno	3,158	1,750	1,083
Sierra Madre city	Los Angeles	2,026	1,303	-----
Sisson town	Siskiyou	542	636	-----
Sonoma town	Sonoma	801	957	652
Sonora city	Tuolumne	1,684	2,029	1,922
South Pasadena city	Los Angeles	7,652	4,649	1,001
South San Francisco city	San Mateo	4,411	1,989	-----
Stanton city	Orange	695	-----	-----
Stockton city	San Joaquin	40,296	23,253	17,506
Susun City town	Solano	769	641	625
Sunnyvale town	Santa Clara	1,675	-----	-----
Susanville city ¹	Lassen	918	688	-----
Sutter Creek city	Amador	920	-----	-----
Taft city	Kern	3,317	-----	-----
Tehachapi city	Kern	458	385	-----
Tehama town	Tehama	196	221	-----
Tracy city	San Joaquin	2,450	-----	-----
Tulare city	Tulare	3,539	2,758	2,216
Turlock city	Stanislaus	3,394	1,573	-----
Ukiah city	Mendocino	2,305	2,136	1,850
Upland city	San Bernardino	2,912	2,384	-----
Yacaville town	Solano	1,254	1,177	1,220
Vallejo city	Solano	21,107	11,340	7,965
Venice city ²	Los Angeles	10,385	3,119	-----
Ventura city	Ventura	4,342	2,945	2,470
Vernon city	Los Angeles	1,005	772	-----
Visalia city	Tulare	5,753	4,550	3,085
Walnut Creek town	Contra Costa	538	-----	-----
Watsonville city	Santa Cruz	5,013	4,446	3,528
Watts city	Los Angeles	4,529	1,922	-----
Wheatland town	Yuba	435	481	492
Whittier city	Los Angeles	7,997	4,772	1,590
Willits town	Mendocino	1,468	1,153	791
Willows town	Glenn	2,190	1,139	893
Winters town	Yolo	903	910	785
Woodland city	Yolo	4,147	3,187	2,886
Yreka town	Siskiyou	1,277	1,134	1,254
Yuba City town	Sutter	1,708	1,160	-----

¹Incorporated as a city since 1910.²Name changed from Ocean Park.

The following table gives the urban and rural population of the counties for the last three censuses with the per cent of increase or decrease during that period:

URBAN AND RURAL POPULATION OF COUNTIES: 1920, 1910 AND 1900.

A minus sign (—) denotes decrease.

County	Population						Per cent urban in total population			Per cent of increase in—						Rural population per square mile, 1920
	1920		1910		1900		1920	1910	1900	Urban population		Rural population				
	Urban	Rural	Urban	Rural	Urban	Rural				1910 to 1920	1900 to 1910	1910 to 1920	1900 to 1910			
California.....	2,363,729	1,065,152	1,469,739	907,810	777,699	707,354	68.0	61.8	52.4	58.5	89.0	20.6	28.3	7.0		
Alameda.....	314,575	29,002	222,821	25,310	96,638	33,579	91.4	90.5	74.2	41.2	130.6	27.0	-30.5	40.4		
Butte.....	12,679	17,351	7,609	19,002	2,640	14,477	42.2	27.9	15.4	66.6	188.2	-11.9	36.0	10.2		
Contra Costa.....	25,416	28,473	6,802	24,872	18,006	18,006	47.2	21.5	15.4	273.7	133.3	14.5	37.8	39.9		
Fresno.....	53,756	75,023	29,091	46,566	12,470	25,392	41.7	38.5	32.9	84.8	133.3	61.1	83.4	12.6		
Humboldt.....	12,923	21,490	11,845	22,012	7,327	16,777	34.5	35.0	27.0	9.1	61.7	11.3	11.3	6.9		
Imperial.....	17,076	26,377	13,591	13,591	4,835	11,814	39.3	33.7	29.3	72.5	163.2	31.6	95.1	6.5		
Kern.....	21,955	32,888	12,727	24,988	4,829	16,113	40.0	33.7	29.3	29.3	163.2	31.6	114.6	4.1		
Kings.....	5,888	16,113	4,829	11,401	2,929	6,342	26.7	29.8	29.7	21.9	64.9	41.6	64.2	13.9		
Los Angeles.....	710,629	145,825	411,938	12,183	120,179	50,119	84.4	81.7	70.6	91.9	242.8	58.2	83.9	35.4		
Madera.....	3,414	8,759	1,620	8,408	6,044	6,044	33.8	33.8	21.7	27.9	118.7	0.9	40.6	4.1		
Marin.....	10,856	17,488	16,220	8,485	5,876	11,823	10.8	20.5	21.7	27.9	118.7	10.2	16.9	6.1		
Mendocino.....	2,616	21,599	35,294	35,294	26,465	26,465	10.8	20.5	21.7	27.9	118.7	10.2	16.9	6.1		
Merced.....	3,974	20,515	12,046	12,046	9,215	16.2	20.5	20.5	17.0	28.1	162.1	1.7	-3.7	4.6		
Monterey.....	12,761	15,211	8,659	15,487	3,204	16,076	45.6	35.9	24.5	16.7	43.5	-0.6	12.8	17.8		
Napa.....	6,755	15,211	6,791	14,009	4,036	12,415	32.7	29.2	21.5	16.7	43.5	-0.6	12.8	17.8		
Nevada.....	4,006	6,844	7,209	7,746	7,969	9,829	36.9	48.2	44.8	44.4	9.5	-11.6	21.1	7.0		
Orange.....	30,310	31,065	13,977	20,459	4,933	14,763	49.4	40.6	25.0	116.9	183.3	51.8	38.6	29.1		
Placer.....	4,477	14,107	2,008	15,629	15,786	15,786	24.1	13.3	13.3	71.7	135.2	-0.7	-1.0	10.0		
Riverside.....	23,470	26,827	18,752	15,944	7,973	9,924	46.7	51.0	44.5	25.2	135.2	68.3	60.7	3.7		
Sacramento.....	65,908	25,121	41,696	23,110	29,282	16,633	72.4	65.9	63.8	47.5	52.6	8.7	38.9	25.6		
San Benito.....	2,781	6,214	4,696	8,041	6,633	6,633	30.9	30.9	22.7	47.5	52.6	8.7	38.9	25.6		
San Bernardino.....	45,573	27,825	31,482	25,224	10,947	15,982	61.1	55.5	39.2	44.8	187.6	10.3	48.5	1.4		
San Diego.....	85,236	27,012	39,578	22,087	17,709	17,300	75.9	61.2	50.4	115.4	123.6	21.6	27.0	6.4		
San Francisco.....	506,676	25,650	416,912	24,778	342,782	17,300	100.0	100.0	100.0	21.5	21.6	22.3	27.0	21.0		
San Joaquin.....	45,146	34,759	25,650	24,778	17,406	17,406	56.5	51.2	49.4	74.0	48.2	40.3	38.1	4.8		
San Luis Obispo.....	5,895	15,908	5,157	14,222	3,021	13,616	26.9	16.5	18.2	14.3	70.7	12.5	4.5	4.8		
San Mateo.....	22,256	14,485	4,384	22,256	12,094	12,094	60.6	26.6	16.5	408.0	70.7	-24.8	83.6	32.4		
Santa Barbara.....	23,384	17,713	11,659	16,077	6,587	12,347	56.9	42.0	34.8	100.6	77.0	10.2	30.2	6.5		
Santa Clara.....	53,624	47,082	37,780	45,751	25,150	35,046	53.3	45.2	41.8	101.9	50.2	2.8	30.5	35.4		
Santa Cruz.....	15,930	10,339	15,392	10,548	9,187	12,325	80.6	59.6	42.7	2.2	69.7	-2.0	-14.4	23.8		

Shasta.....	2,962	10,399	3,572	15,348	2,946	14,372	22.2	18.9	17.0	-17.1	21.2	-32.2	6.8	2.7
Siskiyou.....	2,528	16,017	11,340	18,801	10,716	16,962	13.6	41.1	44.4	109.9	5.8	-14.8	10.8	2.6
Solano.....	23,800	16,802	13,697	16,219	10,544	13,427	58.6	28.3	27.4	9.4	29.9	3.6	20.8	20.4
Sonoma.....	14,984	37,106	34,697	34,697	27,956	27,956	28.8	17.9	21.2	213.2	28.4	6.9	24.2	23.5
Stanislaus.....	12,635	30,922	4,034	18,488	9,550	9,550	29.0	31.0	25.0	-12.1	28.4	67.3	35.0	21.3
Tehama.....	3,104	9,778	3,530	7,871	2,750	8,246	24.1	31.0	16.8	93.6	224.3	24.2	-4.5	3.3
Tulare.....	19,365	39,666	10,004	25,136	3,085	15,290	32.8	28.2	16.8	131.4	10.4	55.9	66.4	8.2
Ventura.....	12,726	15,998	5,500	12,847	14,367	44.3	30.0	30.0	21.2	30.1	10.4	24.5	-10.6	8.6
Yolo.....	4,147	12,958	3,187	10,739	2,886	10,732	24.2	22.9	40.6	0.6	55.3	20.7	-10.0	12.8
Yuba.....	5,461	4,914	5,430	4,612	3,497	5,123	52.6	54.1	40.6	0.6	55.3	6.5	-10.0	7.8
All other counties ¹	102,545	101,835	101,835	101,835	103,710	103,710	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7

¹Comprises all counties in which there were no incorporated places having 2,500 inhabitants or more in 1920. These counties are Alpine, Amador, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Inyo, Lake, Lassen, Mariposa, Modoc, Mono, Plumas, Sierra, Sutter, Trinity and Tuolumne.

Urban and Rural Population.

The Census Bureau defines urban population as that residing in cities and other incorporated places having 2500 inhabitants or more, and rural population as that residing outside such incorporated places.

The following summary presents, for the last three censuses, figures showing the urban and rural population of the state distributed among places grouped according to specified limits of population. The classification for each census is based upon the population of the various places as shown by the returns of that census. Consequently the territory comprised within any one class of cities or that designated as urban or as rural does not remain fixed, because any given place may, through the growth or the decline of its population, pass from one class to another at successive censuses. The proportion of the population of California living in places of 2500 or more increased from 52.4 per cent in 1900 to 61.8 per cent in 1910 and to 68 per cent in 1920.

URBAN AND RURAL POPULATION: 1920, 1910 AND 1900.

Class of places	1920		1910		1900		Per cent of total population		
	Number of places	Population	Number of places	Population	Number of places	Population	1920	1910	1900
	Total population.....		3,426,861		2,377,549		1,485,053	100.0	100.0
Urban territory.....	107	2,331,729	70	1,469,739	40	777,699	68.0	61.8	52.4
Cities and towns of—									
100,000 inhabitants or more.....	3	1,299,610	3	886,284	2	445,261	37.9	37.3	30.0
50,000 to 100,000 inhabitants.....	4	252,220			1	66,980	7.4		4.5
25,000 to 50,000 inhabitants.....	5	190,184			1	29,282	5.8		2.0
10,000 to 25,000 inhabitants.....	13	206,094	5	183,945	6	98,854	6.0	7.7	6.7
5,000 to 10,000 inhabitants.....	26	171,802	10	64,108	9	62,977	5.0	2.7	4.2
2,500 to 5,000 inhabitants.....	56	202,819	39	138,701	21	74,365	5.9	5.8	5.0
Rural territory.....		1,095,132		907,810		707,354	32.0	38.2	47.6
Cities and towns of less than 2,500 inhabitants.....	147	173,677	128	153,052	70	90,748	5.1	6.4	6.1
Other rural territory.....		921,455		754,758		616,606	26.9	31.7	41.5

¹Includes one city not returned separately.

COLOR OR RACE, NATIVITY, PARENTAGE AND SEX, FOR THE STATE AND RURAL POPULATION: 1920, 1910 AND 1900.

Class of population	Number		Per cent of total				1920			1910			1900			Males to 100 females ¹		
	1920	1910	1900	1910	1920	1900	1910	1920	Female	Male	Female	Male	Female	Male	1920	1910	1900	
THE STATE																		
Total population.....	3,426,861	2,377,549	1,485,053	100.0	100.0	100.0	1,813,591	1,613,270	1,322,978	1,054,571	820,531	664,522	112.4	125.5	123.5			
White.....	3,264,711	2,259,672	1,402,727	95.0	94.5	94.5	1,710,223	1,554,488	1,292,900	1,020,682	755,147	647,580	110.0	120.1	116.6			
Negro.....	18,763	21,645	11,045	0.9	0.9	0.7	19,837	18,926	11,303	10,342	5,766	5,279	109.3	109.3	109.2			
Indian.....	17,360	16,371	15,377	0.5	0.7	1.0	9,085	8,275	8,356	8,015	7,723	7,654	104.8	104.3	100.9			
Chinese.....	28,812	36,248	45,753	0.8	1.5	3.1	24,230	4,582	33,003	3,245	42,247	3,456	528.8	1,017.0	1,223.9			
Japanese.....	71,932	41,556	10,151	2.1	1.7	0.7	45,414	26,538	35,116	6,240	9,568	553	171.1	1,017.0	1,735.6			
All other.....	5,263	2,257	1,051	0.2	0.1	0.1	4,802	461	9,210	47	6,345	1,041.6	1,041.6	1,041.6	1,041.6			
Native white, total.....	2,583,049	1,742,422	1,086,222	75.4	73.3	73.1	1,308,373	1,274,676	907,573	834,849	563,335	522,887	102.6	108.7	107.7			
Native percentage.....	1,677,955	1,106,333	644,428	49.0	46.5	43.4	860,196	817,759	585,658	520,875	340,617	303,811	105.2	112.4	112.1			
Foreign percentage.....	573,927	403,364	282,803	16.7	17.0	19.0	288,560	288,277	205,269	198,005	142,831	139,969	99.1	103.6	102.0			
Mixed percentage.....	331,167	232,225	158,984	9.7	9.8	10.7	162,527	168,640	116,666	115,879	79,887	79,077	96.4	100.7	101.0			
Foreign-born white.....	681,662	517,250	316,505	19.9	21.8	21.3	401,850	279,812	325,417	191,833	191,812	124,693	143.6	169.6	153.8			
URBAN POPULATION																		
Total.....	2,231,729	1,469,739	777,690	100.0	100.0	100.0	1,190,872	1,140,857	781,502	688,237	404,225	373,374	104.4	113.6	108.3			
White.....	2,028,567	1,407,351	741,722	96.0	95.7	95.4	1,132,139	1,106,428	734,737	672,304	375,743	363,979	102.3	109.3	102.7			
Negro.....	33,888	18,389	8,075	1.5	1.3	1.0	16,982	16,906	9,285	9,114	4,019	4,056	100.4	101.9	99.1			
Indian, Chinese, Japanese and all other.....	59,274	44,089	27,902	2.5	3.0	3.6	41,751	17,523	37,470	6,610	24,563	3,339	238.3	566.1	735.6			
Native white, total.....	1,763,991	1,075,415	584,984	75.7	73.2	71.4	860,223	809,768	539,482	535,923	272,088	282,896	96.3	100.7	96.2			
Native percentage.....	1,122,925	652,659	292,490	48.2	44.4	37.6	557,353	565,372	333,136	313,523	145,984	146,506	98.5	104.3	99.6			
Foreign percentage.....	407,509	271,319	262,494	17.5	18.3	33.8	190,803	210,706	133,313	138,200	126,104	136,390	90.7	96.5	92.5			
Mixed percentage.....	258,557	151,237	158,984	10.1	10.5	10.3	112,007	123,490	77,763	78,194	98,726	98,726	90.7	93.4	92.5			
Foreign-born white.....	472,576	331,536	186,738	20.3	22.6	24.0	265,916	206,660	185,255	136,581	103,655	83,083	128.7	143.0	124.8			
RURAL POPULATION																		
Total.....	1,095,132	907,810	707,354	100.0	100.0	100.0	622,719	472,413	541,476	366,334	416,206	291,148	131.8	147.8	143.0			
White.....	1,026,144	852,421	661,005	93.7	93.4	93.4	578,084	448,060	498,243	354,178	379,404	281,601	129.0	140.7	134.7			
Negro.....	4,875	3,246	2,970	0.4	0.4	0.4	2,855	2,020	2,018	1,228	1,747	1,223	141.3	164.3	142.8			
Indian, Chinese, Japanese, and all other.....	64,113	52,143	43,379	5.9	5.7	6.1	41,780	22,333	41,215	10,928	35,055	8,324	187.1	377.2	421.1			
Native white, total.....	817,068	667,007	531,238	74.6	73.5	75.1	442,150	338,084	368,084	298,923	291,247	289,991	117.9	123.1	121.4			
Native percentage.....	555,080	453,874	351,938	50.7	50.0	49.8	302,843	252,187	252,522	202,522	194,633	157,305	120.1	125.4	123.7			
Foreign percentage.....	166,418	81,288	179,300	15.2	14.5	25.3	88,847	77,571	71,956	59,889	96,614	82,686	111.8	120.1	116.8			
Mixed percentage.....	85,610	131,845	129,767	8.7	9.0	9.0	50,400	45,150	43,603	37,685	48,981	48,981	114.5	115.7	116.8			
Foreign-born white.....	209,086	185,414	129,767	19.1	20.4	18.3	135,934	73,152	130,162	55,252	88,157	41,610	185.8	235.6	211.9			

¹Ratio not shown where number of females is less than 100.

²Comprises 2,674 Filipinos, 1,223 Hindus, 772 Koreans, 12 Malays, 6 Samoans, 5 Siamese and 1 Maori.

FARMS BY SEX, RACE AND NATIVITY OF FARMER.

Number, Acreage and Value of Farms, Classified by Sex and Tenure of Farmer: 1920.

Sex and tenure	Number of farms	All land in farms (acres)	Improved land in farms (acres)	Value of land and buildings	Average per farm		
					All land (acres)	Im- proved land (acres)	Value of land and build- ings
Total	111,670	29,365,667	11,878,339	\$3,073,811,109	249 6	100 9	\$26,122
Male	111,896	28,530,876	11,516,326	2,962,951,781	255 0	102 9	26,480
Female	5,774	834,791	362,013	110,859,328	144 6	62 7	19,200
Owners	87,580	17,196,215	6,819,212	1,900,924,411	196 3	77 9	21,705
Male	82,174	16,447,379	6,491,955	1,798,501,928	200 2	79 0	21,887
Female	5,406	748,836	327,257	102,422,483	138 5	60 5	18,946
Managers	4,949	5,485,447	1,587,518	442,032,436	1,108 4	320 8	89,318
Male	4,897	5,471,314	1,582,594	439,566,236	1,117 3	323 2	89,762
Female	52	14,133	4,924	2,466,200	271 8	94 7	47,427
Tenants	25,141	6,684,005	3,471,609	730,854,262	265 9	138 1	29,070
Male	24,825	6,612,183	3,441,777	724,883,617	266 4	138 6	29,200
Female	316	71,822	29,832	5,970,645	227 3	94 4	18,894

Number, Acreage and Value of Farms, Classified by Nativity of White Farmers and by Race of Colored Farmers: 1920 and 1910.

Color and nativity or race	Number of farms		Land in farms, 1920 (acres)		Value of land and buildings, 1920
	1920	1910	Total	Improved	
All farmers	117,670	88,197	29,365,667	11,878,339	\$3,073,811,109
White farmers	111,184	85,119	28,844,686	11,477,495	2,913,026,253
Native ¹	76,995	58,926	22,119,345	8,602,600	2,132,816,570
Foreign-born	34,189	26,193	6,725,341	2,874,895	780,209,683
Country of birth:					
Austria	828	530	88,539	51,116	14,072,562
Canada	2,461	2,124	466,254	206,109	61,487,898
Denmark	1,917	1,619	256,334	165,194	42,130,505
England	2,148	2,365	375,828	129,358	6,013,382
France	904	859	592,723	116,888	30,289,030
Germany	4,199	4,669	900,612	409,185	88,316,716
Holland	328	115	33,680	23,997	6,627,200
Ireland	1,157	1,555	457,691	141,586	33,128,942
Italy	4,453	2,457	620,263	312,802	86,885,763
Norway	474	340	62,779	44,477	7,491,350
Poland	385	22	40,834	24,919	8,736,945
Portugal	3,440	(²)	437,933	251,778	67,765,276
Russia	1,166	494	56,668	43,360	20,604,135
Scot and	587	627	292,941	64,223	21,607,035
Sweden	2,245	1,647	156,412	108,019	36,519,170
Switzerland	1,988	1,715	602,244	248,385	52,114,239
Other countries	5,419	5,055	1,283,206	533,420	156,419,535
Colored farmers	6,486	3,078	520,981	400,844	160,784,856
Negro	290	159	33,790	14,991	3,625,525
Indian	578	591	75,434	17,147	2,607,448
Japanese	5,152	1,816	361,276	323,200	137,347,110
Chinese	466	512	50,472	45,506	17,204,773

¹Includes farmers with country of birth not reported, as follows: For 1920, 1,721; for 1910, 180.²Included with "other countries."

Number of Farmers, Classified by Tenure, Color and Nativity: 1920 and 1910.

Tenure	All farmers		Native white ¹		Foreign-born white		Colored	
	1920	1910	1920	1910	1920	1910	1920	1910
Total.....	117,670	88,197	76,995	58,926	34,189	26,193	6,486	3,078
Owners.....	87,580	66,632	60,264	45,780	26,073	19,914	1,243	938
Managers.....	4,949	3,417	3,913	2,641	887	714	149	62
Tenants.....	25,141	18,148	12,818	10,505	7,229	5,565	3,094	2,078

¹Includes farmers with country of birth not reported.

The Indians of California.

The Indians were prominent in early California history, but their progress towards their present insignificance began far back in the Spanish period. It proceeded much more rapidly after the restraining influence of the Missions was removed, leaving them free to revert to savagery; and the downward progress of the race was fearfully accelerated during the mining period, when they were ambushed, depraved, and in large numbers killed. There have been no Indian wars in California's annals, but many butcheries.

They are of at least fourteen different linguistic stocks. The government, in dealing with the California tribes, did not follow the policy pursued with the wild Indians of the plains, and no treaties were made with them, and no remuneration paid for lands acquired by white settlers.

The prejudice against the Indians is being dispelled, for the reason that those who have been obliged to depend upon them to do farm work in many localities have discovered that the Indians as laborers are dependable, reliant, efficient.

The problem of labor in California being one of increasing importance, owing to the development of various activities and industries, it is true that the Indians will be called upon more and more for industrial service, until this demand becomes permanent.

With this point in view, it must be gratifying to everyone to know that the government maintains a large number of fine schools in the state for educating and training young Indians, and in several schools for giving them instruction along specific vocational lines. The younger Indians who are attending school realize that the old order of things is passing, and that the Indians will in a few years become an important part of a great state.

Large numbers are located on twenty-six reservations, namely: Hoopa Valley, Round Valley, Tule River, Yuma, and twenty-two Mission reservations.

Most of the Mission Indians are located on small reservations scattered over 10 of the 58 counties of the state, viz.: Amador, Humboldt, Inyo, Mendocino, Modoc, Plumas, Riverside, San Diego, Santa Barbara, and Tulare. Among them are found representatives of a number of different tribes.

Round Valley reservation, embracing an area of 59 square miles, is situated in Mendocino County, and the remnants of nine small tribes are located here, who might well be classed as civilized. Tule River

reservation in Tulare County contains 76 square miles, and contains the remainder of the once powerful Tule tribe. The Yuma reservation contains an area of $71\frac{3}{4}$ square miles, the Indians living on this section being the most primitive of the California tribes in manners and customs.

The largest allotments are 42,106 acres in the Round Valley reservations; 29,091 in the Hoopa Valley reservation, and 8010 acres in the Fort Yuma reservation. The allotments on June 30, 1918, numbered 2593, the acreage amounting to 82,172 acres allotted, 434,946 unallotted, or a total of 517,118 acres.

The principal industries other than farming and stock raising engaged in by Indians are basket making, blanket weaving, bead work, pottery and wood cutting. The value of crops raised in 1919 was \$558,838, stock sold \$72,182, native industries—weaving, basketry—\$147,318, and wages earned \$511,664. The total value of individual and tribal property, including lands and timber, in 1919 amounted to \$11,982,306, all items showing a large increase over the year 1918.

Indian Population, Years Ending June 30, 1890-1920.

1890.....	12,108	1917.....	15,362
1900.....	11,431	1918.....	15,725
1915.....	15,034	1920.....	16,241

Marriages, Births and Deaths in California, 1919-1921.

(From State Board of Health.)

Counties	Marriages			Births			Deaths		
	1919	1920	1921	1919	1920	1921	1919	1920	1921
Alameda.....	3,799	4,334	4,056	5,800	6,422	6,537	4,412	4,397	4,020
Alpine.....	1	1	0	2	1	0	5	4	1
Arnador.....	41	45	39	95	80	93	115	90	9 5
Butte.....	272	280	267	490	595	608	350	393	33 2
Calaveras.....	24	24	27	66	62	78	82	89	7 0
Colusa.....	50	56	47	156	178	166	97	83	87
Contra Costa.....	384	384	445	888	1,128	1,088	521	493	464
Del Norte.....	35	35	39	31	43	45	31	41	31
El Dorado.....	34	37	46	104	105	89	108	104	100
Fresno.....	1,337	1,687	1,587	2,705	3,218	3,640	1,471	1,598	1,468
Glenn.....	47	88	71	165	257	194	91	81	90
Humboldt.....	341	437	394	556	630	728	440	423	446
Imperial.....	416	462	393	804	1,022	986	516	505	439
Inyo.....	58	60	65	91	108	156	24	64	55
Kern.....	535	804	733	1,065	1,244	1,561	656	599	673
Kings.....	214	245	251	445	555	525	225	273	250
Lake.....	23	29	25	87	82	71	78	69	56
Lassen.....	82	75	70	113	141	161	74	79	83
Los Angeles.....	9,200	11,523	12,331	13,985	18,009	20,187	12,097	13,461	14,279
Madera.....	141	171	182	226	280	302	104	141	153
Marin.....	589	652	599	260	306	322	276	302	304
Mariposa.....	5	8	17	37	27	24	28	29	26
Mendocino.....	160	203	205	359	389	423	383	350	327
Merced.....	182	261	238	414	492	533	213	204	230
Modoc.....	62	55	71	72	108	99	58	48	42
Mono.....	2				2				3
Monterey.....	236	302	320	453	587	670	326	352	325
Napa.....	295	303	307	276	399	297	600	549	568
Nevada.....	88	86	85	142	194	167	201	151	166
Orange.....	1,511	1,975	2,323	1,142	1,507	1,805	706	892	887
Placer.....	106	118	137	347	417	473	255	299	361
Plumas.....	21	26	29	66	67	83	68	68	83
Riverside.....	758	1,093	1,190	777	1,019	1,037	629	622	736
Sacramento.....	1,551	1,737	1,805	1,854	2,193	2,249	1,052	1,390	1,280
San Benito.....	81	107	119	181	172	187	109	109	114
San Bernardino.....	996	1,198	1,415	1,349	1,575	1,831	1,070	1,306	1,405
San Diego.....	1,526	1,985	1,951	1,814	2,153	2,474	1,526	1,749	1,875
San Francisco.....	6,868	7,498	7,109	8,433	9,035	9,175	7,980	7,258	7,026
San Joaquin.....	1,029	1,211	1,078	1,453	1,764	2,095	1,394	1,480	1,507
San Luis Obispo.....	251	312	284	364	467	464	287	259	255
San Mateo.....	456	611	597	501	614	578	451	456	466
Santa Barbara.....	426	518	543	788	871	897	505	476	471
Santa Clara.....	1,370	1,651	1,683	1,762	2,024	2,168	1,612	1,688	1,625
Santa Cruz.....	343	366	352	361	494	528	369	402	407
Shasta.....	139	162	163	217	221	213	227	162	203
Sierra.....	7	6	1	22	23	25	57	23	27
Siskiyou.....	186	277	231	301	413	452	217	212	222
Solano.....	294	349	379	584	635	717	427	482	381
Sonoma.....	509	629	612	803	845	882	981	759	882
Stanislaus.....	418	518	528	856	995	1,059	455	509	474
Sutter.....	38	46	52	126	140	148	82	77	91
Tehama.....	118	142	120	234	241	273	172	169	165
Trinity.....	8	10	13	19	30	18	29	22	37
Tulare.....	455	604	637	1,087	1,342	1,529	542	500	614
Tuolumne.....	50	46	56	125	118	146	105	123	125
Ventura.....	332	388	465	586	677	656	381	343	378
Yolo.....	125	180	153	292	372	341	208	196	224
Yuba.....	116	151	127	190	200	185	163	128	124
Totals.....	38,830	46,564	46,972	56,521	67,198	72,438	45,991	47,124	47,379

Births, Deaths and Marriages in California, 1905 to 1921.

Years	Births		Deaths		Marriages	
	Total	Rate	Total	Rate	Total	Rate
1906	20,974	10.3	29,303	14.4	21,317	10.5
1907	24,674	11.6	31,095	14.6	23,005	10.8
1908	28,077	12.7	31,287	14.1	21,739	9.8
1909	30,882	13.4	30,985	13.4	22,917	9.9
1910	32,138	13.4	32,398	13.5	24,937	10.4
1911	34,820	13.9	34,012	13.6	27,303	10.9
1912	39,330	15.0	36,709	14.0	31,276	12.0
1913	43,852	16.1	38,599	14.2	31,383	11.5
1914	46,012	16.2	37,537	13.3	31,902	11.3
1915	48,075	16.3	39,026	13.3	31,451	10.7
1916	50,638	16.5	39,860	13.1	30,996	10.2
1917	52,230	16.5	42,084	13.3	36,283	11.5
1918	55,922	17.1	57,683	17.7	32,487	10.0
1919	56,521	16.8	45,991	13.6	38,830	11.5
1920	67,198	19.3	47,124	13.5	46,564	13.4
1921	72,438	20.2	47,379	13.2	46,972	13.1

Infant Mortality Rate in State Low.

California in 1921 enjoyed the lowest infant mortality rate in its history. For the twelve months ending December 31 tabulations show that there were only 4792 infant deaths, or deaths of children under the age of one year, registered, which gives this state a rate of 66.7 for every 1000 live births.

This is not only the lowest rate for infant mortality in the history of California, but a rate that will compare most favorably with any other state in the Union. Last year the infant mortality wave reached the lowest point in October, with a rate of 61.0, and the highest point in January, when the rate was 86.4.

Infant Deaths (under 1 year of age) by Race of Mother (stillbirths excluded), With Mortality Rates, 1921.

Race of mother	Infant deaths	Infant mortality rates
White	4,341	66.2
Negro	53	70.8
Indian	32	100.2
Chinese	53	87.0
Japanese	324	61.4
Other	1	29.4
Totals	4,804	66.3

California Public Schools.

"The total amount of money expended for all purposes in the elementary schools in 1920 was \$30,516,052.22, a gain of \$9,850,913.16 or 47.5 per cent in 1920 over the year 1918, while the total amount expended in the secondary schools during the same period was \$15,762,361.47, an increase of \$4,330,033.12 or 37.8 per cent.

"The total cost of maintenance in the same period was \$24,051,765.37, an increase of \$6,564,885.50 or 37.6 per cent in the elementary schools and \$13,393,511.23 in the secondary schools, an increase of \$4,015,086.57, or 23 per cent.

"A comparison of teachers' salaries during the same period reveals an expenditure of \$18,560,883.66 in 1920, an increase of \$5,076,437.89 or 37.6 per cent over 1918 in the elementary schools and \$9,365,688.34 in 1920, an increase of \$2,568,959.18, or 37.8 per cent in the secondary schools.

"The growth in attendance and enrollment is as follows:

"Elementary school enrollment in 1920 was 500,644, an increase of 52,159 or 11.6 per cent over 1918.

"Secondary school enrollment in 1920 was 162,832, an increase of 35,917 or 28.3 per cent over 1918.

"Elementary school average daily attendance in 1920 was 387,899, an increase of 37,331, or 10.6 per cent over 1918.

"Secondary school average daily attendance in 1920 was 77,594, an increase of 12,836 or 19.8 per cent over 1918.

"The number of teachers employed in the elementary schools in 1920 was 12,565, which exceeds the number employed in 1918 by 985 or 7.4 per cent, while those employed in the secondary schools in 1920 was 5794, which is 983 or 20.4 per cent greater than the number employed in 1918."*

*From report of Superintendent of Public Instruction.

Number of Schools, Teachers and Pupils, by Counties.

(Superintendent of Public Instruction.)

Counties	Number of teachers, 1920			Number of pupils enrolled, 1920		
	Kindergarten	Elementary	High	Kindergarten	Elementary	High
Alameda.....	82	1,419	741	5,072	47,427	23,701
Alpine.....		3			43	
Amador.....		59	15		1,247	215
Butte.....	2	166	48	58	4,790	1,009
Calaveras.....		56	10		1,117	115
Colusa.....	1	57	26	39	1,355	260
Contra Costa.....	10	280	73	661	9,011	2,103
Del Norte.....		21	6		536	65
El Dorado.....	1	60	7	29	1,003	107
Fresno.....	10	667	274	638	23,271	6,822
Glenn.....		79	23		2,061	470
Humboldt.....	4	224	54	208	5,850	1,074
Imperial.....	8	211	83	373	7,860	2,402
Inyo.....		41	18		1,065	239
Kern.....	16	330	81	738	9,249	2,031
Kings.....		122	34		5,259	861
Lake.....		42	17		873	198
Lassen.....	2	59	11	97	1,264	185
Los Angeles.....	396	3,641	1,735	13,773	136,278	55,004
Madera.....	1	92	23	70	2,339	350
Marin.....	5	119	44	227	3,580	701
Mariposa.....		31	3		424	23
Mendocino.....		162	44		4,038	728
Merced.....	2	149	42	85	4,429	779
Modoc.....	1	54	19	31	986	216
Mono.....		9			121	
Monterey.....		154	53		4,275	1,110
Napa.....	1	89	27	39	2,561	426
Nevada.....		68	18		1,628	351
Orange.....	25	324	147	746	10,374	2,637
Placer.....		98	32		2,937	609
Plumas.....		38	4		858	55
Riverside.....	11	255	130	500	8,254	2,198
Sacramento.....	24	434	125	1,050	13,472	4,086
San Benito.....		50	10		1,386	237
San Bernardino.....	17	359	179	764	11,423	4,430
San Diego.....	38	479	238	1,548	14,734	8,660
San Francisco.....	31	1,579	318	2,186	55,284	9,975
San Joaquin.....	3	352	90	314	12,137	4,180
San Luis Obispo.....	2	152	38	104	3,798	696
San Mateo.....	10	183	47	594	6,124	1,215
Santa Barbara.....	11	190	62	509	5,595	1,621
Santa Clara.....	17	422	210	991	15,175	6,970
Santa Cruz.....	3	138	46	411	3,928	1,306
Shasta.....		122	23		2,501	408
Sierra.....		17	5		259	40
Siskiyou.....	1	136	28	30	3,408	656
Solano.....	4	135	53	171	4,298	1,657
Sonoma.....		290	111		8,727	2,306
Stanislaus.....	3	231	91	203	8,029	1,860
Sutter.....		62	8		1,433	128
Tehama.....	2	95	30	71	2,040	487
Trinity.....		27	5		396	87
Tulare.....	5	322	106	221	10,493	2,053
Tuolumne.....	1	52	15	17	1,259	212
Ventura.....	4	162	56	256	5,121	1,253
Yolo.....	1	86	25	75	2,419	444
Yuba.....	1	65	33	45	1,455	621
Totals.....	756	15,319	5,794	32,944	500,357	162,650

PART III.

DOMESTIC ANIMALS.

Horses; Mules, Number and Value by States, Values in California; Beef Cattle; Dairy Cattle; Purebreds on Coast, Value in California, Number and Value by States of Cattle Slaughtered, State Shipments; Goats; Sheep, Value in California, Number and Value by States; Swine, Number and Value by States; Live Stock Values and Rank by States; Animals on Farms by Counties; Recognized Breeds; Wool, Production, Average Price on Farms.

Horses.

American light horses have long been world-famous in several highly specialized lines—for example, the trotting and saddle breeds.

The United States Department of Agriculture has recognized the need of developing a type of the native light horse suitable for general utility work on farm or ranch. Such a type would also supply desirable horses for the army.

With this end in view, cooperative experimental breeding work has been carried on for many years.

The ideals sought in this new type are a uniform combination of size, substance, soundness, endurance, and a sufficiency of speed.

Although the automobile, motor truck, and tractor undoubtedly will displace some horses, nevertheless the active sizable utility horse will be an increasingly important factor in American husbandry, especially in those sections where the heavy-draft breeds are not the most economical type to use.

Characteristics of Light Horses.

The term "light" when applied to horses refers to that class which is intermediate in size between ponies and draft horses and which usually has range, a greater degree of quality, better action, or greater speed than either. A majority of our light horses are from 15 to 16 hands high and weigh from 900 to 1250 pounds. Breeds of light horses, then, refer to the groups within this class which have been bred pure for a particular purpose, individual ancestry having been recorded by a registry association.

Light horses are well adapted to mountainous sections, and where the land is rolling, in which localities they are useful for farm horse power and for riding and driving purposes. It is in such sections that light horses should be bred and developed to supply the home demand.

The material presented herewith is intended to convey to the reader concise general information concerning the characteristics of the various

breeds of light horses found in this country. An interesting study is afforded in noting the extent to which Arabian and Thoroughbred blood was used in founding many of the light breeds, and this relationship is briefly touched upon, but no attempt is made to give detailed information concerning early breed history. By communicating with the secretaries of the various breed associations, whose names are given, information regarding rules of registration, issuance of studbooks, and lists of breeders may be obtained. Farmers' Bulletin 619, "Breeds of Draft Horses," is available to those wishing information on the draft breeds.

Arabian.

The oldest breed of horses generally recognized at the present time and the fountainhead of all other light breeds was developed in the desert country of Arabia, from which it derives its name. Needing an animal that could carry him swiftly and safely over long stretches of sandy soil and at the same time withstand the lack of food and water to a remarkable degree, the Arab developed a type of horse that has long been noted for its activity, endurance, docility, and handsome appearance.

The Arabian horse has been developed to perform his work practically altogether under saddle, and he possesses the general characteristics desired in a saddle horse—viz., good carriage of head and neck, deep, well-sloped shoulders, a short back with proportionately long underline, short, strong loin, tail attached high, compactness of middle, and superior quality of underpinning without any tendency to appear leggy.

Generally the Arabian horse in action shows only the walk, trot, and canter. The usual height is from 14 to 15.1 hands, and the weight varies from 900 pounds to 1100 pounds. Bay, brown and chestnut are the predominating colors, with occasional grays and blacks. While Arabian horses frequently have white marks on the head and legs, they seldom or never are spotted or piebald, as is commonly supposed. This false impression evidently gained prominence because spotted circus horses are sometimes called Arabians.

Crossed on light farm mares, Arabian stallions have produced excellent saddle horses, but they frequently lack size when measured by our present-day market standards. However, admirers of the Arabian are very enthusiastic about his suitability for cavalry use, claiming that his endurance, even temperament, and especially his ability to withstand hardships, such as scanty feed on long marches, make him useful for this purpose.

The Arabian Horse Club of America, of which Howard Stout Neilson, Darien, Conn., is secretary, has made considerable progress in bringing to the attention of our people the merits of the Arabian horse.

Thoroughbred.

The name "Thoroughbred" is applied properly only to the breed of running race horses produced originally in England. Three Arabian stallions are credited with having laid the foundation for this breed, their names being Byerly Turk, The Darley Arabian, and Godolphin Arabian, and they produced the three famous racing families, Herod, Eclipse, and Matchem, respectively. The Thoroughbred has many features of the

Arabian, most notable of which is the general refinement or "breediness" of appearance. The cross on English mares, however, and the selection for running speed has resulted in the Thoroughbred being faster at the run, larger, and commonly more angular and upstanding than the Arabian. As a running race horse the Thoroughbred is without a peer. The canter is his best utility gait. Many specimens have a splendid walk, and the trot, while not showing extreme speed or knee action, is nevertheless often desirable for saddle use. Thoroughbreds are bay, brown, chestnut, black, or less frequently, gray in color. Irregular and conspicuous marks are not uncommon.

Thoroughbreds are bred pure almost entirely for racing purposes, a certificate of registration with The Jockey Club being required for horses entered in races on the larger tracks. To instill quality and a more active temperament, animals of this breed are sometimes used to cross into other breeds. The use of Thoroughbred sires on mares of other than pure Thoroughbred blood is quite popular in certain sections, the resultant animals being commonly termed halfbreds. Such horses find ready sale as hunters, saddle horses, and polo ponies. Many excellent officers' horses and cavalry horses are produced in this way. When of proper temperament and of sufficient size they have also been very satisfactory for general farm work on rolling land, gaining for themselves a reputation for stamina and endurance.

The Jockey Club, of which Andrew Herkert, 18 East Forty-first street, New York, N. Y., is registrar, registers Thoroughbreds in this country. To December 31, 1920, 40,121 stallions and 42,759 mares had been recorded. Most of our imported Thoroughbreds come from France and England, but horses of this breed are bred in several other European countries as well, showing that the breed enjoys a wide distribution.

Standardbred.

The Standardbred is an American breed developed primarily for extreme speed at the trot and pace. The term "American Trotting Horse" is also applied to this breed. Messenger, an imported Thoroughbred stallion, and imported Bellfounder, registered in the English Hackney Stud Book, were largely responsible for the foundation of this breed, as Rysdyk's Hambletonian, a stallion to which a vast majority of the horses of this breed trace, carried the blood of both. The ancestry of the pacer is not different from that of the trotter, but today some families produce a much larger proportion of pacers than the others, while many individuals show speed at both gaits. Both trotters and pacers are registered in the same studbook.

Horses of this breed do not show so much quality as the Thoroughbred, but usually have more substance, being heavier in proportion to their height. The ears, head, and bone particularly are coarser, and the hind legs are not quite so straight as in the Thoroughbred. In weight, the Standardbred ranges from 900 to 1300 pounds, and in height from 15 to 16 hands, but the best specimens are often around 15.2 and weigh about 1100 pounds in good driving condition.

These horses are bred pure largely with the intention of producing extreme trotting or pacing speed for racing purposes. Individuals not inheriting speed have frequently been able to fill utility places on account

of their size, wearing qualities, and good dispositions. This is equally true of those carrying half or more Standardbred blood, as they have been used in large numbers as general-purpose farm horses; they predominate as roadsters or driving horses and as light delivery-wagon horses. Occasionally excellent heavy-harness horses have been trotting bred; durable cavalry horses frequently carry this blood, and when of sufficient size this blood produces the best light-artillery horses to be found in this country in any considerable number and coming from a known source. On account of their versatility horses of trotting-bred ancestry have been very popular here, and foreign countries have paid some very attractive prices for Standardbred breeding stock, especially stallions.

The American Trotting Register Association, of which Frank E. Best, 137 South Ashland avenue, Chicago, Ill., is secretary, promotes the interests of the Standardbred and records purebred animals. To date, 21 volumes of the studbook of this association have been issued, and more than 65,000 stallions and 200,000 mares have been recorded.

American Saddle.

The early residents of Kentucky, Tennessee, Virginia and West Virginia found horses with easy gaits to be the most desirable to ride over plantations, semimountainous grazing farms, and on long journeys. In the preference for such gaits they laid the foundation for and promoted the pioneer development of the American saddle horse. Sections of Missouri also took up the breeding of easy-gaited saddle horses, and today this state ranks next to the mother state (Kentucky) in the production of high-class individuals.

Thoroughbred, Morgan, and Canadian blood form the basis for this breed. The American Saddle Horse Breeders' Association recognized the following horses as foundation stock of the breed previous to April 10, 1908: Denmark, by Imported Hedgeford; John Dillard; Brinker's Drennon; Sam Booker; Tom Hal; Coleman's Eureka; Van Meter's Waxy; Cabell's Lexington; Copperbottom; Stump-the-Dealer; Texas; Prince Albert; Peter's Halcorn; Varnon's Roebuck; and Davy Crockett. At present Denmark alone is recognized as foundation stock.

The chief distinguishing characteristics of the American Saddle Horse are the easy gaits which are known as the rack or singlefoot (a rather fast, cultivated gait intermediate in movement between the trot and the pace), the fox trot, the running walk, and the slow pace, the last three being commonly referred to as the slow gaits, any one of them being accepted as the slow gait of a five-gaited horse. The other gaits demanded in a horse of this type are the canter, the trot, and the walk. The demand for harness, combination, and walk-trot-canter saddle horses has caused many dealers and breeders to pay particular attention to the development of a balanced, fairly high and swift trot.

Members of this breed are usually bay, brown, chestnut, or black, and most of them stand from 15 to 16 hands high and weigh 1000 to 1200 pounds.

A great deal of interest has always been manifested by the breeders of Kentucky and Missouri in showing their horses and colts at county and state fairs, and this is undoubtedly responsible in a large measure for the constant selection in this breed for animals with a great deal of

quality, unusual style (produced by a long, clean crested, highly carried neck and "waterspout" tail), and fine disposition. Fine harness show horses frequently possess saddle blood. Those without the easy gaits, but with quality and desirable saddle conformation are sold with short tails as three-gaited saddle horses for park and show purposes. Heavy-harness horses have occasionally come from this breed, while five-gaited saddle horses seldom come from any other blood. At the present time American saddle horses are being bred pure in practically every state in the Union, and many are sold to Cuba, as well as to other countries.

The American Saddle Horse Breeders' Association, the organization recording purebred animals of this breed, reports 8782 stallions and 14,826 mares registered to January 1, 1921. Seven volumes of the stud-book have been issued, and volume 8 is on the press. Roger H. Lillard, Louisville, Ky., is secretary of the association.

Morgans.

The Morgans have sometimes been considered a family of the Standard-bred, but as these horses have been bred more for their utility qualities than for speed, and as their characteristics are well established and perpetuated with marked regularity, it is proper to consider them as a distinct breed. The early development of the Morgans took place in the New England States, thus giving this country the credit of founding three light breeds. The foundation of the Morgan breed is attributed to a single stallion named Justin Morgan, a horse of remarkable prepotency. Little is definitely known concerning Justin Morgan's ancestry, but the late Joseph Battell's researches into his ancestry indicate that Justin Morgan carried considerable Thoroughbred blood.

Morgans are generally chestnut, brown, bay or black in color, white marks not being common. Fifteen hands might be given as the average height, with the average weight around 1000 pounds, but, as in all breeds, considerable variation may be found, 16 hands in height, with 1200 pounds in weight, occasionally being obtained. This breed has always been noted for smooth lines, good style, easy keeping qualities, endurance, and docility, the latter not, however, being obtained at a sacrifice of ambition and courage. Small ears, good eyes, with great width between them, crested necks, well-sprung ribs, with the last one close to the point of the hip, deep barrels, fairly level croups, full quarters, and enduring legs and feet are the qualities that have made Morgan horses popular for nearly a century. They have good natural knee action, with considerable speed at the trot, some families having contributed materially to the upbuilding of the Standardbred. Others showing more saddle characteristics have exerted a marked influence on the American saddle horse. The demand for saddle horses continues to be normal, and Morgan breeders should keep this market in mind.

These horses were used almost exclusively as general-purpose farm horses in the New England States in the early days, as well as in other sections. Today Morgans are distributed over the important farming sections of this country, and they have succeeded in making for themselves a reputation for hardiness, soundness and usefulness.

Though the craze for trotting speed and the subsequent lack of demand for driving horses nearly resulted in the Morgan being temporarily for-

gotten, his friends have never lost faith in him and have never evaded an opportunity to exploit his good qualities. Recently Morgan breeding has become quite popular in some sections, the Morgan Horse Club being an outcome of this movement. This club is endeavoring to preserve the good qualities of the Morgan through united effort of its members, and its object is analogous to that of the Department of Agriculture in its work in the regeneration of the Morgan horse.

C. C. Stillman, 3 East Forty-fourth st., New York City, N. Y., is secretary of the American Morgan Register Association. To January 1, 1921, there had been recorded 7142 stallions and 3960 mares and geldings (about 50 of the latter). Three volumes of this book have been published.

Hackney.

The first driving horses used in England of which much is known were the Norfolk trotters, they being the result largely of breeding Norfolk mares to Thoroughbred stallions, thus giving the foundation for the Hackney breed.

The breed, judging from its best individuals, presents a striking illustration of the high degree to which the horse-breeding art may be carried for many of them are wonderful specimens of horseflesh, combining extremely high all-round trotting action and fair speed with abundant substance and quality. For showing in heavy harness the Hackney is without a close rival, most of the show horses of this class at the present time belonging to this breed. Purebred and grade Hackneys also furnished many of the utility carriage horses when this type was in demand. Crossed with trotting-bred mares, Hackney stallions have sired many high-class carriage horses in this country. Most of the demand at present for heavy-harness horses is for show purposes, and to meet this Hackneys are usually bred pure.

Chestnut and brown are the most common colors found in the Hackney breed, although bays and blacks are seen. Regular white marks are rather common. In the show ring and also for distinctive carriage use, Hackneys are usually docked and have their manes pulled. In size the Hackney varies more than any other light breed. The small Hackney pony, 14.2 hands and under, and the 16-hand Hackney horse are both registered in the same studbook. Hackneys are heavy in proportion to their height when compared with other light breeds, their deep chests, well-sprung ribs, low flanks, and heavy croups and quarters all producing weight. The large Hackney sometimes is lacking in general quality, but this is not true of the best specimens, and certainly would not be a just criticism of those standing around 14.2 to 15 hands.

While, as previously stated, the Hackney possesses desirable heavy-harness action to a greater degree than any other breed, much of this action is developed by skilled training, biting and shoeing.

Seven volumes of the American Hackney Stud Book have been published, recording 2077 stallions and 3469 mares. The Hackney Association in this country is known as the American Hackney Horse Society. Burney C. Gue, 460 Fulton Ave., Hempstead, N. Y., is the secretary.

French Coach.

The term French Coach is used in this country to designate horses produced in France largely by Government aid and with the special object of obtaining animals especially well suited for military purposes. Such horses are not known as French Coach in their native country, but are termed Demi-Sang (half-bred). In this country the term half-bred is applied to horses of half or more Thoroughbred blood, and as the French use the term in a similar sense an idea of the ancestry of this breed is furnished, it being the result largely of crossing Thoroughbred stallions on mares of desirable conformation, their breeding being of minor consideration.

This system of breeding often resulted in an animal of beautiful lines, with size, substance, style and quality. In their selection of breeding stock for producing this class of horses, the French have laid a great deal of emphasis on a strong, enduring trot.

While the French Coach horse is not so large on an average as the German Coach, many of the specimens stand around 15.3 to 16 hands and weigh 1100 to 1300 pounds, but fairly broad variations from these figures are to be noted. In color these horses are generally bay or brown, but chestnuts and blacks are seen. White marks are not common and are rarely extensive.

It is no wonder that these horses appealed to the American importer with the result that the stallions especially were brought to this country in considerable numbers. As a harness horse, which was the field of equine activity assigned to the French Coach when he reached this country, he has been very commendable, and some of his get bred here have been successful in prominent shows. On account of their mixed ancestry, however, French Coach stallions do not always get the kind of colts that would be expected when crossed on our mares, and lately very few stallions of that breed have been imported into the United States, their pure breeding, however, still being carried on here to a limited extent.

The French Coach Horse Society of America keeps records of pure-bred horses of this breed in this country. Two volumes of the French Coach Stud Book have been issued, and 2384 stallions and 840 mares have been recorded. The secretary of the association is Duncan E. Willett, Maple Ave. and Harrison St., Oak Park, Ill.

German Coach.

Germany, with the object of producing a large, strong and active horse that would be especially well adapted to carrying the German soldier and his heavy equipment and to hauling artillery, established the breed of horses known in this country as the German Coach. In Germany there are several distinct breeds of such horses, each of which is registered in a separate studbook.

The German Coach horse is said to have an infusion of Thoroughbred blood, but the present day types do not show much of it. He lacks quality, and is the most phlegmatic of the light breeds, and is also the heaviest, often weighing over 1400 pounds and standing over 16 hands high. But few specimens of this breed show a tendency to trappy action, and practically no attempt has been made to produce a fast trot. In

color this breed is all that could be desired, most of the specimens being beautiful rich bays and browns, with some blacks. White marks are seldom conspicuous and often are absent altogether. As a general purpose farm horse and as a heavy-harness horse, the German Coach at one time gained considerable popularity in this country, but in general the stallions do not "nick" well with our mares.

The German, Hanoverian, and Oldenburg Coach Horse Association of America promotes the interests of this breed in this country and issues registration papers for German Coach horses of approved breeding. There have been recorded by the association 2955 stallions and 588 mares, and two volumes of the studbook have been issued, J. Crouch, Lafayette, Ind., is secretary of the association.

Cleveland Bay.

Although little is definitely known concerning the foundation of the Cleveland Bay breed, it is generally conceded that Thoroughbred blood played an important part in giving Cleveland Bay many of its desirable characteristics. The early development of horses of this type, which were selected for bay color with practically no white, took place largely on the pastured Cleveland hills of Yorkshire County, England, the color sought and the locality being responsible for the breed name. In England, the Yorkshire Coach is considered a separate breed from the Cleveland Bay, but in this country they are registered in the same stud book.

Members of this breed are always bay in color. A small star and a few white hairs on the heels are permitted, but more conspicuous white marks are considered objectionable. The mane, tail and legs are black. This is probably the tallest of the coach breeds, some specimens standing 16.3 hands high. The tendency to be upstanding or leggy is apparent, and a lack of quality has been a common criticism. The Cleveland Bay has a powerful trotting stride, with fair road speed.

Horses of this breed were formerly seen in some of our larger shows, but probably, partly at least, on account of a lack here of favorable conditions for such a type they have not gained in popularity and are now seldom shown. In sections where hunters are raised, mares of this breed may be found desirable to breed to medium-sized Thoroughbred stallions, as they have in England.

The Cleveland Bay Society of America records and issues certificates of pure breeding for this breed. There have been recorded by this society 1271 stallions and 544 mares up to March 17, 1921. R. P. Stericker, 845 Sheridan Road, Chicago, Ill., is secretary.

DRAFT HORSES.

Belgian.

The Belgian draft horse, as the name indicates, originated and has been developed in Belgium, and is the only breed of horses which is bred to any extent in that country.

Importations of these horses into the United States occurred more or less frequently during the last half of the nineteenth century, but it has been only within the past ten years that they have been imported in any large numbers. The early trade was principally a stallion trade, but during the past five years quite a large number of mares have been imported.

The Belgian divides honors with the Shire as being the heaviest of any of our breeds. Mature stallions in fair condition, weighing a ton or more, are comparatively common. In height mature stallions will probably average slightly over $16\frac{1}{4}$ hands, and mature mares about 16 hands. In general conformation they are the most compact of any breed, the bodies being short, wide and deep. The head is of medium size, the neck is short and heavily crested or arched, the chest is broad and deep, the back is short and well muscled over the loin, the croup is somewhat drooping or steep, and the quarters are full and heavily muscled. The legs are short and free from the long hair or feather characteristic of the Clydesdale and Shire. In action the Belgian is good, but is less active than the Clydesdale or Percheron. In temperament he is docile and easily handled. He is a good feeder, is rated as an easy keeper, and stands shipment well. The colors common to the Belgian are bay, chestnut and roan, but browns, grays and blacks are occasionally seen.

In this country the Belgian sire has been valuable in improving the draft conformation of our horse stock, particularly when mated with many of our range, loosely coupled mares. The breed has made wonderful progress in this country, considering that it has attracted much attention only during the past ten or fifteen years. In fact, probably no breed has shown a greater increase in popularity and a greater improvement during the past decade.

The distribution of the Belgian draft horse in the United States is widespread, but it is found in the greatest numbers in those sections where the heaviest type of draft horse is most prevalent, such as the Central West, particularly in Indiana, Iowa, Illinois, Ohio and Nebraska.

The American Association of Importers and Breeders of Belgian Draft Horses was organized in 1887, but the first volume of that association's studbook was not published until 1905. To date, however, five volumes have been issued, the fifth having been issued in 1913. Up to January 1, 1914, more than 8000 stallions and nearly 4000 mares had been recorded. The secretary of the association is J. D. Conner, Jr., Wabash, Ind.

Percheron.

The Percheron originated in France and has been developed in a small district in the northwestern part of that country known as Perche. This district is about one-fifteenth the size of the state of Iowa, and only Percherons born within its boundaries are eligible to registry in the Percheron Studbook of France.

The introduction of Percheron horses into the United States dates back many years. One of the early stallions brought to this country which exerted considerable influence on our draft stock was Louis Napoleon, imported in 1851, by an Ohio firm. Other Percherons were imported about this time and during succeeding years. During the early seventies they were imported in quite large numbers, and these importations have continued to date.

The head of the Percheron is clean-cut, of medium size, and more refinement is noticed about the head and neck of the Percheron than of any other draft breed. The neck is rather short and well crested. The chest is deep and broad, the back is short, the loins smooth and well muscled. The croup is wide, and on the average is somewhat more sloping than is considered desirable, but great improvement in this respect has been made in recent years. The legs, feet and bone are on the average good. The legs are free from the long hair or feather characteristic of the Clydesdale and Shire. In action the Percheron is good at both the trot and the walk, and the trot is characterized by a snap and boldness not ordinarily displayed by the other draft breeds. This breed may be regarded as one of the best movers and is surpassed in style only by the Clydesdale.

The Percheron is not so large as either the Belgian or the Shire, but as a class will probably outweigh the Clydesdale slightly. Good, mature stallions in fair condition will usually weigh from 1800 to 2000 pounds, and there are many which weigh considerably over 2000 pounds. In height good, mature stallions will measure 16 to 17 hands, but of course there are some under and a few over these heights, although the rangy, tall Percheron is not in demand in this country. The popular percheron is rather short-legged, compact and blocky in form. The common colors for the Percherons are black and gray, although bays, brown, chestnuts and roans are occasionally seen.

The distribution of the Percheron horse in this country is widespread, and for years he has been the favorite drafter of the American people. In the United States the Percherons outnumber all other draft breeds combined, and there does not appear to be any diminution in their popularity. For crossing on ordinary mares the Percheron stallion has been very popular, so that grade Percherons are very common, and are great favorites in our horse markets. The secretary of the Percheron Society of America is Wayne Dinsmore, Union Stock Yards, Chicago, Ill.

Clydesdale.

The Clydesdale originated and has been developed in Scotland, and is practically the only draft horse found in that country. The breed is of mixed origin and the early history is more or less obscure. It is probable that the blood of both Flemish and English horses entered quite largely into the breed during its early history. For a number of years, however, the Clydesdale has been bred pure.

The first Clydesdales brought to North America were probably imported into Canada by the Scotch who had settled there. In the early seventies Clydesdales were imported into this country both through Canada and by direct importation. By 1880 they were being imported in large numbers, and these importations continued for several years. During the past ten years the number of Clydesdales imported has averaged less than 100 per annum.

The Clydesdale is not as heavy as either the Belgian or the Shire, and probably, as a class, will not weigh quite as much as the Percheron. The Clydesdale is more rangy and lacks the width and compactness of the breeds mentioned. Average mature Clydesdale stallions will probably weigh 1700 to 1900 pounds when in fair condition, with an average height of nearly $16\frac{3}{4}$ hands. Mature mares will probably weigh 1600 to 1800 pounds and average about 16 hands.

No other draft breed equals the Clydesdale in style and action. The prompt walk with a good, snappy stride, and a sharp trot with hocks well flexed and carried close together are characteristic of this breed. Good clean, flat bone; well-set, fairly long and sloping pasterns; and a moderate amount of fine feather or long hair at the rear of the legs below the knees and hocks are important and characteristic features. The colors most common are bay and brown with white markings, but blacks, grays, chestnuts and roans are occasionally seen. The white markings are characteristic, and it is the exception to see a bay or brown Clydesdale without a white face and considerable white on the feet and legs.

In this country Clydesdale geldings have been quite popular in the cities for use by those who want draft horses with good, long, snappy stride and at the same time possessing style and action. Our native mares of draft character bred to Clydesdale stallions have produced many excellent animals. They often lack the weight necessary for the heaviest work, but are horses of medium draft weight and are active at both the walk and the trot.

The distribution of the Clydesdale in this country is quite widespread throughout the northern half; the breed is seldom found, however, in the South. It has found the most favor in such states as Iowa, Illinois, Wisconsin, Minnesota and the Dakotas.

The American Clydesdale Association was organized in 1879, and has issued 16 volumes of the American Clydesdale Studbook, containing the registrations of 16,000 animals. The secretary is R. B. Ogilvie, Union Stock Yards, Chicago, Ill.

Shire.

The Shire originated and was developed in England, and today is bred in all sections of the country. The real origin of this breed is more or less speculative. It is known that this type of draft horse existed in England in early times. It is probable that the early Shire was of very mixed breeding, but at the present time the Shire is bred very pure.

Shires were imported into this country a good many years ago. Mr. Geo. E. Brown, in volume 1 of the American Shire Horse Studbook states that in 1853 a Mr. Strickland imported a stallion direct from England to Aurora, Ill., where the horse was known as John Bull. Volume 1 of the studbook shows the registration of a small number of stallions imported in 1880, and these importations increased until in 1887 more than 400 Shires were imported.

The Shire is a massive horse with a wide, deep and long body, and is equalled in weight only by the Belgian. Shire stallions in fair condition weighing 2000 pounds or more are comparatively common. They are less compact or more rangy, than the Belgian, and in height will average taller than any other draft breed. Stallions standing 17 hands or more in height are quite common; in fact, probably the average height of mature Shire stallions in this country is close to 17 hands. Mature Shire mares will average about $16\frac{1}{4}$ hands in height and will, in fair condition, average about 1800 pounds in weight. Heavy bone and feather are characteristic of this breed. In temperament the Shire is probably more lymphatic than any of our other breeds, and therefore less active than is desired by many. The common colors are bay and brown with white markings, although blacks, grays, chestnuts and roans are occasionally seen.

The distribution of the Shire throughout the northern half of this country is quite widespread, but, like the Clydesdale, it is seldom found in our southern states. This breed has met with the most favor in the Central West, particularly in Illinois, Iowa, Indiana and Nebraska; it is also popular on the Pacific Coast in the states of Washington, Oregon and California. A great many of our best market geldings possess some Shire blood; and where height as well as bone and substance is desired, it can be derived from Shire blood with greater certainty than from other breeds.

The American Shire Horse Association was organized in 1885, and has issued 8 volumes of its studbook and recorded over 14,000 animals. The secretary is Chas. Burgess, Wenona, Ill.

Recognized Foreign Breeds.

The following breeds of horses have been certified to the Secretary of the Treasury as recognized breeds and books of records across seas:

Name of breed	Book of record	By whom published
Belgian draft.....	Studbook des Chevaux de Trait Belges.	Societe le Cheval de Trait Belge, Chevalier G. Hyn-derick, secretary, 20 Rue Royale, Brussels, Belgium.
Clydesdale.....	Clydesdale Studbook.....	Clydesdale Horse Society of the United Kingdom of Great Britain and Ireland, Archibald McNeilage, secretary, 93 Hope Street, Glasgow, Scotland.
French draft.....	Studbook des Chevaux de Trait Francais	Societe des Agriculteurs de France, J. C. Villevas, secretary, 8 Rue d'Athenes, Paris, France.
Hackney.....	Hackney Studbook.....	Hackney Horse Society, Frank F. Euren, secretary, 12 Hanover Square, London, W., England.
Percheron.....	Studbook Percheron de France.....	La Societe Hippique Percheronne de France, E. Lemarle, secretary, Nogent-le-Rotrou, France.
Shetland Pony.....	Shetland Pony Studbook.....	Shetland Pony Studbook Society, R. W. Walker, secretary, 3 Golden Square, Aberdeen, Scotland.
Shire.....	Shire Horse Society Studbook.....	Shire Horse Society, J. Sloughgrove, secretary, 12 Hanover Square, London, W., England.
Suffolk.....	Suffolk Studbook.....	Suffolk Horse Society, Fred Smith, secretary, Rendlesham, Woodbridge, Suffolk, England.
Thoroughbred.....	*Australian Studbook..... Provided that no animal or animals registered in the Australian Studbook shall be certified as purebred unless such animal or animals trace, in all crosses, to animals registered in the General Studbook of England.	Australian Jockey Club and Victoria Racing Club, A. P. Wilson, keeper, 6 Bligh street, Sidney, New South Wales.
Welsh Pony and Cob...	Welsh Pony and Cob Studbook.....	Weatherby and Sons, 6 Old Burlington street, London, W., England. The Welsh Pony and Cob Society, John R. Bache, secretary, Knighton, Radnorshire, Wales.

*Provided that no animal or animals registered in the Australian or in the French thoroughbred studbooks shall be certified as pure bred unless such animal or animals trace in all crosses to animals which are proved to the satisfaction of the department to be of the thoroughbred breed.

Recognized Breeds and Books of Record in Canada.

The Canadian National Records are recognized for the following breeds, provided that no animal or animals registered in the Canadian National Records shall be certified by the Secretary of Agriculture as pure bred unless such animal or animals trace, in all crosses, to animals which are proved to the satisfaction of the department to be of the same breed and to have been imported from the country in which the breed originated:

Belgian Draft.
Clydesdale.
Hackney.
Shire.

Standardbred.
Suffolk.
Thoroughbred.
Welsh Pony and Cob.

MULES.

In mules, the same thing is true as in horse raising—the best pays best. While, of course, the best mules, the prize winners and best sellers, are bred from big draft mares, it is also true that a common 1000-1300-pound mare, bred to a big jack, will produce an excellent mule.

Sugar Mule.

The sugar mule should be about 16 hands high and weigh from 1000 to 1300 pounds, and always a mare mule. It must have substance, but not too rugged or drafty, good length of neck, but not too breedy; must be active and show extreme quality. This type sells highest, and is much sought after.

Draft Mule.

The draft mule is the heavy-boned, rugged, weighty kind, used for heavy hauling, logging, railroad, levee, and nearly all contract work. This type finds a ready outlet at very satisfactory prices during the fall and spring months.

Cotton Mule.

The cotton mule is the smaller type sugar mule. These are used in the south for farming. The ideal cotton mule should stand from 14.2 to 15.2 hands, have some weight and substance, and mares are much preferred. To bring the best price, they should be well broken and in good flesh and hair. This is a very staple mule on the market, the greatest demand being in the fall.

Mine Mule.

The mine mule is any size mule of the draft type. A very desirable size is from 14 to 15 hands in height, with plenty of weight and extreme bone, and rugged in every particular. As these mules are used for underground work in mines, they should be broken and gentle.

Mules have the distinct advantage of being salable as weanlings to the mule assemblers, or at practically any age or time thereafter. It is this perpetual marketability and the hardiness of the animal itself which makes mule raising a sure investment with quick returns.

Stallion Registration in California.

While the number of registered stallions and jacks in California has greatly decreased in the past few years, it is not to be looked upon as an unfavorable condition, due to the fact that the horse and mule market has been unsettled over the entire country. The use of farm automobiles, tractors and trucks has had considerable effect on the decreasing demand for farm stock. However, there seems to be a new demand for the return of the farm horse. The tractor has not proved itself entirely superior to the horse under all conditions, and in some cases results show the horse to be the cheaper source of motive power, especially on small ranches. By comparing the registration of previous years it is found that the mongrel and grades have greatly decreased, indicating that the stock raiser is beginning to realize that the better grade of horse brings the best price in the market.

Horses and Mules: Number and Value on Farms, December 31, 1920, and 1921, by States.

State	Horses						Mules					
	Number (thousands) December 31		Average price per head December 31		Farm value (thousands of dollars) December 31		Number (thousands) December 31		Average price per head December 31		Farm value (thousands of dollars) December 31	
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
Maine	93	92	\$147.00	\$125.00	\$13,671	\$11,500						
New Hampshire	37	36	132.00	111.00	4,834	4,104						
Vermont	77	77	124.00	110.00	9,548	8,470						
Massachusetts	49	48	151.00	135.00	7,399	6,480						
Rhode Island	6	6	148.00	138.00	888	828						
Connecticut	37	37	148.00	135.00	5,476	4,995						
New York	525	520	129.00	117.00	67,725	60,840	7	7	\$137.00	\$133.00	\$959	\$931
New Jersey	72	72	144.00	133.00	10,367	9,576	6	6	161.00	151.00	966	906
Pennsylvania	496	496	121.00	112.00	60,016	55,552	54	53	141.00	124.00	7,614	6,572
Delaware	27	26	81.00	66.00	2,187	1,710	9	9	112.00	88.00	1,008	792
Maryland	138	137	98.00	87.00	13,524	11,919	33	33	125.00	115.00	4,125	3,795
Virginia	306	300	101.00	84.00	30,900	25,200	97	90	129.00	105.00	12,517	10,080
West Virginia	164	161	103.00	89.00	16,892	14,321	15	15	116.00	97.00	1,740	1,455
North Carolina	166	161	125.00	108.00	20,750	17,928	260	257	156.00	129.00	40,560	33,153
South Carolina	77	76	134.00	88.00	10,318	6,688	220	218	188.00	129.00	41,360	28,122
Georgia	101	101	112.00	76.00	11,312	7,676	400	391	153.00	99.00	62,118	39,006
Florida	38	38	123.00	115.00	4,674	4,370	42	42	167.00	148.00	7,014	6,216
Ohio	795	787	108.00	99.00	85,866	77,913	32	31	112.00	100.00	3,584	3,100
Indiana	703	703	95.00	81.00	66,785	56,943	101	101	109.00	84.00	11,009	8,484
Illinois	1,232	1,207	85.00	69.00	104,720	83,282	166	167	97.00	75.00	16,102	12,075
Michigan	600	594	97.00	94.00	58,200	55,830	1	1	101.00	98.00	606	588
Wisconsin	663	656	108.00	93.00	71,604	61,008	4	4	103.00	98.00	412	392
Minnesota	914	905	86.00	76.00	78,604	68,780	10	10	93.00	79.00	930	790
Iowa	1,318	1,278	85.00	73.00	112,030	93,294	81	79	101.00	78.00	8,181	6,162
Missouri	897	879	73.00	52.00	65,481	45,708	377	377	94.00	65.00	35,438	21,505
North Dakota	830	813	63.00	55.00	52,290	44,715	8	8	82.00	72.00	656	576
South Dakota	784	784	62.00	49.00	48,608	38,416	14	14	81.00	70.00	1,134	980
Nebraska	923	932	71.00	56.00	65,532	52,192	106	106	89.00	70.00	9,434	7,420
Kansas	1,040	1,040	66.00	48.00	68,640	49,920	279	282	88.00	59.00	24,552	16,638
Kentucky	374	374	87.00	68.00	32,538	25,432	293	293	111.00	82.00	32,527	24,026
Tennessee	312	315	93.00	75.00	29,016	23,625	349	346	110.00	86.00	38,390	29,756
Alabama	130	130	90.00	76.00	11,700	9,880	302	295	113.00	94.00	34,126	28,106
Mississippi	211	211	88.00	70.00	18,568	14,770	296	296	121.00	92.00	36,179	27,232
Louisiana	175	173	85.00	77.00	14,875	13,321	180	178	143.00	118.00	25,740	21,004
Texas	981	991	77.00	58.00	75,537	57,478	854	862	110.00	85.00	93,940	73,355
Oklahoma	694	708	63.00	45.00	43,722	31,860	334	337	89.00	65.00	29,721	21,905
Arkansas	245	247	76.00	57.00	18,620	14,079	325	328	107.00	79.00	34,775	25,912
Montana	669	682	50.00	41.00	33,456	27,962	9	9	87.00	69.00	783	621
Wyoming	182	191	46.00	39.00	8,372	7,449	3	3	77.00	61.00	231	183
Colorado	417	421	62.00	54.00	25,854	22,734	32	32	90.00	69.00	2,880	2,208
New Mexico	177	177	59.00	50.00	10,443	8,850	21	21	88.00	72.00	1,848	1,512
Arizona	136	135	85.00	68.00	11,968	9,180	12	12	131.00	89.00	1,572	1,068
Utah	127	128	78.00	70.00	9,906	8,960	3	3	72.00	66.00	216	198
Nevada	48	48	58.00	47.00	2,784	2,256	2	2	66.00	53.00	132	106
Idaho	284	281	70.00	63.00	19,880	17,703	8	8	81.00	73.00	648	584
Washington	287	281	82.00	70.00	23,534	19,670	22	22	97.00	83.00	2,134	1,936
Oregon	260	272	83.00	76.00	22,327	20,672	14	14	95.00	81.00	1,330	1,134
California	382	367	98.00	82.00	37,436	30,094	60	61	123.00	102.00	7,380	6,222
United States	19,208	19,090	84.31	70.48	1,619,423	1,346,154	5,455	5,436	116.60	88.26	636,568	479,806

Horses and Mules, California.

Totals of both horses and mules for the state are higher than those returned by the assessors due largely to the fact that colts under one year are not assessable. The ratio, however, between the enumeration and the number assessed is fairly constant from year to year.

The number of horses on December 31, 1921, shows a 4 per cent decrease when compared with the preceding year, while mules for the same period show a 2 per cent increase. The decline in value per head the past year is quite pronounced, amounting to 16.3 per cent for horses and 17.1 per cent for mules.

Values per head for the different ages and total values for the past three years are shown in the following tables:

	1921	1920	1919
Horses (dollars per head) —			
Under 1 year.....	31	38	39
1 to 2 years.....	51	62	62
2 years and over.....	87	103	103
All ages.....	82	98	98
Total value.....	\$30,094,000	\$37,436,000	\$39,396,000
Mules (dollars per head) —			
Under 1 year.....	43	49	48
1 to 2 years.....	70	81	76
2 years and over.....	111	135	132
All ages.....	102	123	120
Total value.....	\$6,222,000	\$7,380,000	\$7,560,000

CATTLE.

Development of Cattle Breeds.

From early times cattle have contributed meat to the food supply of man. It was not until the latter part of the eighteenth century, however, that systematic efforts were made to develop and maintain breeds of cattle especially suited for the production of beef of a better quality. Careful selection and breeding, begun in England and Scotland by Robert Bakewell, Colling Brothers, Amos Cruickshank, Richard Tompkins, and Hugh Watson, and carried on later by breeders in this country, resulted in establishing breeds now kept primarily for the production of beef.

Cattle formerly used for beef were deficient in flesh on parts of the carcass where meat of the highest quality is found. Skilful breeding combined with careful selection and feeding has brought about changes and development in the form of some breeds, so that greater quantities of meat are found in the portions of the body (the loin, ribs, hind quarters) from which the highest priced cuts are obtained. These cattle belong to what are now known as beef breeds to distinguish them from breeds which have been developed mainly for milk and butter fat.

In the process of developing strictly beef breeds on the one hand and dairy breeds on the other, there have been evolved families and in some cases "breeds" of cattle which would be classed as neither strictly beef nor dairy breeds. The cows produce a moderate quantity of milk and their calves develop into fairly good beef animals. These are known as dual-purpose breeds.

The Beef Breeds.

The breeds of beef cattle in the United States are the Shorthorn (both horned and polled), Hereford (both horned and polled), Aberdeen Angus, and Galloway. Each of these breeds has been carefully selected and bred for a long period of years, with the result that individuals transmit their breed characters very readily; hence their value and importance for use in improving or grading up native or scrub cattle.

With frequent exceptions, especially the Shorthorn, the cows of the beef breeds are not heavy milkers, and in this point lies their success as desirable and economical producers of beef. The heavy milking tendency, as with the dairy breeds, is associated with a conformation of body which prevents the animal from yielding the greatest quantity and the best quality of beef. The beef breeds have been bred for the maximum production of beef, and in most instances only enough milk is desired to nourish and produce a good, thrifty calf. They are most popular with farmers or ranchers who raise a considerable number of cattle. Beef cows of the heavier milking families are also popular for farmers who desire to raise beef calves and at the same time have milk enough in addition to supply the family needs for milk and butter, or have a surplus to market.

Shorthorn.

Of the breeds of beef cattle in the United States, the Shorthorn is the most extensively grown. The first importations were made in 1783 by Miller and Gough, of Virginia and Maryland, respectively. These cattle were brought from the Tees River Valley, in northeastern England, where they were sometimes spoken of as Teeswater, or Durham, cattle.

The Shorthorn is the largest of the beef breeds. As a rule, when raised under favorable conditions the mature bulls weigh between 1800 and 2400 pounds, and the cows usually weigh between 1300 and 1600 pounds. These cattle have great adaptability and do well almost everywhere. They may vary in color from all red or all white to any combination of red and white, and a blending of the red and white hairs (roan) is a popular color. The Shorthorn crosses well with scrub and grade cows, the calves of such matings developing into desirable beef cattle. The bulls are very prepotent and have been used freely in grading up the scrub cattle of the plains, in both this country and South America.

Some of the other breeds excel the shorthorn in grazing ability where feed and pasture conditions are not favorable. The Shorthorn thrives best where grasses are abundant and feed plentiful. Under these conditions it is not equaled by any other breed. The Shorthorn is early maturing, "growthy," and fattens readily.

Of all the beef breeds the Shorthorn excels in milk production, the large milk flow insuring a good calf. For this reason the Shorthorn cow is favored on many small farms to supply milk for the family in addition to raising a calf for beef. The steers sell readily as feeders and produce a very high-class beef with a thick loin and full hind quarter which furnish profitable cuts.

In conformation the Shorthorn is wide, deep, lengthy and thickly fleshed—a good beef type. The great width of back and the straight lines of the Shorthorn, together with its depth, give a more rectangular form than that of any of the other breeds, although the wide distribution of the breed has caused a slightly greater difference in this respect to be recognized than in other beef breeds.

In the cow the following points should be noted: The horn is usually small and curved forward, with the tips pointing inward, upward, or sometimes downward, and should be of a waxy, yellowish color. The head should be shapely, with great width between the eyes, short from the eyes to the muzzle, which should be large and flesh-colored, with large, open nostrils. A black muzzle is objectionable to most breeders. The neck should be short and full, blending well into head and shoulder. The shoulders should be smooth and well covered with flesh. The crops should be full, the heart girth large, and the foreflank low. The chest should be wide and deep, with the brisket thick and well to the front. The ribs are usually well sprung and the barrel well developed. In good individuals the back is broad and the loin is wide, deep and thickly fleshed. The hips are wide and should be well covered with flesh; the rump is long, wide and level, carrying an abundance of flesh. The hind quarter is well developed in the Shorthorn, and it is characteristic in that it is almost straight from the root of the tail to the hocks; it is wide and thick, carrying the flesh well down, thus giving a maximum quantity of flesh. The flank is low; the udder is usually well developed, extending

well forward, with prominent milk veins. Tests of medium size are preferred.

The bull should possess the same desirable features as the female, without her feminine qualities. He should show masculinity by developing a heavier horn, a larger and thicker neck, a heavier bone throughout, and greater depth, thickness and scale. His horns are heavier and less curved than the cow's, but they should not show undue coarseness.

The Shorthorn has been criticized in the past and is still criticized, although much less generally, for a lack of fullness or development over the crops, a high foreflank, and a poorly developed heart girth, and for being somewhat "leggy," and having a tendency to patchiness near the root of the tail and "rolls" on the sides. The breeders have made rapid progress in overcoming these faults. The improvement in this respect during the last ten years has been very noticeable, resulting in low-set, thick-fleshed animals, with great smoothness throughout.

For the benefit of persons desiring information as to the principal lines of breeding in this country, the following have been furnished by the American Shorthorn Breeders' Association:

The ten bulls which have probably done most for the improvement of Shorthorn cattle as a breed during recent years are as follows: Whitehall Sultan 163573; Choice Goods 186802; Cumberland's Last 229822; Avondale 245144; March Knight 188105; Villager 295884; Cumberland 118578; Merry Hampton 132572; Lord Banff 150718; and Whitehall Marshall 209776. The most popular families of Shorthorns in this country at the present time are Augusta, Missie, Victoria, Duchess of Gloster and Orange Blossom.

The office of the secretary of the American Shorthorn Breeders' Association is at 13 Dexter Park ave., Chicago, Ill.

Polled Shorthorn.

The Polled-Shorthorn breed was formerly known as Polled Durham. The name was changed in 1919 because not more than 5 per cent of the animals now being recorded in the Polled Shorthorn Record are other than "double standards." The "single standards" were produced by breeding polled cows to Shorthorn bulls, selecting the polled offspring and breeding them to other Shorthorn bulls. This grading up was continued until the polled offspring was brought to the fifth cross, which contained 96 7-8 per cent or more of Shorthorn blood, when they were qualified for entry in the "Polled" record only. The double standards were the polled offspring from parents both of whom were registered in the American Shorthorn Herd Book. Double standards may be recorded in both the Polled Shorthorn Herd Book and the American Shorthorn Herd Book.

The breed is similar to the Shorthorn in every way except that it is hornless. The Polled Shorthorn is a comparatively new breed of cattle and of late years has been increasing very rapidly in popularity, especially since breeding Polled Shorthorns affords an added incentive to constructive breeding. The American Polled Shorthorn Association was organized in 1899 and its rules are such that one parent may be a horned Shorthorn, provided the other is a recorded Polled Shorthorn. There is no limit to the breeder's introducing into his Polled-Shorthorn

herd the blood of any horned animal whose breeding and countour appeal to him, and since some breeders have developed the dual-purpose qualities in the animals, the result is a considerable variation in type.

According to the American Polled Shorthorn-Breeders' Association, the two bulls most prominent in the early formation of the breed were Young Hamilton X 49 S. H. 114169 and Ottawa Duke X 185 S. H. 109292. In late years the Polled Shorthorn breeders, as well as the horned-Shorthorn breeders, have been using the blood of the wonderfully prepotent and noted bull Whitehall Sultan 163573. The breed has been developed largely by the use of Sultan blood, and it may be stated that there is scarcely a prominent herd of Polled Shorthorns but has a bull carrying the blood of that sire.

The introduction of Scotch blood through the cows tracing to Imp. Victoria 51st by Royal Duke of Gloster 29864; Imp. Princess Royal 64th by Scottish Archer 59893; Imp. Lady of the Meadow by Chancellor 68693; Imp. 12th Duchess of Gloster by Champion of England 17526), together with that of the bull Whitehall Sultan, is believed to have wrought the greatest improvement in the breed.

The office of the secretary of the American Polled Shorthorn Breeders' Association is at Greenville, Ohio.

Hereford.

The Hereford ranks next to the Shorthorn in numbers in the United States. The first known importations were made in 1817 by Henry Clay and Lewis Sanders. The early development of the Herefords in America was brought about largely through the efforts of Wm. T. Sotham and T. L. Miller. In 1881 the American Hereford Cattle Breeders' Association was formed by Hereford breeders, among whom were T. F. Sotham, T. L. Miller, W. S. Van Natta, J. M. Studebaker and R. W. Sample. What is now Vol. 1 of the American Hereford Record appeared in 1880 as the American Hereford Herd Book, being published by the Breeders' Livestock Association.

From the first Hereford cattle, because of their "rustling" ability, found favor with the western range men. On scant pastures and on the range where water holes are far apart, the Hereford has shown its merit. Not only do the individuals of this breed thrive under adverse conditions, but they also respond readily to a favorable environment. The bulls are active, vigorous, prepotent and very sure breeders.

The criticism formerly made of the breed because of a light hind quarter can scarcely be considered just today. The animals are somewhat less rangy, more compact and more heavily fleshed than formerly. The tendency to patchiness about the root of the tail and "rolls" on the sides is also a criticism frequently heard. While the Hereford cows have been criticized because of scanty milk flow, there are few if any that do not produce enough to raise a good calf. As a breed they have a better heart girth and seem to withstand adverse conditions better than the Shorthorns. They mature early and fatten readily in the feed lot.

The weight of the Hereford cattle is only slightly less than that of the Shorthorn, but the conformation is such that a Hereford looks smaller than a Shorthorn of equal weight. Mature bulls weigh from 1900 to 2200 pounds, while the cows weigh from 1200 to 1600 pounds. It is not unusual for mature animals of either sex to weigh more.

The Hereford color is distinctive. It may be described as a medium to deep rich red, with white head, breast, belly, crest, switch and legs below the knee and hock. White occurring back of the crops, high on the flanks, or too high on the legs, is objectionable. A pure white face is preferred, although many pure-bred animals show spots about the face and especially some red around the eyes. The hair is usually medium to long, soft and silky, with a curly tendency, but short-haired animals may be found. A characteristic of Hereford color is the dominance of the white face over the color markings of other breeds. Calves sired by a pure-bred Hereford bull, as a rule, show the characteristic white face.

The Hereford possesses a conformation which represents good beef type. The body is low, compact and blocky, with well-sprung ribs, broad loin and wide hips without prominent hip bones. The quarter is more rounded and bulging than that of the Shorthorn, although developed to a lesser degree in this respect than the Aberdeen Angus. The forehead is broad and prominent and the face is short, tapering slightly toward the nose. The muzzle is full, with large, open nostrils. The horns are of medium size, even color, and extend from the head at right angles, level with the crops, curving forward and downward.

The horns of the bull are somewhat coarser, straighter and heavier. The neck is short, thick and blends well with the shoulders. Great width, depth, length of chest and a fullness of the crops give the Herefords the constitution and endurance which breeders have been careful to preserve. The loin is broad and deep and the rump and hind quarters are usually well developed, carrying a large quantity of flesh. This portion of the body has been greatly improved within recent years and the tendency to roughness and patchiness has been reduced until the breed now stands out as one showing extreme beef type, with smoothness of form and much quality. For these reasons, combined with their "rustling" ability, the Hereford has become a popular breed for improving range stock. The results obtained by the use of Hereford bulls, for this purpose, have been very satisfactory to the cattlemen in the West and Southwest.

The marked increase in the number of Hereford breeders in the Northwest would indicate that the breed is well adapted to a very cold climate as well as to that of the south. Neither the heat in the corn belt nor that in the South seems to bother them. They appear to be especially well adapted for use on the larger plantations, where animals are not given extremely good care and where the production of beef alone is desired. Two or three crosses on the native stock of the South produce a good animal that matures early and fattens well. On unimproved plantations or on farms with only fairly good pastures the Hereford gives better results than the Shorthorn. The rapid increase in the popularity of Herefords in this country is shown by the number of registrations and transfers in the last two years as reported by the American Hereford Cattle Breeders' Association.

The association mentions the following as some of the bulls which have been most influential in improving the Hereford breed during recent years: Perfection Fairfax 179767, Beau Donald 58996, Beau Brummel 51817, Bonnie Brae 8th 239653, Perfection 92891, Bonnie Lad 20th 555369, Beau Blanchard 362904, Woodford 500000, Beau Mischief 268371, Repeater 289598, Gay Lad 6th 316936, Cuba's Panama 372431,

Bocaldo 362186, Gay Lad 9th 386873, Gay Lad 16th 412192, Point Comfort 14th 337488.

The office of the secretary of the American Hereford Cattle Breeders' Association is at Eleventh street and Central avenue, Kansas City, Mo.

Polled Hereford.

The Polled Hereford is a new breed which has been developed in America by mating Hereford cattle that are naturally polled. It was established by Warren Gammon in 1901, and has increased in numbers and popularity at a fairly rapid rate in the last few years. Because a large percentage of the calves from horned Hereford cows mated with Polled Hereford bulls are without horns or even scurs, the Polled Hereford breed has developed more rapidly than would have been possible otherwise. The popularity of polled cattle is steadily increasing, especially where farming is done on a comparatively small scale.

The double-standard Polled Herefords are eligible to registry in both the American Hereford Herdbook and the American Polled Hereford Record. They may be distinguished from the Hereford only by the polled characteristics.

The American Polled Hereford Breeders' Association has supplied the following information: The two original bulls which have done most to mold the breed are: Giant (1) 101740 and Variation (14) 152699. Notable present day sires are Echo Grove (297) 306948, Bullion 4th (3062) 428447, Polled Plato (884) 353393, Polled Repeater (10645) 602679, Gemmation 2d (3231) 447151, and many other younger bulls just coming into prominence.

The American Polled Hereford Cattle Breeders' Association was formed in 1907. The office of the secretary is at Des Moines, Iowa.

Aberdeen Angus.

The first known importation of Aberdeen Angus cattle was made by Geo. Grant, of Victoria, Kansas, in 1873. Various other importations were made between the years 1878 and 1883. Although this breed was not introduced until nearly half a century after the first importations of Shorthorns and Herefords, its increase has been very rapid and at the present time herds of Aberdeen Angus cattle are found in nearly every state.

Aberdeen Angus cattle are solid black in color and have no horns. Those characteristics are so strongly developed that a bull, when bred to horned cows of various colors, usually produces calves of which 85 per cent or more are black in color and 90 per cent or more are hornless. A purebred Aberdeen Angus which is red in color or which has white except to a moderate extent on the underline behind the navel is not eligible for registry as a breeding animal. However, the objectionable colors mentioned would not prevent a purebred Aberdeen Angus steer from being registered.

While Aberdeen Angus cattle are good rustlers, they have never been so popular on the ranges of the west as either the Hereford or the Shorthorn. They stand next to the Hereford and above the Shorthorn as grazers on scanty pastures. They are extremely valuable for grading

up native cattle, but have been criticized to a certain extent by range men because they do not get a greater percentage of calves. If all the bulls in a herd were either polled or dehorned there would doubtless be less ground for this claim. The milking qualities of the cows are only fair; they give more milk than the Hereford, but not so much as the Shorthorn. A sufficient quantity of milk is produced to raise a good calf.

Cattle of this breed mature very early and have a tendency to fatten well at any age; hence their popularity for producing baby beef. In general form they are different from the Shorthorn or the Hereford. The body, more cylindrical in shape, is smoother throughout than either of the breeds named. In size they are smaller than either Shorthorn or Hereford. Mature bulls usually weigh from 1800 to 2100 pounds and mature cows from 1200 to 1500 pounds. Angus cattle respond quickly to good treatment, and because of their readiness to fatten, early maturity, exceptional vigor, high quality, general smoothness and uniformity, and the high percentage of valuable meat produced are popular among cattle feeders. They usually dress out a higher percentage of marketable meat than any other breed. Their merit in this connection has been shown repeatedly in the show ring and on the block.

They stand either heat or cold well and are popular in the south as well as in the corn belt. Because of their reputation for finishing smoothly and "killing out" well, the better bred steers are very popular in the corn belt and in neighboring states, where much feeding is done. They are becoming more popular in the south and rank next to the Hereford and above the Shorthorn in their general adaptability to average unimproved Southern conditions. On the ranges in the extreme south, Florida in particular, the Angus has become the favorite breed with a majority of the ranchmen because of its ability to withstand the heat of that section, and because it does especially well under prevailing range conditions.

The head of the Angus shows a sharp, tapered poll, great breadth between the eyes, a prominent forehead, prominent eyes, a nose of medium length, a large mouth and muzzle and large nostrils. The Angus is somewhat more restless or nervous than the Shorthorn or Hereford. The neck is short and full, and the bull has a well developed crest, but the neck does not always blend smoothly with the shoulders, which are sometimes a little prominent. The chest shows great depth, width and length. The body does not show the squareness or blockiness of the Shorthorn and the Hereford, but is noted for its compactness and good covering of flesh. The ribs are curved, long and well sprung, and give a cylindrical form to the body. The loin and rump are well fleshed and deeply covered, but are entirely different in shape from the Shorthorn, as the great width and squareness are absent. The deep covering of flesh on the rump, the smallness of bone, and the deep, rounding, bulging hind quarter give a maximum quantity of meat. The hind quarters of the Shorthorn are broad and straight from the pinbones to the hocks, while the Angus has less breadth and a very rounded, bulging quarter, with a deep twist. The Angus is not so low in the flank as the Shorthorn.

The quality of the animal is unsurpassed, as is shown by the soft, pliable, mellow skin and fine hair. The meat is fine-grained and of the highest quality. The constitution and vigor of this breed, as indicated by the well-developed chest and good heart girth, are worthy of mention.

For grading up native stock and for crossing they hold an enviable record.

We are informed by the American Aberdeen Angus Breeders' Association that some of the bulls which have been most prominent in improving the Aberdeen Angus breed during recent years are Heather Lad of Emerson 2d 19049, Black Monarch of Emerson 30331, Black Woodlawn 42088, Lucy's Prince 46181, Prince Ito 50006, Baden Lad 61883, Blackbird Ito 64116, Star of Denison 82426, Sir Blackbird 98347, Earl Eric of Ballindalloch 100422, and Undulata Blackcap Ito 2d 116275. The leading families in this country at the present time are Blackbird, Trojan Erica, Pride of Aberdeen, Queen Mother and Heather Bloom. The American Aberdeen Angus Breeders' Association was formed in 1883 and published Volume 1 of the Herd Book in 1886. The office of the secretary is at 817 Exchange avenue, Chicago, Ill.

Galloway.

It is not known when Galloway cattle first made their appearance in the United States, but in 1870 they were introduced into Michigan and spread to the central west and later toward the northwest. In the latter sections they have taken their place because of their hardy nature and exceptional "rustling" ability. They do not respond so readily to careful feeding and expert management as the other breeds and therefore have not become popular in the corn belt states.

Although Galloway cattle are naturally polled, occasionally an animal develops scurs. Accordingly, the American Galloway Breeders' Association reserves the right to cancel the entry of any animal which has developed scurs, either before or after being recorded. Solid black is the characteristic Galloway color, with perhaps an occasional brownish tinge to the long wavy hair which is underlaid by a somewhat silky coat of short hair. White markings above the underline or white feet or legs make Galloway cattle ineligible for registry as breeding animals. The bulls of this breed are very prepotent and transmit the black color and polled characteristics readily to their offspring from cows of any color, as high as 90 per cent of the calves from various colored cows being black, and approximately 95 per cent of the offspring from horned cows polled. This breed is slow maturing when compared with the Aberdeen Angus or the Hereford. In size the Galloways are smaller than any of the other beef breeds. Mature bulls usually weigh from 1700 to 1900 pounds, and mature cows from 1000 to 1300 pounds each.

In form the Galloway is low-set and deep, but proportionately longer than the Aberdeen Angus and flatter of rib. The head is somewhat similar to that of the Angus except that the poll is not so sharp. The head is covered with long wavy hair, and the ear is set farther back from the forehead. The body is long and of medium depth. The rump is long and well filled, although the tail head is usually set rather high. The hind quarter is usually good, being full, similar to that of the Angus. The bone is fine, the skin mellow, the hair soft and silky and the grain of the meat fine and of high quality. Little attention has been devoted to the milking qualities of Galloway cows, but they give milk enough to raise a good calf. The milk is regarded as testing high in butterfat and being of good quality. The Galloways have commanded special attention

because of their prepotency as shown by the uniformity of the offspring when the bulls are used for grading up or for crossing.

This breed will probably be most popular in the northwest where climatic conditions are severe and the range grasses are often scant. In that section the bulls are used advantageously for grading up native stock.

Dual-Purpose Breeds.

The principal dual-purpose breeds of cattle in the United States are certain types and families of the Shorthorn together with the Red Polled and Devon. Brahman or Zebu cattle are sometimes included in this class. They are, however, used almost exclusively for the production of beef in certain restricted sections of this country.

The dual-purpose breeds have been bred to produce females which would yield a good quantity of milk and produce offspring which would be desirable for beef. As the type of animal necessary for the production of large yields of milk is entirely different from that of the beef animals, it has been impossible to produce a breed which would combine these functions and be of superior merit for both purposes. The dual-purpose animal, however, may be a desirable milker and at the same time produce calves which make good though not superior beef animals. As there has been a constant tendency for some breeders to incline more to the type of animals producing more milk, while others prefer to develop the beef tendencies, there has been and probably always will be a wide variation in the type of dual-purpose animals. They are not so uniform in conformation as either the strictly beef or dairy breeds. Most breeders prefer to use cows which approach the dairy type more nearly than the beef type and to use a bull of the beef type that had a dam with a good milk record. The offspring of such cattle necessarily can not be of so uniform a type as the breeds which have but one function to perform.

The dual-purpose cattle are popular with the small farmer who keeps but a few cattle and must depend upon them to produce all the milk and butter needed for the family and at the same time raise calves or steers which will sell readily for slaughter purposes. They have not been popular with the ranchman or farmer who raises large numbers of cattle.

Milking Shorthorn.

The Milking Shorthorn leads the dual-purpose breeds in numbers and general popularity, and is most widely distributed. Former development followed the use of the Bates strains and later many crosses containing Scotch blood were produced. In recent years improvement is being brought about by introducing the blood of bulls imported from England where the Shorthorn is popular as a milk breed.

As a breed the milking Shorthorns are the same as the beef-bred Shorthorns being registered in the American Shorthorn Herd Book, except that in conformation they are less thick and blocky than the beef Shorthorns. Although the extreme angularity displayed by the dairy cow is not desired, the development of the milking quality has resulted in a type of Shorthorn which is longer of limb, lighter in the flank, lighter in the hind quarter and larger of barrel than the beef type. The udder extends high up in the rear and well forward, the milk veins are usually prom-

inent and the teats are medium to large and well set. The combination of large roomy udder indicating milk-producing ability, and the broad, straight, level back indicating meat-producing tendencies, has given rise to the term "Doubledeek."

The American Milking Shorthorn Breeders Association reports (January, 1920) the average of 833 annual milk records taken from the Milking Shorthorn Yearbook to be 8324.67 pounds, while the average of 386 annual butterfat records is 336.03 pounds. Since these records were reported as having been made under average farm condition, and by cows of all ages, they may be considered representative of the breed.

Although the Milking Shorthorn bulls more nearly resemble the beef type than do the cows they lack depth of flank and weight in the hind quarter, and are not so heavily fleshed as the strictly beef breeds. The Milking Shorthorn breed has produced some very creditable steers, one of which, "Clear-the way," stood second to the champion Shorthorn steer at the 1917 International Livestock Exposition. Calves from Milking Shorthorn cows by beef bulls usually grow and fatten well and make a good quality of beef.

Ten bulls that have greatly influenced the breed in the last 15 years are: General Clay 255920, Duke Buttercup 160769, Cyrus Clay 247916, Henry Clay 112291, Knight of Glenside 247919, Knight of Glenrose 349055, Alice's Ensign 200075, Duke of Edgewood 316487, Duke of Granville 186290, and Milkman 321801.

In addition to the American Shorthorn Breeders' Association the American Milking Shorthorn Cattle Club and the American Milking Shorthorn Breeders' Association formerly promoted Milking Shorthorn interests. The last two have now been amalgamated into the Milking Shorthorn Society, the office of the secretary being at Independence, Iowa.

Red Polled.

The Red Polled cattle originated in England and were introduced into the United States in 1873, but few importations were made until about 1885. Since that time many have been imported. This is strictly a dual-purpose breed and approaches the ideal of the dual-purpose type. Red Polls are smaller than the strictly beef breeds, and have not so thick a covering of flesh. Mature bulls weigh from 1700 to 2100 pounds or more, and the cows from 1100 to 1350 pounds or more. Occasionally very heavy individuals are found, but they are the exception and not the rule.

The cattle of this breed are fair grazers, ranking with or slightly ahead of the Shorthorns but not equal to the Devon or Hereford. The bulls are very prepotent and give uniformity in offspring when bred to native cows. As with all dual-purpose breeds it has been hard to fix or hold a uniform type, because many breeders incline to beef production while others try to develop the milking qualities to the detriment of the beef form.

The breed has long been celebrated for its early maturity, easy fleshing qualities, and fair to good milk flow. The steers have attracted attention and sold for high prices on English markets for years and have made very creditable showings in this country. They make good daily gains and lay on flesh evenly. They are usually rather "leggy" and lack the

heavy fleshing qualities of the beef breeds. The hind quarters are less well developed with a tendency toward a rather thin thigh and a high flank and twist.

The milking qualities of the breed are fair. Many of the cows average above 5000 pounds of milk a year testing from 3.7 to 4 per cent of fat. The cows flesh up readily when dry.

In conformation these cattle resemble the Devon. The color ranges from light red to dark red but a deep rich red is preferred throughout, although a little white on the udder or underline along the milk veins is permissible and a switch mixed with white is desired. Any additional white markings are counted as disqualifications. The Red Polled Cattle Club of America reserves the right to cancel the registration of an animal which develops scurs after having been admitted to registry, and the progeny of such are likewise debarred from registration. The head is lean, medium in length, with a well-defined poll covered with a tuft of hair of medium length. The neck is longer and thinner than in the beef breeds and does not blend with the shoulders so nicely. The chest is usually well developed and the ribs well sprung, but lack a thick covering of flesh. The barrel is developed to a greater extent than with the beef breeds and the loin and hind quarter are more lightly fleshed. The bone is of medium size, the skin is thin, soft and pliable and the hair is short and fine, showing quality. The udder is well developed in the back, but does not come forward well; it is "chopped off" and the tendency is to develop large teats. The milk veins are prominent and of fair size.

The Red Polls are more nervous than the Shorthorn, but less so than the Aberdeen Angus. They are a comparatively young breed and are as yet not so popular as the older breeds. As dual-purpose cattle they are hard to excel; they are popular in the Mississippi Valley states and have given excellent results for grading up the native cattle in the south, but they have never been used to any extent on the western ranges.

Devon.

The cows are good milkers and the steers are used as work oxen or for beef. Their endurance, intelligence and gameness made them popular as work oxen wherever they were tried, and they have never been excelled in this respect.

Devons are somewhat smaller than the Red Polled, mature bulls weighing from 1500 to 2000 pounds and cows from 1100 to 1400 pounds or more. They are solid red in color, white being permitted only on the udder, or near the scrotum, and on the switch. The shade of red varies but a rich, bright red is preferred. In conformation the Devons incline more to the beef type than do the dual-purpose type. They are close coupled, very compact, smooth and rank high in quality and style. They have small bone which is hard and compact, giving a slender fine leg.

The head is lean, clean-cut of medium length and surmounted by rather long white or waxy horns, which curve upward, forward, outward and backward in the cow and are almost straight in the bull. The horns of the steers are large, long and often widespread, usually being very white or waxy, with dark tips. The neck is medium in length, smooth and blends nicely with the shoulder. The body is compact, fairly well covered

with flesh, has well-sprung, deep ribs and is usually low set. The chest, back, loin and hind quarter are usually well developed, though the flank and twist are somewhat higher than in the beef breeds. The cows are fair to good milkers, giving rich milk and always provide an abundance to produce a good calf.

The Devon makes a slower growth than any of the beef breeds, except the Galloway. Though the steers do not fatten so rapidly as those of the beef breeds, they produce meat fine in texture and of good quality. The fact that they are rather slow maturing and somewhat smaller than the beef breeds probably explains their lack of general popularity. In New England, however, the breed has proved to be profitable, especially on lands where grazing was rather scant or of poor quality. Devon bulls are very prepotent and have been used very satisfactorily in grading up the native range cattle in certain sections in the south, especially in parts of Florida and in southern Mississippi. Steers showing considerable Devon blood have demonstrated their ability to withstand very unfavorable conditions.

Information concerning Devon cattle may be obtained from the secretary, American Devon Cattle Club, 51 Cornhill street, Boston, Mass.

Brahman or "Zebu" Cattle.

Under the names Brahman or Zebu cattle are classed different families of cattle of the species *Bos indicus*. Some families vary so in type, color, size and habitat that they are classified as separate breeds. The most important are the Kirshna Valley and Hissar breeds. These cattle are classed as dual-purpose animals in their native countries, as many of the females give a good quantity of milk. They are used quite generally in India as milk cows and are more satisfactory than any other cattle under the severe conditions of drought, heat, insect enemies, disease, etc. As this breed has been for more than 3000 years in a hot climate, it is suitable only for the extreme southern portions of this country, where it has been developed almost exclusively as a beef breed.

Brahman cattle were first imported in 1853 for use in the range areas in the south and southwest where other cattle did not do well on account of disease and the attack of numerous parasites, such as the tick, screw worm, fly and mosquito. Although they are a different species from our common breeds of cattle, they cross readily with them. The females carry their calves somewhat longer than other cattle, the period of gestation being about 300 days. It was found that offspring from Brahmans crossed with our native cattle were not only somewhat resistant to ticks, but were good rustlers, made a rapid growth and gave a high dressing percentage as well.

In size the bulls range from 1500 to 1800 pounds, and many of them attain a height of 6 feet while the cows usually weigh from 1000 to 1400 pounds. The varied families of these cattle have different colors, although each family has a fixed color. The colors are pure white, creamy white, silvery gray, red and dark brown approaching black; the silvery gray with dark fawn shoulders and neck and the creamy white are the most popular. Many of the animals, however, have brindle stripes on the body.

The distinguishing characteristics of the breed are the large hump on the withers, the large, loose folds of skin forming the dewlap and the navel, the long drooping pendulous ears and the extremely tough hide with scanty hair covering and abundant oil secretion having a peculiar odor. The head is also characteristic of this breed as it is long, with a forehead which recedes from the eyes to the horns, while the horns forming the brow are prominent. The head tapers gradually from the eyes to the nostrils; the horns are dark, short, straight, heavy at the base and point upward and backward. The ears are very long, drooping, thin and oily, frequently almost devoid of hair. The eye is mild and sleepy, but changes quickly in expression when the animal is aroused. The neck is of medium length and has heavy folds of skin forming an overdeveloped dewlap with fullness at the throat. The body is deep but rather narrow; the hips are long, sloping and narrow, and the rump often droops toward the tail. Extreme depth of flesh is quite characteristic of the breed. The legs are long, tapering and show a strong bone free from coarseness. A very heavy sheath is developed and in old bulls often hangs 9 inches or more below the belly.

The hump is large in the males, attaining a height of from 12 to 16 inches, but is not so large in the females. This hump is not made up of reserve fat but is largely muscle. The half-bred males may have a moderately developed hump but the half-bred females have none. The second generation, however, possesses the hump, with other Brahman characteristics. Animals which have as little as one-sixteenth Brahman blood usually show some Brahman characteristics, especially in the shape of the head and the loose folds of skin forming the dewlap and navel.

These cattle stand heat well and have great endurance, moving readily in a fast walk or trot. They make good work steers if handled constantly by one driver. They have a nervous disposition and considerable trouble is encountered when drivers are frequently changed. When raised in small herds and handled constantly they become quite gentle, but when handled under range conditions they become wild and take fright readily.

The oil secreted by the sebaceous glands of the skin is of a peculiar odor and gives the skin a soft, oily feeling. This peculiarity, combined with the scant covering of hair and the extremely tough hide affords the animals considerable protection from ticks, mosquitoes, screw worms, etc. It is also from these peculiarities that the statement is frequently made that the purebred cattle, or even the grades, possess a certain immunity from tick fever. Their ability to withstand drought conditions and to make rapid gains under favorable conditions on the range has gained them considerable favor in many sections.

While the value of the crossbred Brahman cattle as feeder stock has not been fully determined, it is generally thought that under favorable conditions they will be satisfactory, although, this factor will doubtless be determined in the near future.

The work of developing the Brahman and the crossbreeds for beef is being carried out in the Gulf coast section, principally in Texas, and to some extent in Florida, where at present are to be found most of the Brahman cattle in the United States.

Dairy Cattle.

In the United States five breeds of dairy cattle have attained considerable prominence, namely, the Ayrshire, Brown Swiss, Guernsey, Holstein-Friesian, and Jersey. These breeds have been developed carefully for a considerable time for the purpose of dairy production, and in consequence each transmits its characteristics with regularity to its offspring. Certain distinct features distinguish each breed from the others, but all possess ability as milk producers.

AYRSHIRE*—The Ayrshire breed originated in the County of Ayr, in southwestern Scotland. In that region, which borders on the Irish Sea, the surface is rolling and has much rough woodland. Pastures, therefore, are somewhat sparse and it is necessary for animals to graze large areas in order to obtain sufficient feed.

It is only within the last hundred years that the Ayrshires have had a type well enough established to be entitled to the designation of breed. No exact account of the different infusions of blood of other breeds into the native Scotch cattle to form the Ayrshire breed is at hand. It is probable, however, that the Channel Islands, Dutch, and English cattle were all represented. The first importation of Ayrshires to this country was made in 1822, since which time there have been frequent importations into both the United States and Canada. New England, New York, and Pennsylvania probably contain the largest number of representatives of the breed.

BROWN SWISS*—The Brown Swiss breed originated in the Canton of Schwyz, in eastern central Switzerland. The cattle are called variously Brown Switzer, Brown Schwyzer, and Brown Swiss, the last name being the one commonly used in the United States. Conditions in Switzerland are such that a strong animal capable not only of milk production but of service as a draft animal is desired, and the large frame is evidence of fitness for these requirements.

The first importation into the United States was made in 1869, and although other importations have been made since, comparatively few animals have been brought to this country.

GUERNSEY*—The Guernsey breed had its early development on the Channel Islands of Guernsey and Alderney, and at present cattle from either island are eligible to registry in the herd book of the American Guernsey Cattle Club. The origin of the breed is obscure, but it is probable that the parent stock came from Normandy, France, which is adjacent to the islands. Early live stock laws of the islands prevented the importation of live stock for any purpose except slaughter, and under these conditions, in the course of the last century, the cattle developed into a distinct breed.

The climate of the Channel Islands being mild throughout the year, allows a long grazing season. Because of the high price of land for market-gardening purposes, the cows are tethered on pasture to avoid waste of feed. Although they come from the same parent stock, Guernseys differ from Jerseys in having been developed by men who had somewhat different ideals. The Guernsey of today is larger than the Jersey, and differs in other respects. The first representatives of the breed were imported in the early part of the nineteenth century. There is some

*These are the leading breeds in California.

resemblance between the Guernsey and the Jersey, but the former is larger and slightly coarser-boned, with a deeper and more "rangy" body. The head also is somewhat longer and more narrow than that of the Jersey.

JERSEY*—The island of Jersey, the largest of the Channel Islands, is the native home of the Jersey breed of cattle. Except for immediate slaughter, no cattle have been landed on the island since 1779, so that ever since that time the purity of the breed has been preserved. It seems probable that the foundation stock is the same as the Guernsey, namely, from Brittany and Normandy, in nearby northwestern France. Conditions on Jersey are similar to those on Guernsey. The breeders on the island have developed cattle that, in addition to productive ability, have uniformity of type and natural beauty, while in America the breeders have developed greater size, with less refinement of features.

Jerseys were first imported into the United States about the middle of the last century, and since that time importations have been made practically every year. The breed probably has the largest numbers and the widest distribution of all the dairy breeds in this country. Large numbers of Jerseys may be found throughout New England, the Middle West, the South, and the Southwest.

Jerseys are the smallest of the dairy breeds.

HOLSTEIN-FRIESIAN*—In the low countries bordering on the North Sea, especially in the northern part of Holland, Holstein-Friesian cattle have been bred for centuries. The land is rich and fertile and pastures are exceptionally good. Different names have been used to designate the breed, both in Europe and America, among which the following are the more common: North Hollander, Holland, Netherland, Holstein-Friesian, Dutch, Dutch Friesian, and Holstein. The last is the name usually used in this country, although Holstein-Friesian is the official name.

The Dutch settlers in the State of New York probably were the first to import individuals of the Holstein-Friesian breed, but the first importations of which records exist were made between 1857 and 1862 by Mr. W. W. Chenery, of Massachusetts, and many of our present-day animals are descended from these importations.

The Holstein is the largest of the dairy breeds.

From the point of view of milk production Holsteins average higher than any other breed. The percentage of butterfat, however, which averages lower than that of any other dairy breed, tends to counterbalance the advantage of greater production.

Milk Cows and Other Cattle, California.

The 1910 census, under the classification of milk cows, enumerated heifers over 15 months and under 2 years kept for dairy purposes. In 1920 the classification was changed somewhat so that to have a direct comparison it was necessary to include heifers over 1 and under 2 years kept for dairy purposes with milk cows 2 years old and over. At the time of the enumeration (January 1920) heifers over 1 and under 2 years would be practically all over 15 months old and therefore should be included with milk cows to compare with 1910 census.

*These are the leading breeds in California.

Comparison of state totals shows an increase in the number of milk cows, but a decrease in the number of other cattle. The decline in value per head amounts to 20 per cent the past year for milk cows and 19.7 per cent for other cattle. As compared with January 1, 1920, the decline in value per head for milk cows amounts to 21.7 per cent and for other cattle 34.3 per cent.

In this connection it is interesting to note that the decrease in value per head of other cattle the past two years amounts to 45 per cent in the United States.

Values per head for the different ages and total values for the past three years are shown in the following tables:

	1921	1920	1919
Milk cows (dollars per head).....	\$76 00	\$95 00	\$97 00
Total value.....	\$48,032,000	\$58,900,000	\$59,558,000
Other cattle (dollars per head):			
Under 1 year.....	\$17 50	\$23 00	\$27 00
1 to 2 years.....	30 00	39 00	45 50
2 years and over.....	46 00	60 00	70 00
All ages.....	34 70	43 20	52 80
Total value.....	\$47,886,000	\$62,376,000	\$73,603,000

Dairy Purebreds on the Coast, 1921.

	Holsteins	Jerseys	Guernseys	Ayrshires	Other breeds	Total
California.....	12,189	3,832	1,145	595	1,383	19,144
Oregon.....	3,624	7,771	697	323	437	12,852
Washington.....	7,673	3,402	941	404	300	12,720
Totals.....	23,486	15,005	2,783	1,322	2,120	44,716

Number of Registered Purebred Food Animals on Farms in United States January 1, 1920, by Breeds and Classes.

CATTLE.

Beef:		Dairy:	
Shorthorn.....	416,995	Holstein-Friesian.....	528,621
Hereford.....	405,582	Jersey.....	231,834
Aberdeen Angus.....	108,524	Guernsey.....	79,446
Polled Durham (Shorthorn).....	61,764	Ayrshire.....	30,509
Galloway.....	7,225	Brown Swiss.....	8,283
Devon.....	1,413	Not specified.....	37,909
Not specified.....	63,409		
Total.....	1,064,912	Total.....	916,602

Cattle: Number and Value on Farms December 31, 1920 and 1921, by States.

State	Milk cows						Other cattle					
	Number (thousands) Dec. 31		Average price per head Dec. 31		Farm value (thousands of dollars) Dec. 1		Number (thousands) Dec. 31		Average price per head Dec. 31		Farm value (thousands of dollars) Dec. 31	
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
Maine.....	215	212	\$60 00	\$48 00	\$12,900	\$10,176	70	71	\$25 60	\$20 20	\$1,792	\$1,434
New Hampshire	120	121	74 00	60 00	8,880	7,260	43	41	30 30	22 70	1,303	931
Vermont.....	363	363	65 00	55 00	23,595	19,965	84	84	21 40	16 80	1,798	1,411
Massachusetts	177	180	94 00	79 00	16,638	14,220	40	42	34 90	28 20	1,396	1,184
Rhode Island...	26	26	100 00	79 00	2,600	2,054	7	7	35 60	31 20	249	218
Connecticut....	135	138	90 00	74 00	12,150	10,212	38	39	37 40	29 70	1,421	1,158
New York.....	1,695	1,695	73 00	67 00	123,735	113,565	410	402	29 50	24 70	12,095	9,929
New Jersey....	148	151	110 00	86 00	16,280	12,986	30	31	47 70	37 60	1,431	1,166
Pennsylvania...	1,050	1,071	77 00	60 00	80,850	64,260	481	491	37 70	29 00	18,134	14,239
Delaware.....	38	39	81 00	57 00	3,078	2,223	9	9	38 90	26 90	350	242
Maryland.....	188	192	79 00	63 00	14,852	12,096	95	98	46 00	33 20	4,370	3,254
Virginia.....	422	426	59 00	43 00	24,898	18,318	487	448	35 60	24 70	17,337	11,066
West Virginia..	210	216	66 00	49 50	13,860	10,692	369	354	41 70	28 60	15,387	10,124
North Carolina..	361	365	65 00	42 00	20,938	15,330	285	274	24 90	17 30	6,897	4,740
South Carolina..	229	236	58 00	40 50	13,282	9,440	201	201	20 30	13 80	4,080	2,774
Georgia.....	489	509	45 00	29 50	22,005	14,761	666	686	19 60	10 90	13,054	7,477
Florida.....	90	95	74 00	57 50	6,660	5,462	766	774	21 70	16 10	16,622	12,461
Ohio.....	1,038	1,048	71 50	56 00	74,217	58,688	816	832	38 40	29 70	31,334	24,710
Indiana.....	720	727	65 00	53 00	46,800	38,531	778	778	38 70	30 00	30,109	23,340
Illinois.....	1,114	1,125	63 00	52 00	70,182	58,500	1,492	1,477	36 80	29 30	54,906	43,276
Michigan.....	948	967	70 00	53 00	66,260	51,251	588	576	29 00	21 80	17,052	12,557
Wisconsin.....	2,180	2,202	65 00	52 00	141,700	114,504	880	889	25 90	19 60	22,792	17,424
Minnesota.....	1,532	1,578	58 00	48 00	88,856	75,744	1,429	1,343	23 20	18 00	33,153	24,174
Iowa.....	1,072	1,093	62 00	53 00	66,464	57,929	3,231	3,131	34 50	26 60	111,470	92,766
Missouri.....	761	761	57 50	44 00	43,758	33,836	1,890	1,890	34 20	26 50	64,638	50,985
North Dakota...	461	479	55 00	43 00	25,355	20,597	848	831	25 20	18 50	21,370	15,374
South Dakota...	390	417	56 00	47 00	21,840	19,599	1,748	1,601	29 80	24 20	52,090	38,744
Nebraska.....	501	516	63 00	53 00	31,563	27,348	2,452	2,427	33 10	27 40	81,161	66,500
Kansas.....	695	709	62 00	46 00	43,090	32,614	2,317	2,224	31 50	24 50	72,986	54,488
Kentucky.....	525	520	57 00	40 00	29,925	20,800	549	511	28 40	20 00	15,592	10,220
Tennessee.....	490	495	49 00	35 00	24,010	17,325	634	597	20 60	15 20	13,060	9,074
Alabama.....	496	506	40 00	29 00	19,840	14,674	536	510	13 10	10 00	7,022	5,150
Mississippi....	530	541	47 00	30 00	24,910	16,230	684	657	14 10	10 80	9,644	7,312
Louisiana.....	220	220	52 00	43 00	11,440	9,460	586	591	23 70	15 20	13,888	8,983
Texas.....	1,042	1,073	63 00	43 00	65,646	46,139	5,310	5,363	31 20	19 90	165,672	106,724
Oklahoma.....	549	560	52 00	39 00	28,548	21,840	1,393	1,421	24 40	17 50	33,989	24,868
Arkansas.....	501	516	43 00	29 00	21,543	14,964	528	549	14 30	10 90	7,550	5,984
Montana.....	156	164	75 00	58 00	11,700	9,512	1,080	1,200	35 40	27 20	38,232	32,640
Wyoming.....	43	44	75 00	71 00	3,225	3,124	816	775	38 40	29 70	31,334	23,018
Colorado.....	236	243	70 00	57 00	16,520	13,851	1,447	1,375	33 50	26 40	48,474	36,300
New Mexico....	47	48	73 00	60 00	3,431	2,880	1,204	1,132	35 20	24 90	42,381	28,187
Arizona.....	35	40	105 00	95 00	3,675	3,800	1,100	1,000	38 00	26 90	41,800	26,900
Utah.....	82	87	70 00	61 00	5,740	5,307	425	433	29 80	26 40	12,665	11,431
Nevada.....	18	19	86 00	69 00	1,548	1,311	343	346	35 80	30 40	12,279	10,518
Idaho.....	146	153	72 00	65 00	10,512	9,945	543	521	32 90	27 50	17,865	14,328
Washington....	278	286	75 00	70 00	20,850	20,020	269	256	33 10	28 30	8,904	7,245
Oregon.....	212	216	75 00	62 00	15,900	13,390	616	628	37 70	29 20	23,223	18,652
California.....	620	632	96 00	76 00	58,900	48,032	1,380	1,380	45 20	34 70	62,376	47,886
United States..	23,594	24,028	64 22	50 97	1,515,249	1,224,767	41,993	41,324	31 36	23 78	1,316,727	982,666

The Number of Cattle Slaughtered Under License in Each County January 1 to December 31, 1921

County	Cows	Steers	Calves	Bulls and stags	Total
Alameda	14,410	24,095	4,527	528	43,560
Alpine					
Amador	625	94	905	2	1,626
Butte	1,575	1,803	941	29	4,348
Calaveras	330	210	667	9	1,216
Colusa	1,086	719	645	27	2,477
Contra Costa	7,519	3,040	4,126	132	14,817
Del Norte	423	155	46	8	632
El Dorado	758	386	451	9	1,604
Fresno	10,636	5,180	19,629	560	36,005
Glenn	706	674	709	17	2,106
Humboldt	5,127	1,813	2,567	166	9,673
Imperial	2,435	2,199	675	182	5,491
Inyo	717	604	214	8	1,543
Kern	11,008	2,247	3,871	103	17,229
Kings	1,838	1,457	3,449	107	6,851
Lake	362	190	276		828
Lassen	576	831	595	30	2,032
Los Angeles	71,561	104,313	65,258	2,083	243,215
Madera	814	629	1,868	38	3,349
Marin	300	10	543		853
Mariposa	9	110			119
Mendocino	2,300	1,248	438	75	4,061
Merced	4,545	905	4,792	33	10,275
Modoc	319	173	100	1	593
Mono	40	66	16		122
Monterey	2,917	1,265	712	25	4,919
Napa	802	1,190	2,136	39	4,167
Nevada	776	551	263	6	1,596
Orange	2,636	2,205	1,224	115	6,180
Placer	922	914	1,122	41	2,999
Plumas	676	324	182		1,182
Riverside	1,247	1,622	369	11	3,249
Sacramento	4,803	18,010	4,348	172	27,333
San Benito	446	359	444	18	1,267
San Bernardino	2,255	8,645	1,439	12	12,351
San Diego	6,430	7,980	2,131	219	15,760
San Francisco	26,467	67,941	22,047	1,162	117,617
San Joaquin	4,920	3,716	5,762	234	14,632
San Luis Obispo	1,677	2,017	321	26	4,041
San Mateo	13,817	35,493	11,224	589	61,123
Santa Barbara	1,740	3,243	1,123	37	6,143
Santa Clara	5,881	3,791	7,393	232	17,297
Santa Cruz	1,572	1,332	1,306	98	4,308
Shasta	2,092	955	662	27	3,736
Sierra	240	99	65		404
Siskiyou	1,022	848	971	26	2,867
Solano	1,581	2,266	1,084	47	4,978
Sonoma	4,461	2,453	11,111	115	18,140
Stanislaus	4,799	2,081	18,600	299	25,779
Sutter	395	108	356	11	870
Tehama	976	527	784	20	2,307
Trinity	184	10	43	1	318
Tulare	3,379	3,223	6,531	118	13,251
Tuolumne	1,024	951	982	10	2,967
Ventura	1,210	1,820	908	31	3,969
Yolo	1,495	952	1,278	57	3,782
Yuba	684	641	425	29	1,779
Totals	242,545	330,763	224,654	7,974	805,936

Cattle Shipped Into the State, January 1 to December 31, 1921, Inclusive.

From	Cows	Steers	Calves	Bulls	Total
New Mexico.....	783	1,756	3,030	113	5,682
Arizona.....	4,759	6,807	10,895	176	22,637
Nebraska.....	.....	421	.....	.....	421
Canada.....	.....	49	.....	.....	49
Texas.....	2,950	8,221	13,799	77	25,047
Idaho.....	2,002	4,456	113	247	6,818
Oregon.....	2,224	9,271	147	19	11,661
Utah.....	13,552	14,829	374	267	29,022
Wyoming.....	1,236	1,070	.....	.....	2,306
Nevada.....	8,529	16,245	1,781	311	26,866
Montana.....	1,986	1,479	8	31	3,504
Colorado.....	1,842	2,370	.....	75	4,337
Missouri.....	392	503	.....	.....	895
Totals.....	40,305	67,477	30,147	1,316	139,245

Cattle Shipped Out of the State, January 1 to December 31, 1921, Inclusive.

From	Cows	Steers	Calves	Bulls	Total
Butte.....	38	105	55	.....	198
Calaveras.....	48	56	.....	.....	104
Colusa.....	112	.....	.....	.....	112
Contra Costa.....	135	.....	.....	.....	135
Fresno.....	30	.....	60	.....	90
Glenn.....	195	168	32	32	427
Imperial.....	228	39	4	55	326
Kern.....	17	6,317	.....	168	6,502
Lassen.....	477	1,316	344	27	2,164
Madera.....	65	.....	21	2	88
Merced.....	130	370	.....	46	546
Modoc.....	74	454	.....	5	533
Placer.....	96	228	5	.....	329
Phumas.....	152	394	16	1	563
Sacramento.....	32	307	.....	10	349
San Diego.....	19	.....	3	.....	22
San Joaquin.....	121	153	.....	.....	274
San Luis Obispo.....	36	428	.....	.....	464
Shasta.....	166	231	8	.....	405
Sierra.....	26	.....	.....	.....	26
Siskiyou.....	.....	.....	66	.....	66
Stanislaus.....	.....	.....	70	.....	70
Tehama.....	.....	75	.....	.....	75
Tulare.....	31	.....	.....	.....	31
Yuba.....	36	16	.....	.....	52
Totals.....	2,264	10,657	684	346	13,951

GOATS.

The Angora in America.

Angora goats play a unique role in American thought and economy. They graze by millions in our country, yet the very existence of the breed is unknown to many. The goats are sent to market by tens of thousands every year, yet no menu card ever lists Angora chops or Angora roast. Fabric made of their lustrous hair is worn and admired from coast to coast, yet only a few identify it or know its source.

Asia Minor is the original home of the Angora. The matchless fabrics of the Orient first served to impress the world with the excellent character of mohair. South Africa and the United States have since become the second and third important centers, respectively, of mohair production. For nearly forty years an edict of the Sultan of Turkey has forbidden the exportation of Angora goats. For fifteen years the South African States have laid prohibitive restrictions on exports of stock. In the presence of this apparent handicap, American breeders have evolved Angora goats second to none in vigor, uniformity, weight of fleece and character of hair.

Far from his native land, strangely striking and interesting in appearance, unique in his enjoyment and utilization of what would otherwise be waste forage and browse, the Angora goat has no peer in such respects among the profitable animals of our country. By choice a dweller of desert and brush land, clothed in the fine raiment he gave to monarchs of old, the Angora has "conquered by enduring."

American Angora goats are the product of long-continued selective breeding from imported stock crossed in many cases upon a foundation of common Mexican does. In this process select, high-grade bucks, imported bucks, and bucks raised from imported stock have been used.

By an original inspection of high-grade American Angoras a registry system was established in 1900 by the American Angora Goat Breeders' Association, and from that time all goats registered by that association have traced on both sires' and dams' sides to the original inspected stock and its progeny or to goats subsequently imported. The National Angora record Association has recently been organized and incorporated under the laws of Texas. This new association is establishing its register on the basis of inspected animals in a manner similar to the method followed by the American Angora Goat Breeders' Association in 1900. Most range herds of goats are composed of select, high-grade does topped by registered bucks purchased from breeders who make it an exclusive business to produce superior registered animals.

Range Angora bucks when mature should weigh from 125 to 175 pounds; bucks at 18 months of age, 80 to 90 pounds; finished mature wethers, 125 to 200 pounds; grown does, 65 to 90 pounds; 18-month does, 50 to 70 pounds.

The doe and kid band under range conditions shears an average of $3\frac{1}{2}$ to $4\frac{1}{2}$ pounds of hair annually, taken off in two clips; and wether stock, from 4 to 5 pounds. Breeders' herds sometimes clip double these weights. Opinions vary among breeders with regard to the relation of the size of the goat to vigor and quality of hair. It has been found the extremely large goats have comparatively coarse hair; however, this is not always

the case. Reasonable size is generally associated with greater vigor than extremely small size. The largest goat consistent with fineness of fleece is ultimately sought because of the physical capacity to produce a heavy fleece with a large surface on which to grow it.

No effort is being made to develop a hornless Angora. Ears should be drooping; "fox ears" are objectionable. Color should be white in kids as well as in mature does and bucks; "red kids," although they ultimately shed out and produce good mohair, should be sold for slaughter because even the practical ranchman who has only grade does objects to bucks from strains that produce off-color kids. The Angora is not a milk goat.

Full covering of face and leg is sought; thorough belly covering is always looked for; but the inexperienced buyer is likely to be so much impressed with the appeal of these minor points as to neglect to assure himself of quality and weight of fleece on the really productive parts of the body. A full breech is desirable; but as breech hair is relatively coarse at the best, superior quality and weight of body hair in a goat with a slightly weaker breech must be given proper consideration.

The tendency of Angoras to shed the fleece in the spring has to a degree been overcome in occasional strains by selection and by care. So-called "non shedders" are goats that indicate that they would carry the fleece indefinitely unless forced into a period of shedding by lack of feed or improper feeding.

Natural oil gives life to the hair, helps preserve it, and protects the skin from alkali and other irritating dust. A soft, healthy skin is essential to the best production of hair; therefore, a sufficiency of oil secretion is desirable in breeding goats. This has been attained to an unusual degree by several breeders and to an extent formerly considered impossible in Angora goats. A good fleece should have ringlets or flat locks with fullness to the end or tip of lock, not scant at the end nor gimlet-pointed.

There are three types of fleece based on the type of ringlet. These are the "tight lock," the "flat lock," and the "fluffy" fleece. The Angora breeders generally prefer a well-developed ringlet, however, the flat lock is preferred by some and it produces a very desirable type of mohair. The tight lock is ringleted throughout amongst its entire length; it is in the greatest degree associated with extreme fineness of mohair. The flat lock is usually wavy and forms a bulky fleece; this lock is usually associated with heavy shearing weight and a satisfactory quality of hair. The fluffy or open fleece is not so common, it probably stands lowest in character, and is objectionable on the range because it is easily broken and is torn out to a greater extent by the brush.

Milk Goats.*

"While milk has been a food for man since civilization began, its value over other foods has been only recently discovered. Though the goat has been a familiar milk producer from the earliest known civilizations, and seems to have been better known in Biblical times than it is now, she is a new factor in the dairy world of America, and promises to become the leading milk animal of the future. Her day is just dawning, she is a new discovery, but her popularity is growing by leaps and bounds.

"The word 'goat' has so long been a term of ridicule and contempt

*From an article by Alice M. Brown, Sacramento.

that if the milk goat of today had another name, she would not have to meet the bars of prejudice and ignorance that the unthinking and ignorant raise against her. The old-time common scrub goat was not a pleasant animal to look upon, but the neglect she received did not tend to improve her. The scrub bucks were teased from the time they were playful kids; shunned and neglected, they became the source for contempt and ridicule of the whole Caprine race. That the present well-bred milk goat should inherit this ignominy is as preposterous as to class the modern home of today with the primitive hovel. Beautiful, fastidious little animals, they appeal to any one who appreciates cleanliness in animal life.

"The milk of the goat is a perfectly balanced food. It contains a larger quantity of vitamins than cows' milk and a principle that nourishes the body more readily than any other foods. It is even better than mothers' milk for the babe, as a mother's milk is affected adversely by her moods and ill health, often by some deep-seated affliction, whereas the placid, well-fed, contented goat nourishes the child equally well with a milk always the same in its purity and digestibility.

"The milk goat only awaits the call of parents and doctors to make the infant life of today healthy and vigorous and resistant to disease. A goat's milk baby is a one hundred per cent perfect baby. Such was the rating at the baby clinic at the last State Fair, and is the same wherever examined.

"In pasteurizing milk the growing principle, vitamins, are lost, so its greatest food value to the infant is destroyed. This alone is sufficient cause for substituting goat's milk for cow's milk in feeding babies, were it not also for its greater digestibility.

"It seems a paradox how any intelligent person can object to goat's milk and accept cow's milk without a murmur. The little goat is the cleanest of animals, her place in life is to furnish milk just as much as the cow. She is dainty in her appetite, free from all disease, absolutely odorless, and almost human in her intelligence. There is not near as much goaty odor about the milking doe as there is cowy odor about the milking cow. Only bucks have an odor, and that offensive only in the breeding season.

"As to the milk, it is most palatable, anyone not knowing it was goat's milk would say it was very fine milk, thinking of a cow. Served ice cold, it is like drinking thin cream. All the products of cow's milk may be made from the goat's milk. The most delicious butter is easily made, cottage cheese has a finer grain and better flavor than that of cow's milk, while the Swiss and French cheeses made of the milk delight the epicure and bring fancy prices on the market. Two goats, milking four quarts each, would keep a family supplied with milk, butter and cheese.

"In the southern part of the state the goat is recognized as the aristocrat of the dairy. The thousands of Eastern visitors have come to know her value, and those suffering from tuberculosis or digestive disorders buy her milk at any cost. One goat dairy having 300 fine milk goats has sale for all the milk produced at 50 cents a quart. Those keeping a few goats for themselves are importuned by invalids to spare some of the milk for them. So popular is the goat, a person would think twice before saying, 'Goat's milk! I could never drink it,' for they would feel they hailed from Missouri.

"The rich vie with each other in owning a fine milker and the sale of pure-bred, heavy milking does at \$350 to \$500 is an ordinary thing.

"The keeping of milk goats to furnish milk for infants and invalids has appealed to college-bred women as a good occupation for ministering to humanity and earning a living in a helpful way. In Los Angeles, at Montara, and in Sacramento, are college women thus engaged. The goat is temperamentally a woman's animal, she is small, easy to handle, docile and affectionate, responding to a woman's kindness and thoughtful care. The little animals in the Los Angeles herd are the hope, the relief and the saving of many a tubercular sufferer. The Montara herd nourishes the children in the San Francisco City and County Hospital, and are saving many a life.

"The Sacramento herd is a new undertaking, but has four infants restored after all other foods had failed, and other less serious cases benefited. It is the adaptability of the goat to the care of women and children along with a supply of unexcelled quality of milk that will give the goat the foremost place as a dairy animal in our domestic life."

Breeds of Goats.

SAANEN—The Saanen is one of the leading breeds and takes its name from the Saanen Valley of Switzerland. It is said to be the largest of all the Swiss breeds. Although considered a hornless breed, occasionally an animal is found with horns. The color ranges from a pure to a creamy white. The dairy conformation is especially well developed in the Saanen breed. The hair is usually short, with the exception of a strip along the spinal column extending to the flanks and the hind quarters.

The first record of the importation of Saanen was in 1904, when ten head came in through the Canadian quarantine.

The Saanen is without question one of the most beautiful and valuable breeds, and as the supply of pure-breds is very limited in this country it will be necessary to grade up herds from common stock by using Saanen bucks of the best grading obtainable.

TOGGENBURG—The Toggenburg is one of the leading breeds of Switzerland and takes its name from the Toggenburg Valley, where they have been bred for a great many years. Although generally considered a hornless breed, occasionally one is found with horns. The color of the Toggenburg is brown with a light stripe or bar down each side of the face. The legs below the knees and hocks are light gray or almost white. The wattles or appendages, two in number, attached to the under side of the neck, are very characteristic of this breed.

The first record of importations of the Toggenburg into the United States was in 1893, when W. A. Shafor of Hamilton, Ohio, imported four head from England. In 1904 F. S. Peer imported from Switzerland for other persons 16 head, which later became widely distributed. The largest importation of milk goats ever made to this country was in 1905, when R. N. Riddle of New Jersey, imported 119 Toggenburgs.

Owing to the fact that the Toggenburg goats are more plentiful in this country than other breeds, a good many grade goats of the Toggenburg type are found in various parts of the country. In fact, many herds have been established by crossing Toggenburg bucks upon does of the common American type.

NUBIAN—The Nubian, although considered a valuable breed, is found in but small numbers in this country. It is a native of Nubia, Upper Egypt, and Abyssinia. Its important peculiarities consist in the length of the large drooping ears and the shape of the head. The Nubian is considered a hornless breed, but bucks occasionally develop horns. It is one of the largest breeds of goats. The hair is short and fine, and owing to this condition this breed is less hardy than the leading European breeds and can not stand extreme cold. The color is black, dark brown, or tan, with or without white markings. Pure-bred Nubian bucks are said to be free, or nearly so, of the odor so prevalent in the males of other breeds.

The Nubian breed is very prolific and one of the best for milk production.

MALTESE—Although considered a valuable breed of milk goat, the Maltese is of no special importance at the present time in this country, except that it has had some influence on the type of goats in the Southwest. As the name signifies, it is a native of the Island of Malta.

This breed is kept in large numbers on that island. It is usually hornless, but occasionally one is found with horns. The ears are rather long and are carried horizontally. The udders are quite large and in many instances almost touch the ground. The hair is rather long, the color being white and reddish brown or black. For milk production this breed is considered one of the best.

COMMON, OR AMERICAN—Either of the names "Common" or "American" may be applied to a large number of short-haired goats found in many sections of the United States, especially in the South. In many sections these goats have been bred for a great many years without the introduction of outside blood, so that in general conformation they are very uniform.

They are of medium size and somewhat short legged, rather meaty in appearance, and do not show the conformation of the Swiss breeds. This type of goats is of various colors; brown of various shades, brown and white, black and white, bluish gray, and white predominate.

Owing to the scarcity of good milk goats, the common or American type properly selected offers a good foundation for grading up with either the Toggenburg, Saanen, or Nubian breeds.

SHEEP.

In 1565 Spanish sheep were introduced into Florida, and those in that state today preserve traces of their Spanish origin. In 1773 they were introduced into California, and under the care of the Missions rapidly increased until, in 1825, it was estimated that seventeen of these Missions, extending from San Diego to San Francisco, held an aggregate of 1,003,970 sheep, exclusive of flocks owned by ranchers.

Sheep, of which at one time there were very large flocks, have fallen off since the year 1880, when they numbered 4,152,349; in 1910 there were 2,417,477, or a decrease of 1,734,872 since the former year.

All the domestic sheep in America have originated from importations, most of which have been made from European countries since the beginning of the nineteenth century.

The better known breeds can be grouped into three classes:

The middle wool class includes Southdown, Shropshires, Hampshires, Oxfords, Dorsets, Cheviots, Suffolks, and Tunis.

The long wool class included the Cotswold, Leicester, and Lincoln breeds and the Romney Marsh.

The fine wool class includes the American Merino and the Rambouillet. The various strains of Merinos formerly known by numerous names are now grouped into three types, A, B, and C.

The Southdown* is of the middle wool breeds, and is probably the oldest breed of sheep in existence, and is also the mutton sheep above all.

The Shropshire* is the most widely known and bred of the "down" breeds in America, and is the most popular of medium-wool sheep.

Other Long Wool Breeds.

Other long wool breeds are the Romney Marsh,* or Kent, the Wensleydale, Devon Long Wool, and Corriedale,* a breed developed in New Zealand.

Fine Wool Sheep.

All fine wool sheep are descendants of earlier Spanish stock. The American Merinos have been bred nearly altogether for wool. Some breeders of the Delaine, or C type Merino, have bred to some extent for a mutton carcass, in addition to fineness and length of wool. In the case of Rambouillet there has been a great effort to improve the mutton qualities. A common characteristic of all Merinos and Rambouillets is the fineness of the wool.

The American Merino* A, B, and C type.

The Rambouillet* is the largest and strongest of fine wool sheep, or Merino breed, and was developed by the French government between 1783 and 1799 in order to secure a domestic supply of wool. They were first introduced into the United States in 1840.

The Hampshire,* with possibly one exception (the Oxford), is the largest of the down breeds, and it is excelled in size only by the Lincoln and Cotswold among the long wools.

*These are the leading breeds in California. For list of Sheep Breeders' Associations, see Appendix C.

The Oxford Down*—The blood of the Hampshire and Cotswold was used in forming this breed. It is the largest of the medium wool breeds.

The Dorset Horn* is an extremely old breed like the Southdown, and is of the middle wool type, and medium sized, and probably the most fertile of all the mutton breeds.

The Cheviot* is a mountain breed sheep, and an extremely old one, rather small and hardy. The mutton is of good quality.

Other middle wool breeds:

The Suffolk Down is comparatively a new breed of sheep and was first imported into the United States in 1888.

The Tunis comes from Northern Africa, and the wool is white, brown, reddish or mixed in color. The American Tunis has been improved by an infusion of Southdown blood, and the fat tail of the original has been greatly reduced.

Long Wool Breeds.

The long wools, bred chiefly for mutton, are the largest breed of sheep and with very broad backs.

The Cotswold* is a big-bodied, rather tall, sheep, and with the exception of the Lincoln, is the largest breed of domesticated sheep. It has become famous in Australia, South America, South Africa, and the United States and Canada.

The Leicester* is very easily distinguishable from the other long wools by its lean and strong face. Practically all the Leicesters in America today are of a modified border type.

The Lincoln* is shorter and more compactly built than the Cotswold.

There are many other varieties of sheep, but little known in the United States, such as the Welsh Mountain, Exmoor Horn, the Ryeland, the Kerry Hill (a Welsh breed), the Shetland, which are deer-like in appearance, and are only suitable for a park, the Dartmoor, Black-faced Highland and others.

In furtherance of the work of its textile department, Leeds University some time ago purchased a small flock of wild Soay sheep, the most primitive breed of the British Isles, and has set itself to preserve it, as, in the opinion of Prof. Ewart, of Edinburgh University, the time will come when the fancy sheep breeder will have to return to the primitive breeds of sheep for stamina, and it would be a great misfortune for Great Britain if such primitive breeds were not available.

Unfortunately, sheep which can take a ten-foot fence, as well as creep through one, and climb, are more than difficult to retain within bounds, and the university is still in need of safe pasturage for its small flock.

*These are the leading breeds in California. For list of Sheep Breeders' Associations, see Appendix

Sheep in California.

There has been no important change in the state total of sheep for the three years, 1919 and 1920 having been reported the same, and 1921 showing a slight decrease. Values per head and total values for the past three years are shown in the following tables:

	1921	1920	1919
Sheep, (dollars per head):			
Lambs.....	4 10	5 30	7 50
Ewes.....	5 30	6 70	11 70
Wethers.....	4 80	6 90	10 50
Rams.....	17 00	20 00	25 00
All sheep.....	5 30	6 80	11 00
Total value.....	\$12,985,000	\$17,000,000	\$27,500,000

Sheep—Number and Value on Farms in United States December 31, 1919 and 1921.

State	Number (thousands) Dec. 31			Average price per head Dec. 31			Farm value (thousands of dollars) Dec. 31		
	1919	1920	1921	1919	1920	1921	1919	1920	1921
Maine.....	119	100	95	\$9 60	\$5 50	\$4 80	\$1,142	\$550	\$456
New Hampshire.....	28	24	20	9 70	7 30	5 60	272	175	112
Vermont.....	63	58	48	11 50	6 70	5 00	724	389	240
Massachusetts.....	19	17	17	12 60	9 50	6 60	239	162	112
Rhode Island.....	3	3	3	12 10	9 90	6 30	36	30	19
Connecticut.....	11	10	9	12 60	9 50	7 50	139	95	68
New York.....	579	550	512	12 20	7 50	5 80	7,064	4,125	2,970
New Jersey.....	10	10	10	11 00	10 50	7 40	110	105	74
Pennsylvania.....	501	478	468	11 60	7 60	5 80	5,904	3,633	2,714
Delaware.....	3	3	3	10 40	7 40	6 00	31	22	18
Maryland.....	103	93	89	11 00	8 00	6 20	1,133	744	552
Virginia.....	342	335	328	11 80	7 50	5 60	4,036	2,512	1,837
West Virginia.....	510	485	480	10 70	6 40	4 80	5,457	3,104	2,304
North Carolina.....	91	89	84	9 60	6 60	4 90	874	587	412
South Carolina.....	24	23	22	7 10	3 70	3 00	170	85	66
Georgia.....	72	69	70	4 80	4 20	2 70	345	290	189
Florida.....	65	63	64	5 20	3 50	3 10	338	220	198
Ohio.....	2,103	1,977	1,957	10 10	5 70	4 60	21,240	11,269	9,002
Indiana.....	644	606	606	11 80	6 70	5 20	7,599	4,060	3,151
Illinois.....	638	561	516	12 60	6 90	5 30	8,039	3,871	2,735
Michigan.....	1,209	1,161	1,115	11 70	6 80	5 20	14,115	7,895	5,798
Wisconsin.....	480	432	367	11 00	6 40	4 60	5,280	2,765	1,688
Minnesota.....	509	468	445	11 00	6 10	4 70	5,599	2,855	2,092
Iowa.....	1,092	1,005	854	12 20	6 90	5 40	13,322	6,934	4,612
Missouri.....	1,272	1,158	1,042	12 20	6 00	4 50	15,518	6,948	4,689
North Dakota.....	299	272	250	10 90	5 70	4 60	3,250	1,550	1,150
South Dakota.....	844	675	689	10 20	5 60	4 50	8,609	3,780	3,100
Nebraska.....	573	521	521	10 70	6 00	5 20	6,131	3,126	2,709
Kansas.....	361	321	279	11 70	5 90	4 80	4,224	1,894	1,339
Kentucky.....	708	651	631	11 20	6 40	5 00	7,930	4,166	3,155
Tennessee.....	364	349	332	10 90	5 80	4 00	3,968	2,024	1,328
Alabama.....	82	79	83	5 70	4 40	2 70	467	348	224
Mississippi.....	164	148	142	6 30	3 40	3 00	1,033	503	426
Louisiana.....	130	124	124	5 40	3 80	2 80	702	471	347
Texas.....	2,650	3,047	3,077	9 60	6 10	3 40	25,440	18,587	10,462
Oklahoma.....	105	91	91	10 70	6 20	4 30	1,124	564	391
Arkansas.....	100	96	90	7 60	4 20	2 90	760	403	261
Montana.....	2,083	1,973	2,170	10 40	5 80	4 70	21,663	11,443	10,199
Wyoming.....	2,500	2,350	2,374	10 30	6 30	5 50	25,750	14,805	13,057
Colorado.....	2,085	2,306	1,954	9 10	5 30	4 60	18,974	12,222	8,988
New Mexico.....	2,566	2,468	2,343	9 20	5 90	3 90	23,607	14,561	9,138
Arizona.....	1,200	1,200	1,100	10 20	7 00	4 90	12,240	8,400	5,390
Utah.....	2,245	2,200	2,250	9 70	6 50	4 90	21,776	14,300	11,025
Nevada.....	1,180	1,100	1,190	10 50	7 60	5 30	12,390	8,360	6,307
Idaho.....	2,914	2,623	2,361	10 70	6 30	6 00	31,180	16,525	14,166
Washington.....	624	555	500	10 90	6 90	5 40	6,802	3,830	2,700
Oregon.....	2,250	2,025	1,823	10 80	6 70	4 50	24,300	13,568	8,204
California.....	2,500	2,500	2,450	11 00	6 80	5 30	27,500	17,000	12,985
United States.....	39,025	37,452	36,048	10 47	6 30	4 80	408,586	235,855	173,159

SWINE.

Classification of Swine.

In the United States there are two distinct class of swine, represented by breeds of the lard type and breeds of the bacon type. Lard-type hogs are bred much more extensively than those of the bacon type by farmers throughout all parts of the United States. The principal lard-type breeds are the Duroc-Jersey, Poland China, Chester White, Berkshire, Hampshire and Spotted Poland China. The only breeds of bacon-type hogs bred extensively are the Tamworth and the Yorkshire.

Type More Important Than Breed.

The selection of a breed is largely one of personal preference. There is no best breed of swine. There may be certain conditions on farms in the same locality under which one breed may do better than another. Generally the best breed to raise is the one which the breeder prefers.

The type of animal within the breed is of far greater importance than the breed itself. A large proportion of successful hog growers in the United States are using what are commonly called the "big-type" hog. These big-type animals are found in all breeds, but they are more numerous in some breeds than in others. Owing to an increasing demand for cured hams and bacon of high quality, the type of hog becomes a matter of considerable interest to the hog grower as well as to the buyer of market hogs. Hams weighing from 12 to 16 pounds and pieces of bacon weighing from 10 to 12 pounds are more likely to cure with high quality and flavor than lighter or heavier pieces. Neither hams nor bacon should carry excessive quantities of fat in proportion to the lean meat. Meats having the proper proportion of fat and lean are usually referred to as being "well marbled." The opportunity for producing meat of this character is greater in the quickly grown big-type hog than in the distinctly small type. Hams of the above-mentioned weights from small-type animals usually have excessive quantities of fat.

Every hog raiser knows that the most profitable hog is the one which can be grown to the required market weight in the least possible time. The best market weight is generally from 175 to 225 pounds. At the present time there is a tendency on the part of some breeders of big-type hogs to raise a class of animals in which the matter of large type has been carried to an extreme; for instance, those whose carcasses at market weights are flabby. The hog that commands the best market price is the one which will "kill out" with a good, firm carcass. The most profitable type of hog to grow is the one which produces the heaviest high-class hams and bacon and only lard enough to supply market demands. Well-bred and well-fed animals of this type attain market weights at from 7 to 10 months of age. If the small-type hog is pushed to market weights he will not only produce hams and bacon having too large a proportion of fat but will generally have to be fed for a longer period to attain it.

Prolificacy in the breeding here must receive attention by the hog grower. Exercise is essential for the production of prolific breeding animals. A big-type animal exercises much more freely than one of the small type; consequently the big-type sow produces a larger and stronger litter of pigs.

Building up and maintaining a herd of big-type breeding animals can be done only when careful selection is practiced. The continuous use of immature males and females as the major portion of a breeding herd has a tendency to reduce the size of the offspring. It is necessary, therefore, for the best results, to select carefully big-type animals, to provide proper feed and management for quick growth, and to use breeding animals of sufficient maturity to maintain the type in the herd. Big-type hogs can be profitably made heavier than the usual market requirements if feeding conditions or market demands make this advisable.

Breeders of the Lard Type.

Within the last decade the lard-type hog has been changed to a considerable extent in its general appearance. Formerly it was a rather low-set, broad, blocky type of hog. Today the general run of lard-type hogs is fairly upstanding, having good length and depth, with medium width. The shoulders should be full and smooth, not coarse; the hams full and as wide as the shoulders, carried back well to the root of the tail, and fleshed down to the hock. The flesh should be evenly distributed over the body. As a class, lard-type hogs do not have the quality and density of bone that prevail in the bacon breeds.

Duroc-Jersey.

The Duroc-Jersey breed originated in the northeastern section of the United States. It was derived from mating strains of red hogs developed in sections of New York and New Jersey. Those in New Jersey were originally called Jersey Reds; those in New York are said to have been developed by a man who owned the noted stallion "Duroc," and people in the vicinity called the red hogs which this man was breeding "Duroc" hogs. Some years after the independent breeding of Durocs and Jersey Reds, these hogs were intermingled in breeding with the result that there was formed the breed known at the present time as Duroc-Jersey. This breed is red in color, without admixture of any other colors. The popular color is referred to as cherry red; some animals, however, are quite dark, while others are quite light. There is no recognizable difference in the feeding or other qualities among hogs of the different shades of color in this breed.

From its early history the Duroc-Jersey breed was noted for hardiness and prolificacy. It began to be quite popular in the United States at about the time Poland-China breeders were producing the small type of hogs or so-called "hot-bloods." This popularity had much to do with making the Duroc-Jersey breed as widespread as it is today. Animals of this breed had sufficient quality and hardiness to make them profitable to hog growers. In type they are similar to big-type Poland Chinas. The boars when in show condition do not as a rule acquire quite so much weight as those of the Poland-China breed. The legs are of medium length, with good bone. The sows are very prolific and are good milkers and mothers. Duroc-Jerseys are good grazers and are profitably adapted to following cattle in the feed lots.

Pigs of this breed of good type attain a weight of 200 pounds at 6 months of age, and are capable of producing a greater weight at a profit

if market conditions justify their being fed for a longer time. The feet and bones of Duroc-Jersey hogs generally have good quality. Boars of the breed are massive and have good length and depth with good backs. In show condition they may attain a weight of 1000 pounds. In breeding condition aged boars generally weigh from 650 pounds up.

Duroc-Jersey sows generally are upstanding, having good depth with good backs, as well as good feet and legs. One seldom finds a sow of this breed cross or fretful. In show condition sows generally weigh from 600 to 700 pounds. In some instances a greater weight is reached.

There are two associations for recording hogs of this breed, viz., the National Duroc-Jersey Record Association, the secretary of which is J. R. Pfander, Peoria, Ill., and the American Duroc-Jersey Breeders' Association, of which R. J. Evans, Union Stock Yards, Chicago, Ill., is secretary.

Poland China.

The Poland China hog originated in Butler and Warren counties, Ohio. This breed undoubtedly was derived from the crossing of several breeds. In the seventies two farmers—A. C. Moore, of Canton, Ohio, and D. M. Magic, of Oxford, Ohio—developed a widespread reputation for their hogs and advertised them quite extensively. Their hogs were known at that time, respectively, as the Moore hogs and the Magic hogs. From the Moore and Magic hogs was developed the breed now known as the Poland China.

The early Poland China hog was a large, rugged, coarse-eared, heavy-boned, prolific, spotted animal that attained a good market weight but was not of the easiest feeding type. During the last decade of the nineteenth century, and the first decade of the twentieth century many Poland China breeders, especially those breeding for the show ring, followed what may be termed a fad in their breeding operations. The fashionable type was short-legged, small, compact-bodied hog, popularly known as the "hot-blood." It had six white points, namely, four white feet and a white splash on the end of the tail and the point of the nose. The sows were neither prolific nor very good sucklers.

During the last fifteen years the type of the Poland China hog has been changed materially. On only very few farms can one find any of the old "hot blood" Poland Chinas. On a large number of farms, however, Poland Chinas of what may be termed the medium type are still produced. A large proportion of growers of Poland Chinas now keep the big-type. This is the type that has become by far the most popular because of its great utility. The boars have big, heavy bone, are rugged, possess plenty of length and depth, and with it all have good quality. Mature boars of this type in show condition weigh from 850 to 1000 pounds. Some animals have shown greater weights. In breeding condition aged boars should weigh from 650 pounds up and sows 500 pounds up. The sows are prolific, good sucklers, and are capable of raising good sized litters. They have plenty of length, are smooth, with with good, full shoulders and well rounded hams. They are naturally active, take plenty of exercise, and are capable of producing strong litters at farrowing time. The color of the present day Poland China generally is black. Many of them have white spots on different parts of the body.

The Poland China is not surpassed by any breed in producing a finished carcass at any early age. The meat finds ready sale on the market. Pigs of this breed may be made to weigh 200 pounds at 6 months of age.

There are three associations in the United States that register pure-bred Poland China hogs, namely the American Poland China Record Association, W. M. McFadden, secretary, 609 Transportation Building, Chicago, Ill.; the Standard Poland China Record Association, F. L. Garrett, secretary, Marysville, Mo.; and the National Poland China Record Association, A. M. Brown, secretary, Moorman Block, Winchester, Illinois.

Chester White.

The Chester White breed had its origin in Chester County, Pa. The large, coarse hogs found in the Eastern States, especially in Pennsylvania, early in the nineteenth century were a mixture of the Yorkshire, Lincolnshire and Cheshire hogs, all of which were of English origin. In Pennsylvania these hogs were crossed on smaller-type hogs, but the most successful cross was by using an imported hog from Bedfordshire, England. This crossing was continuously improved up to 1848, when the breed reached such a degree of purity that it could be relied upon to reproduce its desirable qualities. It was named "Chester County White" in 1848, but the word "County" was soon dropped and the present name became established.

The first record association for the breed was created in 1884, and to its record all individuals of the breed trace. Later there were eight different record associations catering to the business of the breed, and as these lessened the unity of action among the breed's advocates, the popularity that the breed had acquired during the latter half of the nineteenth century seemed to wane.

The Chester White is a very prolific breed. It has a good disposition and easily adapts itself to its environment. It matures early, and, being a good grazer, a good feeder, and possessing good dressing qualities, has demonstrated its utility on many farms in the United States. From 1884 the uniformity of size for age of the Chester White has been commendable. The score-card type or the standard of excellence is very similar to the type of the other lard breeds of swine. Mature boars of this breed weigh from 600 to 850 pounds, some individuals showing a weight of 1000 pounds. The sows weigh from 500 to 700 pounds.

The recognized record associations for the breed are the Chester White Swine Record Association, F. F. Moore, secretary, Rochester, Ind.; the O. I. C. Swine Breeders' Association, O. C. Vernon, secretary, Goshen, Ind.; and the National Chester White Swine Record, Thos. Sharpless, Secretary, West Chester, Pa.

Berkshire.

The Berkshire is one of the oldest of the improved breeds of swine. It was originated and developed in England and is still raised quite extensively in that country. Many animals of this breed have been imported into the United States and Canada from English herds. Mention is made of the Berkshire hogs in England and Scotland as early as 1789, large specimens being compared with those of other breeds, one animal said to weigh 1130 pounds and another being still larger.

Berkshire hogs are found in noted herds in the United States. They are of medium size, generally smooth, and of good length and depth, having legs of medium length with fair size and fair quality of bone. In color this breed is similar to the Poland China, but has not as many white spots as are usually found on the Polands. Some breeders object seriously to too many white spots. The peculiarity of the Berkshire breed is the short, upturned nose. The face is usually dished and the ears are erect but inclined slightly forward. Berkshire hogs have good width of body, the back broad and the ribs well sprung. The hams and shoulders are generally smooth and well fleshed. The meat of the Berkshire is good in quality.

Good Berkshire pigs can be fed to market weight at from six months of age up. Mature boars of this breed in good show condition usually weigh from 600 to 850 pounds. Some attain a heavier weight. Mature sows should weigh from 450 to 650 pounds.

The record association for this breed is the American Berkshire Association, of which Frank S. Springer, 510 East Monroe street, Springfield, Ill., is secretary.

Hampshire.

The Hampshire breed originated in the English county of the same name, and was introduced into the United States during the first half of the last century. When the Hampshire hog first began to be popular in the United States it was often referred to as the Thin Rind Hog and classed as a bacon breed. It is now recognized as one of the lard breeds. Hampshires have made rapid progress in popularity during the last 10 or 15 years. Sows of the breed are prolific. The mothers are good sucklers and make good use of grass in pastures.

The most striking characteristic of the Hampshire is the white belt around its body, including the shoulders and front legs. The standard of perfection for Hampshires looks with disfavor upon white showing high on the hind legs and on belts greater than one-fourth the body length. Hampshire breeders sometimes discard excellent animals in their breeding operations because of imperfect belts or because they have white hind feet or legs.

The Hampshire in general appearance is smooth, has legs that are rather fine boned and of fairly good quality. Hampshire breeders are making efforts to increase the size and quality of the bone. The body of a Hampshire hog is not so broad as that of a hog of the other large breeds, but it is deep and smooth, and produces desirable sides for bacon. The jowls are light, the head is small and narrow, the snout rather straight and of medium length, the ears erect, the shoulders smooth and well set, and the hams deep but not so thick as in the other lard breeds. The flesh is of good quality. Animals of this breed sell readily on the open market.

The Hampshire possesses good growing and fattening qualities, and pigs may be brought to marketable weights at from 6 months old up. In show condition mature boars of the breed weigh from 600 to 850 pounds, some attaining a greater weight. Mature sows in show condition weigh from 500 to 700 pounds.

The only record association for this breed is the Hampshire Record Association, the secretary of which is E. C. Stone, 409 Wisconsin avenue, Peoria, Ill.

Spotted Poland China.

The spotted Poland China in many ways is very much like the Poland China, but there is much more white on the body of the former. The appearance is rather that of a white hog with numerous black spots. The standard requirement of the present record association for the breed is that at least 50 per cent of the body be white. These hogs began to be noticed more during the time when there was a tendency throughout the country to get away from the "hot-blood" Poland Chinas. The spotted Poland China hog, having more length and greater size than the "hot-bloods," attracted the attention of farmers who were looking for larger hogs. The first record association of this breed, known as the National Spotted Poland China Record Association, was organized January 1, 1914.

The general type found in this breed is a hog with good length, fairly straight, broad back, good depth of body, legs of medium length with heavy bone of medium quality. The head is short and broad, and the ears are somewhat larger than those of the Poland China breed. Some Gloucester Old Spots, imported from England into the United States as foundation animals in some herds, and recorded in the Spotted Poland China Record, have influenced the type in this breed to a considerable extent. Boars in show condition weigh from 650 to 1000 pounds. The sows are prolific and raise good sized litters.

The present record association for this breed is the Spotted Poland China Record Association, of which Fred L. Obenchain, 602 Wulsin Bldg., Indianapolis, Ind., is secretary.

Breeds of the Bacon Type.

Hog growers in the United States do not raise the bacon-type hog to any great extent. The Tamworth and the Yorkshire, of English origin, are the two breeds grown in the United States which represent this type. The Tamworth breed is established in many localities. The Yorkshire is confined principally to the states in the north.

Bacon hogs are different from lard-type hogs in that they have extreme length, the object of breeders being to produce the maximum amount of bacon with relatively small hams and shoulders. Animals of this type have good depth, deep sides and are comparatively narrow, with generally smoother bodies than most of the hogs of the lard breeds.

Tamworth.

The Tamworth is one of the oldest and probably one of the purest of all breeds of hogs. There is no evidence of its having been crossed with other modern breeds. On the other hand, there is evidence of pure breeding dating back more than 100 years. The name of the breed is derived from the town of Tamworth, located on the River Tame, in Staffordshire, near the north border of Warwickshire, England. Sir Robert Peel is credited with having introduced these hogs into England from Ireland about 1812, though their real origin is obscure. The first record of any of this breed having been brought to America appears to have been in 1881.

Hogs of the Tamworth breed are rather long legged, with long, deep, smooth bodies, good backs, narrow heads, rather long snouts, and fairly large ears, usually erect and often inclined forward. The jowls are light and the bone is medium in size, but generally of very good quality. The color is red, varying from light to dark. These hogs are good grazers, and take on flesh readily. Pigs of 200 pounds weight at 6 months of age are not uncommon. They do not mature quite so early as some of the other breeds. At the same time they attain a market weight at as early an age as any of the lard-type breeds and can be fed profitably to greater weights. Mature boars weigh from 700 to 1000 pounds. Mature sows weigh from 550 to 800 pounds. The sows are very prolific and generally good sucklers.

The American Tamworth Swine Record Association was organized in 1897. The secretary is F. M. Hartzell, Carthage, Ill.

Yorkshire.

There are three distinct types of the Yorkshire breed, known as Large, Middle and Small Yorkshires. All originated in England, where the Middle and Small Yorkshires are known as Middle and Small Whites. The Large Yorkshire greatly outnumbers the others, and is the type raised by practically all Yorkshire breeders in the United States.

They are large, white hogs with smooth, even, deep bodies, very long, capable of dressing out a large percentage of meat with bacon of very good quality. The body is supported by legs of good length, having bone of medium size and generally of very good quality. Occasionally there are black pigment spots in the skin of animals of this breed. This does not disqualify them, yet it is objectionable from the standpoint of breeders of purebred stock. Large Yorkshire sows are prolific and are generally very good sucklers. Mature boars of this breed weigh from 700 to 1000 pounds. Mature sows should weigh from 500 to 800 pounds.

The American Yorkshire Club records both the Large and Small Yorkshires. The secretary is Harry G. Krum, 471 Fairview Inn, St. Paul, Minn.

Minor Breeds.

The greater part of the swine industry of the United States is represented by the eight breeds previously discussed; still there are scattered in several parts of the country other breeds in small numbers. Among the minor breeds are the Mule-foot, the Kentucky Red, Berkshire, the Cheshire, the Essex, the Victoria, and the Large Black. None of these breeds are raised to any very great extent in the United States.

Swine: Number and Value on Farms December 31, 1919, and 1921, by States.

State	Number (thousands) Dec. 31			Average price per head Dec. 31			Farm value (thousands of dollars) Dec. 31		
	1919	1920	1921	1919	1920	1921	1919	1920	1921
Maine.....	91	73	69	\$24 50	\$21 00	\$14 70	\$2,230	\$1,533	\$1,014
New Hampshire.....	42	33	30	24 00	20 00	15 00	1,008	660	450
Vermont.....	73	63	58	22 50	14 80	12 40	1,642	932	719
Massachusetts.....	104	83	76	27 00	20 50	16 30	2,808	1,702	1,239
Rhode Island.....	13	12	12	30 00	21 00	17 50	390	252	210
Connecticut.....	61	55	47	27 50	20 00	17 00	1,678	1,100	799
New York.....	601	559	520	22 50	17 50	14 50	13,522	9,782	7,540
New Jersey.....	139	126	132	25 20	20 00	17 00	3,503	2,520	2,244
Pennsylvania.....	1,191	1,143	1,143	23 70	17 50	14 50	28,227	20,002	16,574
Delaware.....	39	37	41	19 00	16 00	10 00	741	592	410
Maryland.....	306	291	285	19 00	13 00	11 50	5,814	3,783	3,278
Virginia.....	941	847	805	15 00	11 50	9 60	14,115	9,740	7,728
West Virginia.....	305	293	293	18 00	14 00	10 80	5,490	4,102	3,164
North Carolina.....	1,271	1,246	1,258	20 00	15 70	12 00	25,420	19,562	15,096
South Carolina.....	845	853	938	21 50	13 50	9 20	18,168	11,516	8,630
Georgia.....	2,071	2,030	2,131	16 90	11 50	8 60	35,000	23,345	18,327
Florida.....	755	740	725	13 00	10 00	7 00	9,815	7,400	5,075
Ohio.....	3,084	2,806	2,862	19 20	13 30	10 90	59,213	37,320	31,193
Indiana.....	3,757	3,532	3,567	19 00	13 00	11 00	71,383	45,916	39,237
Illinois.....	4,639	4,120	4,016	20 50	13 70	10 50	95,100	56,567	42,483
Michigan.....	1,103	1,084	1,051	22 00	14 30	11 30	24,332	15,501	11,876
Wisconsin.....	1,596	1,676	1,659	23 50	14 50	10 50	37,506	24,302	17,420
Minnesota.....	2,381	2,262	2,330	24 00	15 30	11 20	57,144	34,609	26,096
Iowa.....	7,864	7,471	7,546	21 80	14 50	11 00	171,435	108,330	83,006
Missouri.....	3,889	3,656	3,693	16 50	11 00	8 50	64,168	40,216	31,390
North Dakota.....	458	431	435	21 00	14 00	11 00	9,618	6,034	4,785
South Dakota.....	1,954	1,759	1,900	21 50	13 50	10 00	42,011	23,746	19,000
Nebraska.....	3,436	3,505	3,680	20 90	13 50	10 00	71,812	47,318	36,800
Kansas.....	1,733	1,837	2,113	17 50	12 00	9 50	30,328	22,044	20,074
Kentucky.....	1,504	1,278	1,214	13 00	9 90	7 50	19,552	12,652	9,105
Tennessee.....	1,832	1,594	1,546	15 00	9 50	8 00	27,480	15,143	12,368
Alabama.....	1,497	1,347	1,307	12 80	10 00	8 60	19,162	13,470	11,240
Mississippi.....	1,373	1,195	1,219	14 50	9 50	8 00	19,908	11,352	9,752
Louisiana.....	851	749	756	14 30	11 70	8 60	12,169	8,763	6,502
Texas.....	2,226	2,426	2,475	19 50	11 80	8 50	43,407	28,627	21,038
Oklahoma.....	1,304	1,213	1,334	15 10	10 30	8 50	19,690	12,494	11,339
Arkansas.....	1,378	1,268	1,255	12 50	8 80	7 10	17,225	11,158	8,910
Montana.....	167	160	180	20 00	16 50	13 10	3,340	2,640	2,358
Wyoming.....	72	68	73	18 40	14 00	12 00	1,325	952	876
Colorado.....	450	414	455	18 00	12 30	9 60	8,100	5,092	4,368
New Mexico.....	88	90	94	21 80	15 00	9 00	1,918	1,350	846
Arizona.....	50	48	53	18 00	16 00	12 00	909	768	636
Utah.....	99	90	90	15 00	13 00	10 00	1,485	1,170	900
Nevada.....	27	25	25	14 00	11 00	10 00	378	275	250
Idaho.....	240	206	196	17 80	12 50	11 00	4,272	2,575	2,156
Washington.....	265	236	212	23 30	15 00	12 50	6,174	3,540	2,650
Oregon.....	267	240	233	19 50	12 80	10 70	5,206	3,072	2,493
California.....	909	818	834	18 00	14 50	11 70	16,362	11,861	9,758
United States.....	59,344	56,097	56,996	19 07	12 97	10 06	1,131,674	727,380	573,405

LIVE-STOCK VALUES.

Aggregate Livestock Value Comparisons.

[Farm values December 31, in millions of dollars; i. e., 000,000 omitted; States arranged according to 1921 rank in value of all animals.]

State	Cattle, hogs and sheep			Horses and mules			Total (cattle, hogs, sheep, horses and mules).			Rank in aggregate value	
	1920	1921	Average, 1916-1920	1920	1921	Average, 1916-1920	1920	1921	Average, 1916-1920	1920	1921
Iowa.....	356	238	438	120	99	162	476	337	600	1	1
Texas.....	293	184	298	169	131	186	462	315	484	2	2
Illinois.....	224	147	251	121	95	164	345	242	415	3	3
Wisconsin.....	205	151	224	72	61	82	277	212	306	4	4
Ohio.....	176	124	201	89	81	103	265	205	304	5	5
Minnesota.....	182	128	191	79	70	96	261	198	287	7	6
New York.....	153	134	178	69	62	83	222	196	261	10	7
Nebraska.....	188	133	248	75	60	105	263	193	353	6	8
Missouri.....	180	120	214	101	70	133	281	190	347	13	9
Kansas.....	148	109	211	93	67	136	241	176	347	8	10
Indiana.....	152	104	164	78	65	97	230	169	261	9	11
Pennsylvania.....	131	98	130	68	62	78	199	160	208	12	12
California.....	155	119	152	45	36	51	200	155	203	11	13
Michigan.....	116	81	131	59	56	76	175	137	207	14	14
South Dakota.....	120	80	142	50	39	71	170	119	213	15	15
Oklahoma.....	83	58	108	73	54	96	156	112	204	16	16
Tennessee.....	67	40	66	67	53	75	134	93	141	19	17
Kentucky.....	69	43	78	65	49	71	134	92	149	18	18
Colorado.....	85	64	108	29	25	38	114	89	146	21	19
Georgia.....	70	41	72	73	47	81	143	88	153	17	20
North Dakota.....	58	42	68	53	45	83	111	87	151	22	21
North Carolina.....	54	36	49	61	51	62	115	87	111	20	22
Montana.....	65	55	100	34	29	44	99	84	144	26	23
Mississippi.....	55	34	60	55	42	63	110	76	123	23	24
Virginia.....	59	39	61	43	35	46	102	74	107	24	25
Arkansas.....	47	30	53	53	40	59	100	70	112	25	26
Alabama.....	46	31	58	46	38	58	92	69	116	27	27
Oregon.....	58	43	68	24	22	28	82	65	96	29	28
Idaho.....	49	41	66	20	18	24	69	59	90	32	29
Louisiana.....	38	25	46	41	34	40	79	59	86	30	30
South Carolina.....	36	21	32	52	35	50	88	56	82	28	31
Washington.....	40	33	39	26	22	32	66	55	71	34	32
New Mexico.....	62	41	81	12	10	16	74	51	97	31	33
Wyoming.....	51	40	92	9	8	16	60	48	108	35	34
Arizona.....	55	37	58	14	10	11	69	47	69	33	35
West Virginia.....	38	26	43	19	16	22	57	42	65	36	36
Utah.....	34	29	48	10	9	12	44	38	60	38	37
Maryland.....	26	19	25	18	16	21	44	35	46	39	38
Florida.....	33	23	36	12	11	13	45	34	49	37	39
Vermont.....	27	22	29	10	8	12	37	30	41	40	40
New Jersey.....	21	16	21	11	11	14	32	27	35	41	41
Maine.....	17	13	19	14	12	16	31	25	35	42	42
Massachusetts.....	21	17	20	7	7	9	28	24	29	43	43
Nevada.....	23	18	38	3	2	5	26	20	43	44	44
Connecticut.....	15	12	15	5	5	7	20	17	22	45	45
New Hampshire.....	11	9	12	5	4	6	16	13	18	46	46
Delaware.....	4	3	4	3	3	4	7	6	8	47	47
Rhode Island.....	3	3	3	1	1	1	4	4	4	48	48
Total.....	4,199	2,954	4,849	2,256	1,826	2,758	6,455	4,780	7,607	-----	-----

Estimated Number of Domestic Animals on Farms in California, by Counties December 31, 1921.

Counties	Horses	Mules	Sheep	Swine	Milk cows	All other cattle
Alameda.....	8,000	125	26,000	9,700	15,000	23,000
Alpine.....	150	5	2,500	150	200	1,500
Amador.....	1,500	110	10,000	5,000	1,500	18,000
Butte.....	6,000	1,200	34,000	20,000	7,000	23,000
Calaveras.....	1,200	80	20,000	4,000	9,500	22,000
Colusa.....	3,500	2,200	53,000	20,000	3,200	11,000
Contra Costa.....	7,000	300	24,000	13,000	12,000	16,000
Del Norte.....	400	10	1,000	800	7,000	2,500
El Dorado.....	1,800	80	11,500	2,500	2,800	13,500
Fresno.....	24,000	5,000	205,000	37,000	30,000	52,000
Glenn.....	4,000	1,800	133,000	18,000	6,000	15,500
Humboldt.....	5,800	330	65,000	14,500	28,000	38,000
Imperial.....	10,400	4,100	39,000	35,000	32,000	36,000
Inyo.....	3,500	400	47,000	4,500	2,500	23,000
Kern.....	10,000	2,450	180,000	30,000	8,800	115,000
Kings.....	8,000	1,450	36,000	32,000	23,000	16,000
Lake.....	1,700	160	17,000	8,000	2,600	8,000
Lassen.....	7,000	425	95,000	5,000	3,200	35,000
Los Angeles.....	19,000	4,000	26,000	37,000	32,000	31,000
Madera.....	4,800	2,000	34,000	12,000	6,400	27,000
Marin.....	2,500	60	11,000	21,000	29,000	7,000
Mariposa.....	1,500	310	6,000	8,000	200	13,000
Mendocino.....	4,500	360	102,000	25,000	8,000	25,000
Merced.....	14,500	2,600	84,000	30,000	43,000	86,000
Modoc.....	9,000	630	122,000	5,000	2,600	45,000
Mono.....	500	50	31,000	400	200	2,000
Monterey.....	1,200	1,220	16,000	20,500	20,000	54,000
Napa.....	3,400	300	21,000	7,000	6,000	9,500
Nevada.....	1,500	25	14,500	3,000	2,500	7,500
Orange.....	6,700	3,000		8,000	5,000	10,000
Placer.....	3,300	300	35,000	4,500	2,400	4,500
Plumas.....	1,300	20	4,500	1,000	2,300	7,000
Riverside.....	9,200	3,200	11,000	15,500	6,500	13,500
Sacramento.....	10,000	950	35,000	13,000	14,200	17,000
San Benito.....	4,000	90	15,500	6,500	4,500	28,000
San Bernardino.....	6,300	1,400	4,500	21,500	6,000	16,000
San Diego.....	9,000	1,150	8,500	14,000	10,000	37,000
San Francisco.....						
San Joaquin.....	16,000	2,000	70,000	34,000	25,000	21,000
San Luis Obispo.....	10,500	800	16,500	16,000	22,000	70,000
San Mateo.....	2,300	50	1,000	8,500	9,000	4,200
Santa Barbara.....	10,400	600	37,000	17,000	6,700	49,000
Santa Clara.....	9,500	225	2,000	9,000	14,000	27,000
Santa Cruz.....	3,200	80	2,000	6,000	3,800	4,000
Shasta.....	3,500	200	28,000	27,500	1,800	37,000
Sierra.....	800	25	4,500	450	2,100	5,000
Siskiyou.....	7,300	170	17,000	12,000	9,000	41,000
Solano.....	5,200	900	99,000	13,500	10,000	13,000
Sonoma.....	11,500	280	64,500	19,000	29,000	15,500
Stanislaus.....	13,000	2,300	35,000	21,000	45,000	32,500
Sutter.....	5,000	1,400	60,000	11,500	6,200	6,500
Tehama.....	5,500	1,350	185,000	24,500	3,800	31,000
Trinity.....	1,000	160	2,500	6,000	500	11,500
Tulare.....	19,000	4,300	50,000	55,000	35,000	53,000
Tuolumne.....	1,300	40	2,000	3,500	1,000	16,000
Ventura.....	7,000	2,200	10,000	8,500	3,000	10,300
Yolo.....	6,000	1,700	118,000	25,000	8,000	13,000
Yuba.....	2,050	330	58,000	4,000	2,000	10,500
Totals.....	367,000	61,000	2,450,000	834,000	632,000	1,380,000

RECOGNIZED BREEDS OF DOMESTIC ANIMALS.

Cattle.

Aberdeen-Angus.
Alderney.
Ayrshire.
Devon.
Galloway.

Guernsey.
Hereford.
Highland.
Holstein-Friesian.
Jersey.

Kerry and Dexter.
Red Polled.
Shorthorn.
Sussex.
Welsa.

Sheep.

Cheviot.
Cotswold.
Dorset Horn.
Hampshire Down.
Kent or Romney Marsh.

Kerry Hill.
Leicester.
Leicester-[Border].
Lincoln.
Rambouillet.

Shropshire.
Southdown.
Suffolk.
Wensleydale.
Oxford Down.

Hogs.

Berkshire.
Chester White.
Duroc-Jersey.

Hampshire.
Poland-China.
Tanworth.

Mulefoot.
Yorkshire.
Essex.

WOOL.

The United States Department of Agriculture estimates the wool product of the country and bases its estimate of the number of sheep in each state on the wool clip divided by the average weight per fleece, no attempt being made to count the number of sheep sheared. This method produces a good approximation of the number of sheep of shearing age, and naturally varies from the total number of sheep in the country as estimated by the department for the country on January 1 of each year.

Wool: Estimated Production, 1919-1921.

State	Production (000 omitted).			Weight per fleece			Number of fleeces (000 omitted)		
	1919	1920	1921	1919	1920	1921	1919	1920	1921
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.			
Maine	725	760	660	6.4	6.4	6.0	113	119	110
New Hampshire	180	182	155	6.6	6.5	6.7	27	28	23
Vermont	438	430	399	7.2	7.2	6.3	61	60	63
Massachusetts	90	95	95	6.6	6.5	6.0	14	15	16
Rhode Island	15	14	13	5.8	6.1	5.9	3	2	2
Connecticut	56	63	57	5.9	5.6	6.0	9	11	10
New York	3,351	3,291	2,941	7.0	6.9	6.7	479	477	439
New Jersey	58	60	55	7.0	7.0	6.0	8	9	9
Pennsylvania	3,444	3,582	3,403	7.0	6.5	6.4	492	551	532
Delaware	16	17	16	5.7	5.8	3.5	3	3	5
Maryland	551	562	523	6.0	6.0	6.0	92	94	87
Virginia	1,520	1,596	1,558	5.0	4.6	4.6	304	347	339
West Virginia	2,600	2,500	2,300	5.3	5.0	4.9	491	500	469
North Carolina	380	420	395	4.4	4.2	4.2	86	100	94
South Carolina	103	101	97	4.3	4.5	3.5	24	22	28
Georgia	167	165	160	3.1	3.2	2.8	54	52	57
Florida	162	157	150	3.5	3.2	3.1	46	49	48
Ohio	15,265	14,500	13,200	7.5	7.4	7.2	2,035	1,959	1,833
Indiana	4,089	3,654	3,458	7.4	7.0	7.0	550	522	494
Illinois	4,183	3,974	3,578	8.0	7.8	7.6	523	509	471
Michigan	7,836	8,385	7,714	7.4	7.6	7.2	1,059	1,103	1,071
Wisconsin	3,310	3,219	2,818	7.6	7.4	7.0	436	435	402
Minnesota	3,054	2,660	2,340	7.5	7.1	7.2	407	375	325
Iowa	5,682	5,966	5,369	8.0	7.7	7.5	710	775	716
Missouri	7,706	7,552	6,645	7.1	6.8	6.5	1,085	1,111	1,022
North Dakota	1,826	1,899	1,633	7.7	7.5	7.7	237	253	212
South Dakota	5,222	4,804	4,324	7.5	7.0	7.2	696	686	601
Nebraska	1,730	1,886	1,641	7.9	8.0	7.4	219	236	222
Kansas	1,754	2,087	1,878	7.6	7.5	7.0	231	278	268
Kentucky	3,211	3,000	2,600	5.2	5.0	4.7	618	600	553
Tennessee	1,483	1,462	1,320	4.8	4.8	4.5	309	305	293
Alabama	255	292	189	4.2	4.0	3.0	61	73	63
Mississippi	500	475	470	4.2	3.6	3.5	119	132	134
Louisiana	600	600	508	3.9	3.9	3.7	154	154	137
Texas	14,986	18,200	18,000	7.2	7.0	7.7	2,081	2,600	2,338
Oklahoma	526	477	482	7.0	7.2	7.3	75	66	98
Arkansas	375	394	355	4.9	4.5	4.3	77	88	49
Montana	18,267	16,000	16,400	8.4	7.9	8.3	2,175	2,025	1,976
Wyoming	26,000	21,000	21,500	8.5	8.3	8.2	3,359	2,530	2,622
Colorado	7,332	6,888	6,839	6.6	6.7	7.0	1,111	1,028	977
New Mexico	11,600	10,600	10,100	6.3	6.3	6.4	1,841	1,683	1,578
Arizona	5,400	4,800	5,000	6.3	6.5	6.0	857	738	833
Utah	17,000	16,150	16,500	7.4	7.8	8.0	2,297	2,071	2,062
Nevada	7,750	7,500	7,000	7.6	7.3	7.3	1,020	1,027	959
Idaho	22,145	18,650	16,800	8.4	8.1	8.0	2,636	2,302	2,100
Washington	5,779	5,201	4,421	8.6	8.7	8.8	672	598	502
Oregon	16,039	14,435	14,435	8.5	8.4	8.6	1,887	1,718	1,678
California	15,217	14,300	14,070	7.4	7.6	7.5	2,056	1,882	1,876
United States	249,958	235,005	224,564	7.4	7.3	7.3	33,899	32,301	30,799

Wool: Quarterly Average Price per Pound on Farms, by Leading Districts, 1910-1921.

Year and month	Ohio, Pennsyl- vania, and West Virginia	Michi- gan, Wiscon- sin, and New York	Ken- tucky and Indiana	Missouri, Iowa, and Illinois	Texas	Calif- ornia	Mon- tana, Wyo- ming, Utah, Idaho, Oregon, Nevada and Arizona	New Mexico	Florida, Ala- bama, Missis- sippi, Louis- iana, and Georgia
1910-1914:									
January	\$0 23	\$0 21	\$0 22	\$0 20	\$0 16	\$0 14	\$0 17	\$0 15	\$0 21
April	22	20	21	19	16	14	16	15	19
July	22	21	21	19	16	15	16	14	19
October	22	21	20	19	15	13	16	14	18
1915:									
January	24	23	23	20	15	16	21	17	17
April	26	26	26	24	18	20	22	18	18
July	28	29	28	26	19	20	22	19	21
October	28	28	27	26	18	17	21	19	20
1916:									
January	29	29	28	26	20	18	24	21	20
April	32	32	33	30	23	24	27	22	25
July	34	34	34	31	24	24	27	24	25
October	35	34	34	31	25	21	28	24	26
1917:									
January	38	37	35	33	26	31	35	27	25
April	48	48	48	45	35	45	44	37	32
July	64	61	59	57	44	52	53	46	44
October	66	64	62	58	47	51	56	48	46
1918:									
January	69	65	62	59	50	53	57	47	45
April	69	65	66	61	51	49	55	54	49
July	67	65	65	61	52	50	55	49	53
October	67	65	64	60	51	50	54	44	54
1919:									
January	62	58	62	56	45	42	51	35	50
April	58	52	53	49	42	43	48	42	44
July	63	58	55	53	46	47	49	46	45
October	63	57	55	51	44	42	48	48	44
1920:									
January	63	58	54	52	46	45	50	45	48
April	58	50	48	44	45	44	44	44	41
July	33	30	34	28	30	28	28	25	25
October	28	26	27	22	24	23	26	22	19
1921:									
January	27	23	22	18	20	13	19	15	17
April	22	19	17	17	15	10	16	14	16
July	19	18	16	15	14	12	16	12	13
October	20	18	17	15	14	13	16	14	14

PART IV.

POULTRY, DAIRY PRODUCTS, BEES AND HONEY.

Poultry and Eggs; Poultry Varieties; Utilization of Dairy By-Products; Dairy Cows—Purebred vs Grades; Production of Butter and Butterfat; Cheese; Production of Dairy Products; Honey; Bee-keeping in California; Ostrich Industry.

Production and Value of Poultry and Eggs Produced on Farms in the United States, 1921.

The total value of poultry and eggs produced on farms in 1921 was \$943,000,000, according to estimates made by the United States Department of Agriculture. Of this total, approximately \$401,000,000 was for poultry and \$542,000,000 for eggs. Production of poultry was 526,000,000 chickens and 24,000,000 other fowls. Production of eggs was 1,837,000,000 dozen chicken eggs, and 6,000,000 dozen eggs from all other poultry.

The 1921 value of all poultry raised on farms in the United States was a drop from \$456,000,000 in 1920, and from \$417,000,000 in 1919. The decline in value from 1920 to 1921 was due to the fall in price per fowl, and the increase in value from 1919 to 1920 was due to a larger production and an advance in average prices. The average value per chicken raised in 1919 was 81.6 cents; in 1920 it was 86.5 cents, and in 1921 it was 71 cents.

The total value of poultry raised in 1921 is made up as follows: Chickens, \$373,500,000; turkeys, \$12,900,000; geese, \$7,000,000; ducks, \$4,900,000; guinea fowls, \$1,900,000; pigeons, \$1,400,000.

The chicken eggs produced on farms have a considerably higher value than the chickens raised. The estimated value of chicken eggs in 1921 was \$539,000,000; in 1920 it was \$760,000,000, and in 1919 it was \$679,000,000. For egg production of all kinds of poultry, not including pigeons, a value of \$542,000,000 is estimated for 1921; \$765,000,000 for 1920, and \$683,000,000 for 1919. In 1921 the average price of chicken eggs throughout the entire United States was 29.3 cents per dozen; in 1920 it was 44.4 cents, and 1919 it was 41 cents.

The 1921 estimates for chickens and eggs produced are based upon 1919 census figures. It is also pointed out that there is a large production of poultry and eggs not on farms.

Taken as a whole, the year 1921 was one of market increase in the production of butter, cheese and eggs with the inflation of prices brought about by the war steadily disappearing, and the new year opens up with indications that this tendency toward pre-war prices will continue.

California Egg Shipments.

The United States Bureau of Markets estimates that during the year 1921 there were shipped from California a total of 1105 carloads of eggs. This is a substantial increase over 1920, when the total shipments amounted to 920 cars.

Of the 1105 carloads, 744 went east direct from Petaluma, the largest poultry shipping point in the world. From San Francisco there were shipped 204 carloads. Other points from which carload shipments were made are Los Angeles, 70 cars; San Diego, 39 cars. From other points in the state there were shipped 38 cars. The equivalent of ten carloads were shipped by vessel through the Panama canal. Some of this went to England, and the remainder to Atlantic seaboard markets.

Figured on a basis of 480 cases to the car, the shipments would represent 530,400 cases, and at 30 dozen to the case, 15,912,000 dozen. Based on the average San Francisco quotation of 45 cents on first grade eggs for the year, this would give a valuation of \$7,060,000. This figure, however, is merely a crude approximation, as all the eggs shipped were not of the top grade, and also the largest shipments were made when prices ruled below the average. Offsetting this, however, is the fact that the eggs shipped out of the state, as a rule, realized prices above the San Francisco average, so that the value given is after all a fair approximation.

Egg Receipts, San Francisco Market.

Egg receipts took a tremendous jump during 1921, and when allowance is made for the heavy shipments that were made to points outside of the state, aggregating over 1100 cars, some idea can be gained of the growth of the poultry industry in California. The receipts for the year total 917,688 cases. In 1920 they amounted to 790,993 cases, in 1919 to 617,083 cases and in 1918, to 665,366 cases. In other words, there has been a gain of nearly 50 per cent in the four years.

The average quotation for the year on fancy ranch eggs was 45.06 cents. This represents a big drop from the average of 1920, when the average was 60.93 cents. For 1919 the average was 60.5 cents. The high point in egg prices during the year was reached on November 18, when fancy ranch eggs were quoted at 73½ cents. The lowest quotation for a day was 24½ cents. This was the quotation on May 19.

The Poultry Industry in California.*

"Two factors weigh most heavily in the location of a poultry farm: (1) nearness to good markets, (2) available supply and net cost of feed. Poultry and eggs being perishable products which must be shipped expeditiously, frequently and at low cost, favorable transportation facilities and nearness to good markets are necessary. Being located, however, in a grain growing area where grain can be bought direct from the nearby harvest fields at lowest wholesale prices will often more than offset increased distance from markets, provided good rail facilities are to be had. Cooperation is a third factor that can be made to aid in offsetting

*By J. E. Dougherty, Associate Professor of Poultry Husbandry, University of California.

the disadvantage of rather distant locations from the better markets because it makes possible the buying of feed and supplies in larger quantities at lower prices and permits marketing of finished products to better advantage.

“For these reasons the poultry districts have largely developed in the more populous areas and near to the larger cities or within grain growing areas possessing favorable rail connections with the larger cities where the demand is much greater than the supply and prices good.

“The Petaluma district surrounding Petaluma, Sonoma County, 39 miles from San Francisco, and including the towns of Santa Rosa, Sebastopol and Sonoma; the Hayward district in Alameda County, in the vicinity of the city of Hayward, 20 miles from San Francisco; the Los Angeles district, embracing Los Angeles and vicinity, and including the cities of Riverside, Pomona, San Gabriel, Burbank and Gardena, are examples of prosperous poultry centers that have developed primarily as a result of being near Los Angeles or San Francisco. The districts around Sacramento, Stockton, Fresno and Tulare are in grain growing areas possessed of excellent rail facilities. Poultry districts have also grown up around Santa Cruz and San Diego because these two cities are popular tourist and summer resorts.

“Poultry farming in the districts mentioned above and in the Santa Clara Valley, Napa Valley, San Mateo County, and the Sacramento Valley west of the Sacramento River and north of Benicia, as well as the area north of Sacramento, is capable of much greater development and most of those last mentioned areas will become increasingly desirable for poultry farming as the population of the state grows and lines of transportation are developed more extensively—especially in an east and west direction. Good roads and motor trucks have already begun to play a very important role in bringing the country closer to the city and making it possible for the poultry raiser to penetrate considerably further into the country where land is cheaper before getting beyond effective reach of profitable markets.

“Poultry raising requires good farming land because the green feed, at least, must be grown and because forage crops should also be raised as much as possible in the poultry yards if the soil is to be kept sweet and free from disease spreading contamination. The value of resting the land from poultry and sowing to green crops every few months is so well recognized that the use of double yards for each pen of fowls is becoming more general from year to year. Alkali land and barren hillsides are entirely unsuitable.

“Fowls will do well on practically any well drained agricultural soil. The lighter, sandy and gravelly loams are preferred, however, to the heavier soil types because of a more rapid drainage of surface water and drying of the surface soil. For example, on sandy soils with good under-drainage, a heavy rain will sink into the ground about as fast as it falls, the surface will be dry enough for fowls to use the yards soon after the rain ceases and such soils do not become sticky when moist. On heavy clay soils, however, rain drains away much more slowly and the surface soil remains damp and sticky for days, especially in winter. A moist, sticky soil surface adheres to the feet of the fowls. They track this wet soil into the nests and scratching pens so that scratching litter and nests quickly get dirty and damp and the percent of dirty eggs increases.

Dirty, damp pens must be restrawed. Dirty eggs must be washed. Washed eggs deteriorate more rapidly than unwashed eggs, and are worth less. To prevent restrawing of scratching pens and dirty eggs from this cause, fowls must be confined to houses to a greater extent on heavy than on light soils.

"The size of the average poultry farm is from 5 to 20 acres. A 10-acre farm can accommodate from 2000 to 3000 adult fowls and allow for the growing of green feed and young stock to maintain the adult flock. As high as 1000 or more fowls per acre of yard space are kept on some commercial farms, but not more than 500 per acre is greatly to be preferred if the land is to be kept free from contamination, the stock in continued good health and a most permanent success secured. Too great crowding is unprofitable.

"Fowls are raised almost entirely for eggs and the S. C. White Leghorn is used most extensively for this purpose. Egg production has proven more successful than the production of market poultry, perhaps because eggs are in greater demand than table poultry and the margin of profit is larger.

"The money needed to make a successful start in poultry raising is rather less than for most other types of farming and it is for this reason that so many people with limited means desiring to leave industrial work and go into farming, turn to poultry. A total investment, including dwelling, of from \$5 to \$10 per laying hen is required, which would be distributed somewhat as follows: 30 per cent in land, 40 per cent in building and fencing and for chicken yards, etc., 20 per cent in stock, 4 per cent in equipment such as horse, plow, harrow, green feed cutter, etc., 3 per cent in feed and other supplies, 3 per cent in cash.

"The net profits or labor income will range from 50 cents to \$1.50 per laying hen, depending largely upon the knowledge and experience of the poultry raiser.

"One thousand laying hens is about as small a number as one could afford to start with if poultry must furnish the entire living. Wherever possible it is best for the beginner lacking experience to start with 100 to 300 hens as a side issue until sufficient experience is obtained to justify breaking loose from other sources of income and devoting all his efforts to poultry farming.

"With one acre for each 500 hens, one acre for the growing of green feed, one acre for dwelling, barn, garden and the raising of young stock a minimum of four acres would be needed for a 1000-hen farm. If a cow were kept and some hay raised for the horse, five acres would prove more satisfactory.

"On the basis of an investment of \$5 per hen, a 1000-hen plant would require a total capital of \$5000, of which about \$1500 would go into land, \$2000 into buildings, including living quarters, \$1000 in stock, \$200 into equipment, \$150 into feed and supplies and \$150 into ready cash. The investment in land will vary with the price paid, and the value per acre for poultry will be subject to favorableness of location and quality of soil. A location within a very short haul of a high class poultry and egg market and wholesale feed markets is worth more than another where the haul would be greater and freight and express costs higher.

"Land used for poultry farming ranges from about \$100 to more than \$500 per acre, with an average price of about \$300. Ownership

predominates over tenancy among poultrymen. Suitable poultry farms to rent are not very numerous and the fact that so many buildings are needed causes poultry raisers to hesitate to build on rented land. They prefer to own the land they build on.

Poultry.

With the exception of the turkey, all the different species of poultry now kept on American farms are of European or Asiatic origin. The fowl, or chicken, is unquestionably of Asiatic origin.

Varieties.

The chickens of the United States may be divided into ten classes:

The American Class includes the—

Plymouth Rock.
Wyandotte.
Java.
American Dominicae.
Jersey Blue.

The Asiatic Class—

Brahma.
Cochin.
Langshans.

The Mediterranean Class—

Leghorn.
Minorca.
Andalusian.
Spanish.

The Polish Class—

White Crested.
Black.
Golden.
Silver.
White and Bearded Golden.
Bearded White.
Bearded Silver.
Buff Laced.

The Dutch or Hamburg Class—

Hamburgs.
Red Caps.
Campines.

French Class—

Houdans.
Creve Cœurs.
La Fleche.

Game and Game Bantam Class—

Black-breasted Red.
Brown Red.
Golden and Silver Duckwing.
Red Pyle.
White, Black, Birchen, Cornish and Indian Games.
Malays.

Bantams other than Game—

Sebrights.
Rose Combed.
Booted.
White.
Cochin.
Japanese.
Polish.

English Class—

Dorkings.
Orpingtons.

Miscellaneous Class—

Russian.
Sumatra.
Silky.
Sultan.
Frizzles.
Rumples.
Yokohama.
Naked Neck.

Classified according to their prominent characteristics, they may be divided into four classes. The egg breeds, which are the greatest egg producers, are the Leghorns, Spanish, Minorcas, and Hamburgs.

The meat breeds, whose chief value is as meat producers: Brahma, Cochin, and Langshan. The general utility fowls furnish fair quantities of eggs and meat. The Plymouth Rock and Wyandotte belong to this class.

The fancy breeds are reared chiefly on account of their appearance; the Polish, Games, Bantams, and some miscellaneous breeds are the chief representatives of this class.

For general purposes the Plymouth Rock and Wyandotte are the most popular of all fowls, the Plymouth Rock in particular being in great favor.

The turkey is an American bird. The wild turkey was once found all along the Atlantic coast, throughout Mexico, Central America, and the great interior plains of North America. The recognized varieties of the domestic turkey are the Bronze, Narragansett, White, Holland, Buff, Slate, and Black.

Ducks.

The six leading varieties are the White Pekin, White Aylesbury, Colored Rouen, Black Cayuga, Colored Muscovy, and White Muscovy.

The most prominent breeds of geese are the Toulouse, African, Embden, Chinese, Wild, and Egyptian.

The raising of poultry in California is carried on successfully and on a large scale, the center of this industry being at Petaluma, in Sonoma County.

The Utilization of Dairy By-Products.

By Professor H. E. VAN NORMAN, President of the World's Dairy Congress.

For every pound of butter we eat, three pounds of milk solids are produced which are highly valuable for human feeding. At present, all except a trifling part of these solids are used at comparatively small profit in the feeding of calves, hogs and chickens. In 1921, nearly 36,000,000,000 pounds of milk were used in the manufacture of butter, yet only 1,700,000,000 pounds of butter were turned out. Out of the remaining billions of pounds of skim milk and butter milk, besides a small quantity of butter milk sold the public, only 700,000,000 pounds were utilized for skim milk powder and skim milk and cottage cheese. That year, also, 13,650,000,000 pounds of whole milk were used in the manufacture of cheese, yet only about 356,000,000 pounds of solids were left in the cheese. Of the billions of pounds of whey remaining, only 32,000,000 pounds were used for crude milk sugar. In addition, about 269,000,000 pounds of skim milk or cheese whey were used in the manufacture of dried casein. However, all told, only a scant billion pounds of the by-products of butter and cheese were made use of in a really profitable manner beside the butter milk disposed of. In other words, only 2,140,000,000 pounds of solids, out of a possible 4,300,000,000 contained in the 36,000,000,000 pounds of milk that were used in the manufacture of butter and cheese, were utilized for human food or for casein for industrial purposes, according to the figures of the Dairy Division of the United States Department of Agriculture.

During the war, attention was directed to the fact that these milk solids are more valuable for human food than for animal food. There is a tremendous quantity of skim milk, butter milk and whey, containing good human food, that is not profitably marketed. I found in Europe, especially in England, Denmark and Sweden, much interest in the development of profitable uses for these by-products. A man with a relatively small amount of these by-products will not, and can not, go to much trouble to find uses for them. The meat-packing industry, which is concentrated in a relatively few large establishments, found itself possessed of great quantities of by-products, and called on its scientifically trained men to discover profitable uses for them. The result is that this industry is now often pointed to as a glowing example of efficiency in the use of all by-products.

The dairy industry is confronted with the necessity of developing better uses for its by-products. There is a steadily growing market for skim milk powder. The baker has been taught by the manufacturer that he can use skim milk powder in the making of bread and make better bread at a financial advantage to himself. This has opened up a tremendous market for skim milk in the form of powder at prices greater than could be obtained by feeding it to farm animals. I was in a laboratory the other day where a by-product of whey has been perfected. The research man, after working a year to find someone who would use it, got a call for 20,000 pounds of the product in one order, and was fortunately able to direct the customer to a source of supply. This is suggestive of the opportunities for helpful scientific investigation which lie ahead of members of the American Dairy Science Association.

DAIRY COWS.

Purebreds vs. Grades.

Occasionally we hear someone advance the argument that a grade cow will out-produce a purebred, and this is used as an argument against the purebred cow. It must be admitted that a grade cow, resulting from several crosses of carefully selected pure breeding, is a good proposition as a producer, and often stands out as a leader in cow-testing association work. It must not be lost sight of, however, that it is the pure blood surging through her veins which makes possible her good work and that if we would use more care in selection and be equally rigid in discarding the misfits among our purebreds, there would result much faster improvement in our animals of pure breeding and much greater difference along the lines of production.

In this connection, however, the yearly report of the Los Angeles County Farm Bureau Cow Testing Association for 1921-1922 is of particular interest. This is one of the largest associations in the country with a total of 2434 head, of which 282 are purebreds, the balance of which are grades mostly Holsteins in both cases. The average of all of the purebreds for this year was 11,234 pounds of milk, 397.18 pounds butterfat, while the grades averaged 8546 pounds of milk, 342.5 pounds butterfat. Twenty-seven per cent of the grades produced over 400 pounds butterfat, while 49 per cent of all the purebreds, or practically one-half, produced over 400 pounds butterfat during the calendar year. The purebreds in this association returned to their owners an average of \$49.77 more per cow than did the grades, according to the figures of the Los Angeles County Farm Bureau. Thus if all of the grade cows in this single county cow testing association produced at the same rate as did the purebreds it would have meant to the dairymen of that county a total of over \$107,500 extra returns from the sale of their products.

United States Production and Consumption of Butter, 1921.

The production of butter in the United States during 1921 amounted to 1,704,938,000 pounds, of which amount 1,054,938,000 pounds were produced in creameries and 650,000,000 pounds on the farms. This represents an increase of 10.5 per cent over 1920 during which year the production amounted to 1,543,577,000 pounds. There was also an increase in the amount of butter consumed in the United States during 1921, the consumption for that year having amounted to 1,725,772,651 pounds, as compared with 1,554,000,000 pounds during 1920, an increase of 11.1 per cent. The difference of 20,834,561 pounds between production and consumption was made up of imports and removals from cold storage.

The imports of butter into the United States during 1921 amounted to only 18,558,388 pounds as against 37,454,172 pounds during 1920, a decrease of 50.5 per cent. Exports, however, decreased by 54.2 per cent, having amounted to only 8,014,737 pounds in 1921 as against 17,487,636 in 1920, so that the excess of imports over exports in 1921 amounted to only 10,543,651 pounds as against 19,966,437 pounds in 1920.

While the production of butter in the United States during 1921 increased by 10.5 per cent the production of oleomargarine decreased by 43 per cent having amounted to 211,840,000 pounds in 1921 as compared with 370,730,000 in 1920. The price of butter also decreased, the average price of 92 score creamery butter at New York during the year having amounted to 43 cents per pound as compared with 61 cents per pound in 1920. The stimulus to increased butter production in the United States during the past year is attributable to the material increase in the general purchasing power of butter in terms of other commodities since the fall of 1920. Statistics show that while the number of milk cows on farms increased from 23,594,000 on January 1, 1921, to 24,028,000 on January 1, 1922, the number of cattle other than milk cows declined during the same period from 41,993,000 to 41,324,000.

Production of Butter and Butterfat in California by Counties and Rank of Same
During the Year Ending June 30, 1921.

County	Butter in pounds	Rank	Butterfat in pounds	Rank
Alameda	676,946	24	2,366,811	15
Alpine				
Amador	324,859	36	273,326	42
Butte	1,105,891	14	1,091,289	23
Calaveras	95,309	48	82,204	53
Colusa				
Colusa	568,414	29	531,457	37
Contra Costa	897,994	21	1,499,772	19
Del Norte	1,087,546	15	1,083,908	25
El Dorado	245,408	39	213,780	45
Fresno	3,055,990	9	3,797,764	11
Glenn				
Glenn	963,253	18	810,256	30
Humboldt	7,010,093	2	7,176,567	2
Imperial	6,227,934	3	5,465,437	5
Inyo	312,576	37	251,342	43
Kern	674,312	25	795,796	31
Kings				
Kings	5,124,895	5	4,472,877	7
Lake	421,514	32	368,487	41
Lassen	203,806	40	226,595	44
Los Angeles	99,149	47	6,679,929	3
Madera	1,198,009	13	1,400,500	21
Marin				
Marin	3,505,410	8	4,341,099	8
Mariposa				
Mariposa			2,081	57
Mendocino	963,713	17	886,784	28
Merced	4,028,324	7	5,695,554	4
Modoc	192,880	41	192,316	47
Mono				
Monterey	812,634	23	4,306,223	9
Napa	583,257	28	699,953	34
Nevada	141,241	41	142,525	48
Orange	33,004	50	845,776	29
Placer				
Placer	181,403	42	211,956	46
Plumas	130,049	45	109,323	51
Riverside	23,279	52	1,576,472	17
Sacramento	1,268,997	12	2,307,703	16
San Benito	300,055	38	728,884	35
San Bernardino				
San Bernardino	65,602	49	633,401	35
San Diego	372,327	34	1,558,364	18
San Francisco				
San Francisco			414,820	39
San Joaquin	2,954,246	10	4,156,795	10
San Luis Obispo	2,841,881	11	2,551,091	14
San Mateo				
San Mateo	637,623	27	1,416,774	20
Santa Barbara	526,067	30	614,368	36
Santa Clara	442,987	31	3,050,890	13
Santa Cruz	367,421	35	522,724	38
Shasta	115,836	46	119,486	49
Sierra				
Sierra	144,993	43	116,539	50
Siskiyou	1,008,959	16	919,957	27
Solano	655,246	26	1,124,845	22
Sonoma	4,068,292	6	3,750,818	12
Stanislaus	7,164,219	1	9,931,685	1
Sutter				
Sutter	937,278	19	1,005,711	26
Tehama	405,319	33	388,427	40
Trinity	405	53	6,889	56
Tulare	5,269,153	4	4,740,082	6
Tuolumne				
Tuolumne	28,908	51	82,085	54
Ventura				
Ventura			73,801	55
Yolo	935,066	20	1,084,911	21
Yuba	853,318	22	764,058	32
Totals	72,254,290		99,663,270	

Receipts and Price Averages, San Francisco Market.*

BUTTER.

Receipts of butter on the San Francisco market during the year made a substantial increase over the year 1920 and have only been exceeded by two previous years. The total is about 30 per cent of the butter production of California, although the total receipts are not confined to California production. In fact, San Francisco during the past year drew butter from a larger territory than any year in the history of the market except in earlier years when eastern butter found its way here.

The receipts for the year total 25,894,600 pounds. Of this amount 1,580,100 pounds represents butter imported from Australia, leaving receipts from domestic sources amounting to 24,314,500 pounds. Last year imported butter amounted to 1,310,000 pounds. In order that comparisons with other years may be on a basis of domestic receipts and not include imported butter whose arrival is very irregular this imported butter is not included in the yearly totals. The following table gives the totals of domestic receipts for each year since 1907:

Year	Pounds	Average cents per lb	Year	Pounds	Average cents per lb.
1907	16,354,528	30.5	1915	28,396,200	26.3
1908	14,597,400	27.6	1916	27,793,300	30.6
1909	14,459,000	30.6	1917	24,915,500	39.9
1910	13,931,900	32.0	1918	22,936,960	52.29
1911	20,820,700	26.8	1919	19,593,100	62.25
1912	24,756,600	30.8	1920	23,030,000	60.19
1913	22,741,000	31.2	1921	24,314,500	41.89
1914	22,268,800	26.6			

☛ Included in this year's receipts of butter were large quantities of butter from Idaho and Utah. Early in the year they also included some butter from Washington and also from points in Canada. Eastern butter no longer is a factor in the California trade, except for occasional shipments of low grade stock for baking purposes.

*The average price on the San Francisco market is a fair criterion of the general average of the state.

Cheese Produced in California, 1917 to 1921.

County	1917, pounds	1918, pounds	1919 pounds	1920, pounds	1921, pounds
Alameda	150,000		73,281	48,395	93,047
Butte	105,990	150,540	167,345	114,654	14,000
Colusa	90,321	68,731	20,804	30,560	116,353
Contra Costa		360		4,050	11,111
Del Norte	349,520		369,789	400,279	596,510
Fresno	617,000	390,608	451,163	154,570	150,000
Glenn		37,550	11,500		
Humboldt	253,602	898,880	1,670,678	1,111,663	663,374
Imperial	270,270	343,266	421,359	635,877	433,683
Kern	40,700	25,113	16,500	29,336	
Kings		144,000	200,257		
Lake	24,556	55,000	2,480	2,910	
Lassen	105,573	100,609	101,098	166,652	135,015
Los Angeles		547,049		20,240	26,873
Madera	60,000	87,688		13,809	
Marin	296,328	352,776	701,146	945,325	611,836
Mendocino	129,762	190,925	218,437	279,424	188,509
Merced	111,989	78,608	267,000	989,374	840,198
Modoc	49,004	83,851	104,318	92,839	106,784
Mono	4,000	1,500			
Monterey	1,236,727	1,165,480	653,219	1,145,892	1,417,112
Napa	64,100	165,534	349,846	263,372	261,960
Orange					7,678
Plumas	1,000	3,750	4,500		
Riverside	5,500		9,031		1,919
Sacramento	561,648	385,092	339,508	394,564	585,337
San Benito	213,726		14,315	570,502	638,266
San Bernardino			281,759		1,920
San Diego	6,688		13,390	22,275	25,042
San Francisco		18,600	100,000		
San Joaquin	267,662	64,200	10,386	841,902	971,482
San Luis Obispo	226,505	175,006	298,302	318,577	255,286
San Mateo	335,534	239,525	179,520	307,830	409,196
Santa Barbara	173,100	2,500	140,000	158,254	
Santa Clara	1,567,305	1,314,905	1,271,340	882,590	906,486
Santa Cruz	330,958	222,439	349,451	193,478	218,918
Shasta	47,493	42,081	41,983	45,104	30,406
Sierra	16,000			11,900	
Siskiyou	103,224	76,872	99,599	56,214	139,294
Solano	22,126	47,758	47,758	21,236	92,157
Sonoma	362,805	646,022	476,758	594,233	594,363
Stanislaus	479,351	1,176,396	1,805,528	1,707,459	885,276
Sutter	83,855	168,838	106,793	110,580	120,269
Tehama	80,000	85,050			
Tulare	72,000	96,644	86,810	200,342	11,450
Yolo	192,491	96,968	60,787	60,681	117,404
Yuba	28,250	45,250	80,300	71,445	36,000
Totals	9,236,663	9,795,974	11,591,107	13,018,468	11,714,514

Cheese Receipts, San Francisco Market.

Receipts of cheese on the local market for 1921 totaled 14,414,000 pounds, making a new record for the market. This amount exceeds the entire production of California in 1920 by about 1,000,000 pounds, indicating that a large proportion of the cheese consumed in California is produced outside of the state.

Cheese prices took a big drop during 1921, the average on California fancy being 22.86 cents. For 1920 the average was 30.96 cents, and in 1919, 32.11 cents. The high point in cheese prices was reached on November 15 when fancy California was quoted at 36½ cents. The low mark was reached on May 5, when the same grade was quoted at 13 cents.

Five Leading Counties in the Production of Butterfat for the Year Ended June 30, 1921.

	Pounds		Pounds
Stanislaus.....	9,931,685	Merced.....	5,695,554
Humboldt.....	7,176,567	Imperial.....	5,465,437
Los Angeles.....	6,679,929		

Five Leading Counties in the Production of Butter for the Year Ended June 30, 1921.

Stanislaus.....	7,164,219	Tulare.....	5,269,153
Humboldt.....	7,010,093	Kings.....	5,124,895
Imperial.....	6,227,934		

Five Leading Counties in the Production of Cheese for the Year Ended June 30, 1921.

Monterey.....	1,417,112	Stanislaus.....	885,276
San Joaquin.....	971,482	Merced.....	840,198
Santa Clara.....	906,486		

Annual Production of Butter, Cheese, Condensed and Evaporated Milk for the Last Ten Years.

	Butter (pounds)	Cheese (pounds)	Condensed and evaporated milk (cases)
1912.....	54,940,886	4,785,617	172,309
1913.....	55,542,709	5,600,972	172,800
1914.....	59,286,460	6,016,815	274,096
1915.....	67,549,400	6,249,775	345,402
1916.....	70,030,174	7,745,124	379,212
1917.....	68,373,021	9,236,663	506,095
1918.....	60,358,595	9,795,974	1,050,903
1919.....	62,449,004	11,600,138	1,145,859
1920.....	68,126,560	13,018,469	*84,926,166
1921.....	72,254,290	11,702,290	*67,194,615

*Pounds (bulk and case goods).

Production of Dairy Products in California and Their Approximate Value During the Year Ended June 30, 1921

Article	Amount	Approximate value
Butter.....	72,254,290 lbs.	\$32,514,430
Cheese (total all types exclusive of cottage).....	11,702,997 lbs.	3,280,747
Cottage.....	1,968,445 lbs.	118,106
Evaporated whole milk.....	57,850,434 lbs.	6,201,566
Sweetened condensed whole milk.....	5,212,250 lbs.	990,327
Evaporated skim milk.....	2,996,771 lbs.	209,773
Sweetened condensed skim milk.....	1,135,160 lbs.	79,461
Powdered skim milk.....	5,851,759 lbs.	760,728
Powdered whole milk.....	48,561 lbs.	14,568
Milk sugar (crude and refined).....	1,533,774 lbs.	305,221
Albumen curds, lactien, semi-solid buttermilk.....	3,188,392 lbs.	129,857
Dried casein.....	4,577,352 lbs.	411,504
Market milk, pasteurized.....	42,749,698 gals.	13,679,903
Market milk, raw.....	17,360,258 gals.	5,555,282
Market cream, pasteurized.....	4,040,677 gals.	4,124,723
Market cream, raw.....	369,831 gals.	377,523
Certified milk.....	1,221,259 gals.	949,327
Ice cream.....	7,572,874 gals.	9,844,736
Skim milk (for human consumption).....	1,013,000 gals.	44,572
Buttermilk (for human consumption).....	3,463,213 gals.	79,553
Total value.....		\$79,671,907

*4,798,750 gallons of this amount was estimated on the basis of tuberculin test reports on one-to-three cow raw milk dairies not otherwise included.

In making estimates of values, the manufacturing of the product is recognized as an integral part of the industry and the total value of California dairy products is therefore based upon the average wholesale price quoted for finished products, in contradistinction to the method used by the Bureau of Census of the United States Department of Commerce, which bases the valuation upon raw butterfat produced on the farms. In determining the average wholesale prices, the volume of the various products sold at average weekly quotations throughout the year was given due consideration in the case of the more important manufactured products such as butter and cheese. In other cases the statements of reputable dairy products manufacturers were used.

The total butterfat, butter, and cheese production is credited to the counties where the raw material was produced and not to the counties where the factories are located.

The statistics this year show an increase in the production of market milk and butter and a decrease in evaporated milk and cheese. The grand total butterfat production for the state has been increased approximately 5,000,000 pounds.

Honey.

California produces a seventh of the honey consumed in the United States, and this year marketed over 6,000,000 pounds. Roughly estimated, it represents a \$3,000,000 industry. The output is largely extracted, although some is marketed in the comb. Alfalfa and orange blossom honey from the cultivated areas and sage, clover, wild flowers and manzanita in the mountains, make the production of great variety. While honey is produced in the principal valleys, the bulk of the commercial product comes from the orange districts.

The mountain sages of California produce a type of honey of much importance commercially and by common consent one of the finest of all in color (white), density and flavor. The sage honeys possess, in addition to other virtues, the important one of not granulating readily. Honeys from the desert plants other than sage are as a rule good; many are excellent and rarely are they of poor quality.

There are 9000 beekeepers in the state, owning more than 180,719 colonies of bees. It is a remunerative side line with fruit growing or dairying.

Beekeeping in California.*

"Beekeeping in California is developing into a profession rather than a side line to other farming enterprises. Outbreaks of brood diseases in recent years have reduced the number of small holdings materially, and only those persisted who could and would give enough attention to the subject to master its details. Greater financial returns in recent years have stimulated the industry greatly, and yet the increase is largely in the hands of the few.

"Extracted honey makes up the bulk of the product of the state, comb honey being produced only in limited quantities and confined largely to regions near the larger towns, where the local market conserved the output, excepting the large comb-honey district in Inyo County.

*By E. R. deOng, Instructor in Entomology, University of California.

"The leading honey producing regions of the state are the southern Coast Range beginning in Ventura County and extending south into San Diego County, Imperial Valley, the plateau region of southern California, extending from east San Diego County into Inyo County, the San Joaquin Valley, and the central portion of the Sacramento Valley. Other regions of less importance, or at least not so highly developed, are the Coast Range from Monterey County north into Mendocino County and the foothill regions of the Sierra Nevada Mountains from Placer County south to Kern County.

"Many good localities for the beekeeper are still to be found in the state, particularly in the northern regions. The great national forests are largely unoccupied, the industry being largely confined to farming and orchard lands and the adjacent hill country, while thousands of acres of mountain land that every year are producing more or less nectar, remain unused. These higher regions may never produce as heavy a flow of nectar as the sage districts, but nevertheless are worth considering as possible locations.

"The value of the bee as a pollinizing agent for the orchard is also beginning to be recognized by the fruit growers, and now many of them are offering special inducements to the beekeeper to locate near them or to keep the bees near the orchard in the blooming season.

"Honey producing plants of California are of two types: (1) the cultivated plant or tree whose moisture supply is regulated by tillage or irrigation and hence yields a fairly constant supply of nectar, (2) native vegetation, depending on the local rainfall for its supply of moisture, and therefore of little value in dry years. The first group includes alfalfa, beans, orchard trees and decorative plants. Of these, alfalfa is the most important plant for the great valleys, it yielding nectar from June until late in the summer. In southern California the citrus fruits and beans are heavy yielders. The second group includes the sages, of which there are a number of species in the southern Coast Range, blooming at different seasons. These give a heavy flow of nectar in the years of heavy rainfall. But the shrubs as well as the annuals, such as "filaree," blue curls and bur clover are alike subject to failure in the dry years, and then the apiary must be moved to another location or fed through the season.

"Capital invested in beekeeping is represented almost entirely by the bees and their housing. No land need be purchased, or at least but one or two acres, the usual practice being to lease one-quarter to one-half an acre of land in the desired locality. This is ample room for two or three hundred colonies. In addition to the bees and the hives with extra bodies, a honey extractor, empty honey containers, and a few small pieces of apparatus and tools are needed. At present a colony of bees, including the hive, sells for from \$7 to \$12, owing to the strain of bees and their strength and condition. Swarms of bees can sometimes be caught along timber and in this way a start secured with very little capital.

"An experienced beekeeper can care for three or four hundred colonies with an extra helper during the busiest season. The total investment for an apiary of 400 colonies would be from \$3,000 to \$5,000. To handle this number would require one helper for three or four months at \$40 to \$75 per month, including board and room. Work of this type is

extremely valuable for the beginner who desires to learn the beekeeping business or determine for himself his fitness for such work.

"If the beekeeper desires to increase his holdings it is possible each year to divide the stronger colonies without materially affecting the yield of honey for the year, dependent upon the locality and the season.

"The average yield of extracted honey for California is given by the Year Book of the State Board of Agriculture at 70 pounds per colony. Considering 10 cents per pound, a good price, this would mean a gross income of \$7 per colony, which would be almost equal to the original cost. The average price for recent years, as given in the Year Book, is 7 cents. But when lower prices on honey are prevailing, the cost of bees is less, so that in the hands of an experienced beekeeper there is the possibility of a gross annual income almost equal to the original investment.

"There is a cooperative marketing association of beekeepers now established in the state which controls the major part of the product, thus stabilizing the market."

Ostrich Industry.

There are ostrich farms at Pasadena, Sacramento, and Brawley, in Imperial County. More than 35 years ago the first ostriches were brought from Africa to California by Edwin Cawston and the ostrich farm at Pasadena established. An ostrich weighs as high as 300 pounds, and produces eggs which frequently weigh as much as five pounds. These huge ivory-colored eggs are sometimes hatched by the incubator process, or by the mates, who take turns on the nest, the males at night and females during the day.

The question of the nature of the country most favorable for ostriches is largely affected by the kind of vegetation peculiarly suited to the soil, which in turn is undoubtedly affected by the amount of rainfall. Alfalfa pasture makes an ideal run for the birds, furnishing a large percentage of their food; hence a soil which is or can be made suitable for alfalfa is one of the essentials to success in ostrich farming. A dry sandy soil, made suitable by drainage and irrigation for raising alfalfa, has proved best adapted to successful ostrich farming. Such a soil is generally peculiarly adapted for raising large crops of alfalfa, and makes an ideal soil for an alfalfa pasture. Under such conditions it is essential to have some shade.

The demand for information concerning ostriches indicates that the number of individuals who are interested in ostrich farming is increasing.

The profit to be derived from the business will depend on the management, on the success secured in the raising of the young birds, and on the production of feathers of good quality. The average yearly yield of feathers from an ostrich is $1\frac{1}{4}$ pounds. Birds produce from 12 to 20 ounces of feathers at each plucking, with an average of 16 ounces.

PART V.

FARM CROPS AND VEGETABLES.

Barley; Corn; Oats; Wheat; Hay; Alfalfa; Potatoes; Sweet Potatoes; Sugar Beets; Rice; Beans; Cotton, Cottonseed; Hops; Summary of California Crops; Vegetables, Vegetable Growing in California; Melons; Vegetable Seeds; Commercial Field Crops.

California Agricultural Crops.

The 1920 United States census shows that California has 13 out of the 50 leading counties of the United States in the value of crops, and they rank as follows: Los Angeles, first; Fresno, third; San Joaquin, fourth; Tulare, eighth; San Bernardino, tenth; Orange, eleventh; Santa Clara, fourteenth; Sacramento, twenty-seventh; Riverside, thirty-third; Ventura, thirty-fourth; Sonoma, forty-second; Imperial, forty-sixth; Stanislaus, forty-seventh. No other state can compare with this record. The total value of the state's crop was exceeded by only one other—the State of Texas—which has a land surface approximately two-thirds as large again as California.

Barley.*

“Barley is the leading cereal crop in California and its production, like that of the other small grains, is confined to the drier sections of the state where irrigation has not been developed. It is only in rare instances that the crop is irrigated, because after land has been brought under irrigation it becomes too valuable to be used for barley.

“The ability of barley to grow under conditions of limited rainfall has doubtless played an important part in centralizing the industry in those sections of the state where the annual precipitation is low. Thus we find the greatest production in the San Joaquin Valley, in the vicinity of Stockton, Merced, and Madera. It is also grown extensively near Yolo, Colusa, and Tehama, in the Sacramento Valley, and near Gonzales, Monterey County, on the coast.

“Barley thrives best in a relatively warm, dry climate and, fortunately, such is the prevailing climate throughout a large portion of the state. In its soil requirements barley is more exacting than most crops. It prefers a rich, fertile loam, well drained and rather light in character. Soils that are low in fertility, extremely light, or extremely heavy, or soils that remain cold and damp for a long period during the winter should be avoided for this crop. The barley plant has a rather delicate root system and any adverse soil condition is apt to seriously affect the growth of the plant.

“The dominant feature which characterizes barley culture in this state is mass production rather than the maximum production per unit area. The grain farms are all large, varying from a few hundred to

*By B. A. Madson, Assistant Professor of Agronomy, University of California.

several thousand acres in size. To handle such large areas with a minimum of labor the methods and implements used must be such as will enable the farmer to cover the most ground in the shortest possible time. Such methods, however, always result in improper preparation of the land. To such an extent has this been true in the past that the physical condition of the majority of our grain soils has been seriously injured, prematurely reducing their crop producing power. In many sections, however, there is at the present time a marked change taking place. The tendency is toward a reduction of the area per unit of labor, better preparation of the land, and a more frequent use of the summer fallow, all of which is being rewarded in greater profits.

"For barley the land should be plowed to a depth of six to eight inches in the fall or early winter, either before the rainy season begins, or as soon after as possible. As soon as the soil has been moistened sufficiently to work properly, the field should be worked down to a good seed bed with a disk and harrow, and the barley seeded with a drill as quickly as possible. While barley can be seeded later than wheat or oats, the highest yield will always be obtained by early seeding, preferably before the first of January. The rate of seeding varies from 50 to 120 pounds per acre, depending on the character of the soil and the seasonal precipitation. After seeding no further attention is ordinarily necessary, though if the soil is heavy and inclined to crust it is a good practice to harrow the field after the plants attain a height of four to six inches.

"The use of the fallow is unquestionably one of the most effective means at our command for maintaining the crop producing power of our grain land. Land to be fallowed should be plowed as deep as possible in the fall or early winter and allowed to lie idle until spring. During the spring and summer it should be worked occasionally with surface tillage implements to destroy weeds and establish and maintain a mulch. If properly handled it may then be seeded the following fall in the usual manner without additional preparation. Fallowing serves as a rotation measure, renovating the soil, destroying weeds, and conserving moisture. For the best results land should be fallowed every second or third year, depending on the character of the soil and the rainfall. One-third to one-half of the field should be fallowed each season.

"Barley is usually harvested with a combined harvester which cuts, threshes, and sacks the grain ready for market at a single operation. Five to six men are required to run the outfit and can harvest from 25 to 40 acres per day. Barley should be cut as soon as it is ripe to avoid undue loss by shattering.

"Under continuous cropping 15 sacks may be considered an average yield. In some cases 20 sacks may be obtained, but more often the yield is only 10 to 12 sacks per acre. On fallowed land yields will vary from 25 to 40 sacks or more, though normally 30 sacks is considered good.

"At the present time the cost of plowing, disking, harrowing, and seeding, together with the cost of the seed, is about \$6 per acre. The cost of harvesting a 15-sack crop, including sacks and hauling, is about \$6.50, making the total cost of these items \$12.50 per acre. The cost of maintaining the fallow and growing and handling a 30-sack crop is about \$17, so that the net return in the latter case will be considerably greater than in the former.

"Barley farming as a business must be conducted on relatively low priced land, as profitable returns can not be obtained on a valuation of more than \$75 to \$100 per acre. Then, too, the farm must be relatively large. To yield the operation a paying income a farm of at least 200 or 250 acres is necessary.

"The usual basis for renting grain land is on shares, the owner requiring one-fourth to one-third of the crop; which means that normally eight to ten sacks must cover the cost of production and, besides, leave something to the farmer for his trouble.

"The principal advantage in favor of grain farming is that it requires a minimum of labor and a comparatively small outlay for equipment. The only time help is required is during seeding and harvesting, and sufficient labor of the transient type can usually be obtained from \$2.25 \$3 per day. On the other hand, with grain as the dominant feature, the equipment must necessarily lie idle the greater portion of the year, so that its total cost must be charged against the grain crop. It is, however, the type of farming best adapted to a large portion of our unirrigated land, and requires but relatively little capital at the start.

"There is still considerable undeveloped land suitable for this type of farming available in the foothill regions of the Sacramento and San Joaquin valleys, as well as in some of the smaller, more isolated valleys of the state, which can be purchased for from \$40 to \$60 per acre. In the developed sections, on the other hand, there is but little land available for less than \$100 per acre."

California Barley Crop.

During the war period wheat supplanted barley to such an extent that in 1919 less barley than wheat was harvested. In 1920 the farmers returned to barley and harvested 1,250,000 acres. The decrease in the acreage planted the past year was largely due to the heavy rainfall last winter which prevented seeding until too late to insure a profitable crop.

California Barley Crops, 1900-1921.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	889,591	16.7	14,856,170	\$0.43	\$6,388,153
1901	1,089,785	26.0	28,334,410	.41	11,617,108
1902	1,144,274	26.0	29,751,124	.63	18,743,208
1903	1,201,488	25.7	30,878,242	.61	18,835,728
1904	1,237,533	22.7	28,091,999	.60	16,855,199
1905	1,237,533	21.5	26,606,960	.59	15,698,106
1906	1,425,000	27.2	38,760,000	.54	20,930,400
1907	1,010,000	28.9	30,056,000	.78	23,444,000
1908	1,082,000	23.5	25,427,000	.74	18,816,000
1909	1,180,000	26.5	31,270,000	.74	23,140,000
1910	1,500,000	31.0	46,500,000	.55	25,575,000
1911	1,450,000	28.0	40,600,000	.85	34,510,000
1912	1,392,000	30.0	41,760,000	.70	29,232,000
1913	1,275,000	26.0	33,150,000	.68	22,542,000
1914	1,402,000	30.0	42,060,000	.59	24,815,000
1915	1,360,000	29.0	39,440,000	.62	24,453,000
1916	1,190,000	28.0	33,320,000	.95	31,654,000
1917	1,350,000	23.0	39,150,000	1.20	46,980,000
1918	1,320,000	26.0	34,320,000	1.15	39,468,000
1919	1,000,000	30.0	30,000,000	1.41	42,300,000
1920	1,250,000	23.0	28,750,000	1.00	28,750,000
1921	1,188,000	25.0	29,700,000	.56	16,632,000

Corn.

Like every other state in the Union California produces some corn. It is not, however, a leading state in this product. California's highest year of production was in 1891, when it amounted to over 5,570,000 bushels. The acreage and production has been gradually increasing since 1900, when 54,000 acres produced 1,351,000 bushels. The United States Census for 1919 showed the acreage devoted to this crop had been underestimated the past few years. Of the acreage for the different years given in the table, about 30,000 acres each year has been cut green for silage and forage. The total production each year is based on the assumption that the yield on the acreage grown for silage and forage would be the same as when grown for grain. The actual production of grain on this basis would only be about 77 per cent of the amount indicated, but it is believed that a better valuation of the corn crop can be made by this plan of estimating.

California Corn Crops, 1900-1921.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900.....	54,079	25.0	1,351,975	\$0.61	\$821,705
1901.....	59,703	31.0	1,850,793	.68	1,258,539
1902.....	60,300	30.5	1,839,150	.77	1,416,146
1903.....	57,888	30.7	1,777,162	.74	1,315,100
1904.....	54,415	28.0	1,556,269	.78	1,213,890
1905.....	56,592	32.0	1,810,944	.76	1,376,317
1906.....	57,158	34.9	1,994,814	.67	1,336,525
1906.....	57,158	34.9	1,994,814	.67	1,336,525
1907.....	54,000	34.0	1,836,000	.85	1,561,000
1908.....	50,000	32.0	1,600,000	.88	1,408,000
1909.....	50,000	34.8	1,740,000	.91	1,583,000
1910.....	50,000	37.5	1,875,000	.80	1,500,000
1911.....	51,000	36.0	1,836,000	.90	1,652,000
1912.....	52,000	37.0	1,924,000	.85	1,635,000
1913.....	55,000	33.0	1,815,000	.88	1,597,000
1914.....	60,000	36.0	2,160,000	.87	1,879,000
1915.....	64,000	41.0	2,624,000	.88	2,309,000
1916.....	64,000	32.0	2,048,000	1.24	2,540,000
1917.....	75,000	32.0	2,400,000	1.85	4,440,000
1918.....	85,000	35.0	2,975,000	1.03	5,742,000
1919.....	149,000	32.0	4,768,000	1.79	8,535,000
1920.....	139,000	33.0	4,587,000	1.20	5,504,000
1921.....	116,000	35.0	4,060,000	.77	3,126,000

Oats.

According to the United States Census this crop had been slightly overestimated and revisions and adjustments to the census figures give the acreage and production as outlined in the table. California has never been a heavy producer of oats, and the change in acreage cut for grain is generally affected by the percentage cut green for hay.

California Oat Crops, 1900-1921.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	160,072	24.6	1,477,771	\$0 46	\$679,775
1901	160,768	30.4	4,887,347	44	2,150,433
1902	168,806	30.5	5,148,583	51	2,625,777
1903	165,430	34.8	5,756,964	54	3,108,761
1904	167,084	34.1	5,697,564	57	3,247,611
1905	168,755	28.0	4,725,140	51	2,409,821
1906	163,692	31.5	5,156,298	52	2,681,275
1907	136,000	33.5	4,556,000	71	3,235,000
1908	200,000	33.5	6,700,000	67	4,489,000
1909	200,000	31.4	6,280,000	66	4,145,000
1910	200,000	37.0	7,400,000	50	3,700,000
1911	210,000	34.0	7,140,000	59	4,213,000
1912	200,000	39.0	7,800,000	55	4,290,000
1913	210,000	31.6	6,636,000	60	3,982,000
1914	220,000	35.0	7,700,000	53	4,081,000
1915	211,000	33.0	6,963,000	50	3,482,000
1916	200,000	32.5	6,500,000	72	4,680,000
1917	196,000	35.0	6,860,000	85	5,831,000
1918	175,000	32.0	5,600,000	94	5,264,000
1919	147,000	29.0	4,263,000	96	4,092,000
1920	155,000	30.0	4,650,000	80	3,720,000
1921	140,000	27.0	3,780,000	51	1,928,000

Wheat.

Since 1900, California's wheat fields have given way to other agricultural products. Over 2,000,000 acres less wheat was planted in 1920 than in 1900. The wheat acreage for the 1921 crop was much reduced on account of heavy rains in the Sacramento Valley making it impossible to plant at the proper time, and in the San Joaquin Valley, particularly Kings County, on account of drouth. The acreage abandoned from these and other causes was estimated to be 28 per cent of the planted area.

California Wheat Crops, 1900-1921.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	2,771,226	10.3	28,543,628	\$0 58	\$16,555,304
1901	2,672,547	13.0	34,743,111	60	20,845,847
1902	2,052,679	10.9	22,374,201	80	17,899,361
1903	1,868,410	11.2	20,926,192	87	18,205,787
1904	1,618,043	10.8	17,474,864	88	15,377,880
1905	1,886,238	9.3	17,542,013	82	14,384,451
1906	1,572,144	17.1	26,883,662	75	20,162,746
1907	1,368,000	15.0	20,520,000	98	20,110,000
1908	800,000	14.6	11,680,000	1 02	11,914,000
1909	825,000	14.0	11,550,000	1 11	12,820,000
1910	550,000	18.0	9,900,000	94	9,306,000
1911	480,000	18.0	8,640,000	88	7,603,000
1912	370,000	17.0	6,290,000	93	5,850,000
1913	300,000	14.0	4,200,000	95	3,990,000
1914	400,000	17.0	6,800,000	1 04	7,072,000
1915	440,000	16.0	7,040,000	95	6,688,000
1916	350,000	16.0	5,600,000	1 52	8,512,000
1917	375,000	19.8	7,425,000	2 00	14,850,000
1918	506,000	15.0	7,590,000	2 16	16,394,000
1919	1,087,000	15.0	16,305,000	2 04	34,370,000
1920	714,000	14.0	9,996,000	1 80	17,993,000
1921	557,000	15.0	8,355,000	1 07	8,940,000

NOTE—All winter wheat; no spring wheat grown in California.

Hay (Tame .

According to the census, 1 085,000 acres of grains were cut green for hay in 1919. Estimates for 1921 show a slightly decreased acreage of grain hay. The alfalfa acreage shows a slight decrease the past year. Evidently new plantings have not quite kept pace with the old fields plowed up for orchard and vineyard planting. Clover, timothy, clover and timothy mixed, annual legumes and other cultivated grasses—approximately 155,000 acres—make up the balance of the tame hay crop, and change but little from year to year in total area.

California Hay (Tame) Crops, 1900-1921.

Year	Acreage	Average yield per acre, tons	Production, tons	Average farm price, December 1	Farm value, December 1
1900	793,491	1 51	1,708,171	\$8 15	\$22,071,594
1901	550,325	1 82	1,001,592	7 92	7,932,609
1902	558,828	1 81	1,006,049	9 41	9,466,921
1903	550,270	2 08	1,144,562	11 66	13,345,593
1904	583,266	2 03	1,184,071	10 41	12,326,179
1905	589,119	2 40	1,413,886	10 05	14,209,554
1906	612,684	1 85	1,133,465	11 25	12,751,481
1907	637,000	1 75	1,115,000	12 50	13,938,000
1908	605,000	1 35	817,000	13 25	10,825,000
1909	650,000	1 70	1,105,000	11 50	12,708,000
1910	2,400,000	1 83	4,392,000	9 60	*42,163,000
1911	2,500,000	1 75	4,375,000	10 90	*47,688,000
1912	2,500,000	1 53	3,825,000	13 70	*52,402,000
1913	2,400,000	1 50	3,600,000	13 50	48,600,000
1914	2,700,000	1 95	5,265,000	8 20	43,173,000
1915	2,350,000	1 80	4,230,000	11 20	47,376,000
1916	2,500,000	1 75	4,375,000	12 60	55,125,000
1917	2,400,000	2 00	4,800,000	19 20	92,160,000
1918	2,376,000	1 25	2,970,000	20 00	59,400,000
1919	2,175,000	2 30	4,894,000	17 20	84,177,000
1920	2,175,000	2 30	5,002,000	20 00	100,040,000
1921	2,129,000	2 35	5,003,000	11 00	55,033,000

*Including forage.

Rank of the Five Leading States in Hay Production, 1920.

Rank and state	Production, tons	Per cent of total production
United States	91,193,000	100 0
1. New York	5,482,000	6 0
2. California	5,002,000	5 5
3. Wisconsin	4,814,000	5 3
4. Iowa	4,350,000	4 8
5. Ohio	4,252,000	4 7
Total five leading states		26 3

ALFALFA.

Its Place in Crop Rotation and Soil Fertility.

The climate and soil conditions of California are so well adapted to the culture of alfalfa that this is the leading forage legume of the state.

The controlling factor is water. Wherever the alfalfa is grown with marked success we find irrigation highly developed. Such places as Modesto, Fresno and Turlock are especially noted as centers of alfalfa production, while the Imperial and Sacramento valleys rank even higher. Although in some places alfalfa is grown with natural subirrigation, surface irrigation is usually necessary to produce maximum results.

There are certain soil conditions which do not prove favorable to alfalfa growing, yet alfalfa is not as exacting as some other crops in its soil requirements. Alfalfa produces best on deep, well-drained loam of uniform character, with a high lime content. Extremely gravelly, porous subsoil, on account of its low waterholding capacity, should be avoided, unless a super-abundance of irrigation water is available. Soils underlaid with hardpan or with a high water table should also be avoided. The alfalfa root system is very extensive, penetrating to depths of six to ten feet, and any soil formation which interferes with the ample growth of the root naturally reduces the yield. The alkali soils of California are not adapted to alfalfa, two-tenths of one per cent being prohibitive. Extremely acid soils, found in poorly drained areas, can not be recommended unless the soil condition is remedied by drainage and heavy liming.

The successful culture of alfalfa is largely dependent upon the preparation of the soil. In this work the first step is to plow the soil to a depth of eight to ten inches, care being taken to plow more deeply on the high ridges. The soil is then levelled and checked for irrigation. After one irrigation the ground is relevelled and in doing the best work is replowed between the borders, or deeply disked. The system of checks to be used is governed by the character of the soil, the contour of the field and the amount of irrigation available. The fall of the year should be chosen to do the work of checking. This leaves the soil in good condition for the reception of the winter rains.

By the first of March the seed bed should be put in first-class condition, weather conditions permitting. The seed may be drilled or broadcasted, drilling being preferable since it insures uniform distribution of the seed and uniform depth of planting. The drilling should be done at right angles to the direction of the borders, and the seed sown on the borders as well as on the checks. If for any reason the soil becomes encrusted before the seedlings are safely through and especially if a rain should fall within a very few days after the seed is sown, a slant tooth harrow or corrugator should be run over the ground at right angles to the rows if drilled.

The young plants should be clipped with the mower whenever the new growth reaches a height of four to five inches during the first season. This practice makes an extremely thick stand of alfalfa, encouraging the growth of the later seedlings, which would otherwise be smothered out, and at the same time holding noxious weeds in check. The fallen material should not be removed from the field but should be allowed to remain,

forming a shade for the young shoots and the soil. Clipping also induces a more rapid and extensive growth of the root system.

Profitable returns may be expected during the second season. With adequate irrigation six or more crops per year may be produced, depending upon the location. The crop should be cut when one-tenth in bloom to make the best quality of hay and to avoid clipping off the oncoming shoots of the succeeding crop. Raking and shocking of the crop should be done soon enough to prevent shattering of the leaves, and the hay should be removed from the field with as little delay as possible, to permit immediate irrigation.

Winter cultivation of alfalfa after its second year is absolutely essential to a good stand. This work should be done early in the season before the new shoots appear. The operation has a twofold purpose in that it prevents choking of the crop by weeds and at the same time increases the total number of shoots by splitting the crowns. Such tools should be used as will produce the greatest mulch with the least injury to the total stand. The disc harrow has been found to do good work.

The most profitable use of alfalfa at the present time is as a feed for dairy cattle or other livestock. Alfalfa may be included in a definite rotation system, allowing it to occupy the land for a period of years. It may then be plowed up and the soil used for cereal or root crops. The value of alfalfa in the rotation rests upon the distinct ability of the plant, as well as other legumes, to store in the soil in an available form the nitrogen which is present in the air, thus tending to improve the soil's fertility instead of depleting it.

Potatoes.

The census figures showed the California potato crop had been over-estimated, although there were some radical discrepancies in some of the counties. Adjustments and revision of the acreage and production have been made in the table and are more in line with the generally accepted disposition of the crop.

California Potato Crops, 1900-1921.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1900	26,808	104	2,788,032	\$0 53	\$1,477,657
1901	45,259	101	4,571,159	77	3,519,792
1902	47,975	118	5,661,050	58	3,283,409
1903	46,536	130	6,049,680	66	3,992,789
1904	47,001	129	6,063,129	67	4,062,296
1905	50,291	165	8,298,015	67	5,559,670
1906	50,291	125	6,286,375	74	4,651,918
1907	48,000	145	6,900,000	90	6,264,000
1908	49,000	107	5,243,000	77	4,037,000
1909	60,000	130	7,800,000	77	6,006,000
1910	70,000	130	9,100,000	85	7,735,000
1911	72,000	135	9,720,000	90	8,748,000
1912	78,000	130	10,140,000	65	6,591,000
1913	68,000	119	8,092,000	70	5,664,000
1914	75,000	138	10,350,000	70	7,215,000
1915	78,000	130	10,140,000	75	7,605,000
1916	75,000	141	10,575,000	1 40	14,805,000
1917	105,000	145	15,225,000	1 50	22,838,000
1918	90,000	143	12,870,000	1 20	15,444,000
1919	66,000	130	8,580,000	1 71	14,672,000
1920	70,000	140	9,800,000	1 50	14,700,000
1921	74,000	156	10,664,000	1 30	13,883,000

Potato Culture in California.*

"The principal regions are in the delta lands of San Joaquin and Contra Costa counties and the Salinas Valley of Monterey County. Those desiring to investigate this industry would do well to visit the regions in the vicinity of Middle River, Holt and Stockton for the delta country; Blanco and Salinas (Monterey County) and Sebastopol (Sonoma County) for the other regions. There is, also, a considerable acreage in Los Angeles, Orange, Merced, Stanislaus and Napa counties.

"The delta region consists of lowlands which for a long period of time have been inundated by the high waters of the Sacramento and San Joaquin rivers. They have been overgrown by juncus (tule) and other marsh plants. These marshes have been reclaimed by constructing levees along the water courses and then by electrically driven pumps the water has been removed to a level sufficiently low to grow crops. The soil consists of partly decomposed vegetable matter mixed with sediment from the overflows, and in this form it is loose and friable and permits the ready movement of water. The soil is well suited not only to potatoes, but to onions, asparagus, beans, and barley.

"Because this soil is very rich in organic matter and because of its loose texture and abundance of moisture diseases that affect the potato thrive readily. These do not often materially damage the first crop, but they are sufficiently prevalent to infest and multiply in the soil, so that future crops are often greatly reduced. The disease causing the most trouble is the *FUSARIUM*. It infests the soils from year to year, and while it affects the tubers, it does not render them unfit for use during the early part of the season. Its principal effect is upon the young shoots which, after becoming thoroughly diseased, die before the tubers are formed, but too late in the season for replanting. The only effective remedy against this disease now known is to plant the land to non-affected crops until the disease is starved out. It is estimated that this disease causes an annual loss to potato growers in this region of from 20 to 25 per cent of the crop, or a money loss of nearly, if not fully, a million dollars.

"Other diseases, especially *Rhizoctonia Scab* and *Leaks* (*RHIZOPUS*), are common in this and most other regions. The first two diseases may be kept somewhat in control by treating the seed tubers in a solution of one pound formaldehyde to forty gallons of water for one and a half to two hours. This treatment, with care to secure clean seed and a judicious rotation of crops, is reasonably effective. The leaks is a disease that causes the tubers to rot with much odor and sometimes quite rapidly after they are dug. It enters the tubers through bruises caused in digging or handling. Care in these operations seems to be the only effective remedy. These diseases are not so prevalent in upland soils.

"In this region the land is generally plowed in the fall or winter and again at planting time. Planting begins in March and continues into June and sometimes into July, though this is well known to be too late for good results. As a general rule the planting is accomplished by hand, dropping the seed pieces behind the plow every second or third round. As this is very strong land the potato crop is often affected by weeds and much of the labor of growing the crop is expended in their destruction.

*By John W. Gilmore, Professor of Agronomy, University of California.

"The yields in this section vary greatly. The factors which influence the yield are diseases, lack of storage facilities for seed and the culture methods, especially the preparation of the land and the rotation of crops. Because of these factors the yield varies from 65 to 750 bushels per acre.

"There is a tendency to grow potatoes continuously for as long a period as possible, for this crop pays better returns when not affected than most other crops. It has not been found possible to do this, however, without incurring greatly diminished yields. Consequently, successful potato growing in this region is contingent upon adopting culture methods, especially in respect to rotation crops that will keep the soil bare from the disease.

"Much of this land is held in large tracts and is usually rented at from \$20 to \$35 per acre; or, when on shares, for one-third of the crop. The cash rental of land for potatoes, however, is the more usual method. Where labor is hired it is generally Japanese or Chinese and wages commonly paid are \$2 to \$2.50 per day. The intrinsic value of these lands depends upon the prevalence of disease in the soil and the equipment of the farmer for using other crops profitably in rotation. But little of this land is for sale, but that which is for sale is held at from \$300 to \$500 per acre.

"A good deal of land in this section still remains to be reclaimed, but it can only be done at considerable expense and by companies or individuals not demanding immediate returns on the money invested.

"**SALINAS VALLEY**—The conditions under which potatoes are grown in this region are typical of other portions of the state. They differ, however, from those in the delta region, principally in respect to the nature of the soil and lesser prevalence of disease. The soil, on the other hand, is not so productive. The yields vary from 60 to 200 bushels per acre. The average is about 100 bushels, but on reasonably good land and by practicing good cultural methods, about 150 bushels may be counted upon. In this section much of the potato land is rotated with sugar beets. The deep-rooted nature of both of these crops and the tillage methods keep the land in good tilth and in good producing capacity.

"In both of the sections mentioned potatoes are harvested both by hand and by machine diggers and are marketed in sacks weighing about 110 pounds. The price ranges from 90 cents to \$1.65 per sack (50 cents to 90 cents per bushel).

"In any section of California the successful production of potatoes depends most largely upon the prevalence of a deep loam soil well supplied with moisture and free from disease infestation. The interior valleys, where the temperature during the growing season is excessively hot, must be avoided, for the potato thrives best in a cool soil.

"In the southern counties two crops per year are usually produced. The second crop is the more difficult to grow, mainly because of difficulties of securing a good stand and a vigorous growth during the warm weather. The second crop is planted from the middle of July to August 1st. Proper preparation of the land, its cooling by irrigation and sprouting the seed are the principal factors upon which success depends."

Sweet Potatoes.

The sweet potato is not cultivated in California on a large scale. The acreage has been about 8000 acres for the past three years, with a gradual falling off in production. The production for 1921 was 960,000 bushels, compared with 1,016,000 bushels in 1920 and 1,040,000 bushels in 1919.

Sugar Beets.

The estimate of acreage and production of sugar beets for 1921 is based upon the reports of the sugar factories, made before harvest and the run had been completed, and will be subject to revision. Conditions were none the best and the preliminary estimate of yield per acre was below last year as well as below the average.

Production of Sugar Beets in California, 1919-1921.

Year	Acreage	Production			Farm value December 1	
		Per acre	Total	Unit	Per unit	Total
1919.....	107,174	7 61	815,896	Tons	\$14 17	\$11,561,000
1920.....	122,813	8 74	1,073,828	Tons	13 13	14,100,000
1921.....	122,000	8 40	1,025,000	Tons	7 82	8,016,000

Production of Beet Sugar in the United States.

Colorado is the leading state in the manufacture of beet sugar but on account of disclosure of individual operations can not be shown separately. Nebraska also can not be shown although it ranks fifth in the United States and shows a large production. Although 16 states reported the manufacture of beet sugar, but an idea of the centralization of the industry can be obtained from the fact that Colorado, Michigan, California, Utah, Nebraska, and Ohio combined produced 86.4 per cent of the total for the United States.

Principal States Ranked by Value of Products, 1919—United States Census.

State	Number of establishments	Wage earners		Rank	Value of products		Rank	Value added by manufacture		Rank
		Average number	Per cent distribution		Amount	Per cent distribution		Amount	Per cent distribution	
United States.....	85	11,781			\$149,156,000			\$62,127,000		
Michigan.....	16	1,836	15.6	2	\$26,379,000	17.7	2	\$9,697,000	15.6	3
California.....	10	1,512	12.8	4	26,354,000	17.7	3	12,200,000	19.6	2
Utah.....	15	2,214	18.8	3	20,569,000	13.8	4	7,939,000	12.8	4
Ohio.....	5	630	5.3	7	7,249,000	4.9	7	2,111,000	3.4	7
Wisconsin.....	4	334	2.8	8	3,246,000	2.2	8	1,187,000	1.9	8
All other states.....	34	5,255	44.6		65,359,000	43.8		28,963,000	46.6	

DETAILED STATEMENT OF QUANTITY AND VALUE OF BEET SUGAR AND PRODUCTS, BY STATES, 1919.

Product	Beet Sugar							
	United States	California	Michigan	Ohio	Utah	Wisconsin	All other states	
Total value.....	\$149,155,892	\$26,354,064	\$26,378,870	\$7,249,156	\$20,569,135	\$3,245,611	\$65,359,026	
Sugar:								
Tons (2,000 pounds).....	721,969	125,104	122,708	32,838	94,959	10,701	335,809	
Value.....	\$138,009,683	\$24,492,988	\$23,900,310	\$6,553,778	\$19,667,324	\$2,952,868	\$60,539,425	
Grainulated—								
Tons.....	719,420	124,903	122,539	32,838	94,407	10,671	333,972	
Value.....	\$137,852,387	\$24,454,722	\$23,887,865	\$6,553,778	\$19,651,943	\$2,946,768	\$60,357,371	
Raw								
Tons.....	2,489	291	169	.....	162	30	1,837
Value.....	\$247,306	\$41,266	\$12,505	.....	\$15,381	\$6,100	\$172,654
Molasses:								
Gallons.....	18,841,429	2,897,249	3,435,572	941,640	6,009,046	758,980	4,798,942	
Value.....	\$2,364,563	\$391,161	\$504,445	\$162,048	\$705,509	\$79,860	\$51,380	
Pulp value.....	\$5,798,412	\$1,329,878	\$1,860,475	\$505,305	\$195,984	\$212,883	\$1,663,887	
Dried value.....	\$1,829,508	\$142,247	\$1,800,475	\$93,805	.....	\$206,198	\$1,110,743
Moist value.....	\$608,844	\$187,531	.....	\$1,300	\$185,984	.....	\$66,085
All other products, value.....	\$2,893,224	\$147,067	\$113,640	\$28,025	\$58	.....	\$2,694,234

Sugar Beet Culture in California.*

"Sugar beet culture is confined to the vicinity of sugar beet factories, their culture seldom proving profitable at a distance greater than 100 miles from a factory. Their growing can therefore best be investigated in the territory surrounding the factories at Alvarado, Anaheim, Betteravia, Los Alamitos, Dyer, Huntington Beach, Oxnard, Spreckels, and New Delhi.

"Since the first six to eight tons of beets produced are required to pay the cost of production, only soils capable of yielding good crops should be selected. Soils should be avoided which are shallow, poorly drained, of poor texture, high in alkali, lacking in plant food or humus, or incapable of adequately supplying the moisture requirements of the crop.

"Land for sugar beets usually commands high prices—\$200 or more per acre—but can be rented on a share or cash basis, the former requiring as payment one-fourth or one-fifth of the crop, the latter about \$20 per acre. Where sugar beets are the primary crop the farms range from 60 to 400 acres in size. As a rule, however, 100 acres may be considered the unit farm.

"Sugar beet culture requires a high grade of work stock and special equipment, amounting in all to from \$2,000 to \$3,000 for each hundred acres.

"Land to go in sugar beets should be put in a fine state of cultivation, by the complete eradication of former crops—as alfalfa, or the subjection of raw conditions—as preceding beets with some other crop on newly broken lands. It is essential to plow as deeply as is consistent with the past handling of the land, and to work down to a fine, firm seed bed. The common practice is to do the bulk of the heavy work in the fall after applying an irrigation, or early in the rainy season after sufficient moisture falls to start the weeds and bring the soil into the proper condition for working. The land is occasionally worked over until seeding time, which ranges from November to May, depending on the section, the bulk of the seeding, however, being done in February and March.

"The seed is drilled with machines rented from the factories. These seeders plant either four or eight rows at a time at distances varying from 18 to 28 inches, the 22-inch and 24-inch sizes being popular.

"Cultivation starts as soon as the rows can be seen and is repeated as conditions demand until the crop is laid by. When the plants have four true leaves they are thinned to distances which leave the remaining plants at from 8 to 24 inches apart, the distance depending on the strength of the soil and the available moisture—the most common distance being 10 to 14 inches.

"Irrigation is given to supply ample moisture during the growing periods with a lessening amount at time of maturing. Some lands need but a single irrigation previous to seeding to carry the crop through, while others require several applications during the growing period of the plants.

"When the leaves turn yellow and a test indicates a satisfactory degree of maturity the beets are ready for digging. Specially designed plows loosen either one, two or more rows at a time, when the beets are pulled, several rows thrown together, topped at the junction of the

*By R. L. Adams, Professor of Farm Management, University of California.

green top with the creamy yellow root, and hauled or shipped at once to the factory.

The work of thinning, hoeing weeds, cleaning ditches, pulling topping, and loading the beets is ordinarily done by Japanese, Hindus, or Mexicans working on a day or contract basis—the sliding scale contract based on tonnage produced with bonus provision as a rule giving the best mutual satisfaction. The contract price ranges from 85 cents to over \$2 per ton, according to the yield per acre, with a general average price of perhaps \$1.50.

“The beets are delivered to the factory under a contract drawn up previous to planting, under the terms of which, among other things, the factory agrees to accept all beets coming up to a certain standard—usually set at a minimum of 12 per cent sugar content and 80 per cent purity, with a maximum weight limit of four pounds. These beets are paid for on either a tonnage basis or on the sugar content at prices designated at the time the contract is drawn.

“Each factory employs the service of a thoroughly trained agriculturist, who stands ready to advise and assist all growers in every possible way.”

DIRECTORY OF CALIFORNIA SUGAR BEET COMPANIES.

Company	Main California office		Plant	Daily slicing capacity in tons of beets
	Location	Official in charge		
Alameda Sugar Company	351 California st., S. F.	Geo. E. Springer, Secty.	Alvarado, Alameda County	800
Alameda Sugar Company	351 California st., S. F.	Geo. E. Springer, Secty.	Tracy, San Joaquin County	600
American Beet Sugar Co.	625 Market st., S. F.	Robert Oxnard, Vice Pres.	Climo, San Bernardino County	1,100
American Beet Sugar Co.	625 Market st., S. F.	Robert Oxnard, Vice Pres.	Oxnard, Ventura County	3,000
Anaheim Sugar Co.	Merchant's Nat'l Bldg., L. A.	A. R. Peck, Pres.	Anaheim, Orange County	1,200
Holly Sugar Corporation	Huntington Beach	C. A. Johnson, Mgr.	Huntington Beach, Orange County	1,200
Los Alamitos Sugar Co.	Pacific Electric Bldg., L. A.	Henry C. Lee, Vice Pres. and Gen. Mgr.	Huntington Beach, Orange County	800
Sacramento Valley	564 I. W. Hellman Bldg., L. A.	E. Baruch, Vice Pres.	Hamilton City, Glenn County*	700
Santa Ana Sugar Co.	Huntington Beach	C. A. Johnson, Mgr.	Dyer, Orange County	1,000
Spreckels Sugar Co.	2 Pine st., S. F.	F. E. Sullivan, Gen. Mgr.	Manteca, San Joaquin County	1,200
Spreckels Sugar Co.	2 Pine st., S. F.	F. E. Sullivan, Gen. Mgr.	Spreckels, Monterey County	4,500
Southern California Sugar Co.	Huntington Beach	C. A. Johnson, Mgr.	New Delhi, Orange County	750
Union Sugar Co.	351 California st., S. F.	Geo. E. Springer, Secty.	Petticavina, Santa Barbara County	1,200
			Official in charge	
			R. S. Stewart, Es., Supt.	
			R. S. Stewart, Fac. Supt.	
			J. D. Barry, Fac. Mgr.	
			Fredetek Noble, Fac. Mgr.	
			D. Jessurum, Supt.	
			G. J. Daley, Mgr.	
			E. C. Hamilton, Fac. Mgr.	
			A. M. Gelston, Mgr.	
			E. M. Smiley, Mgr.	
			S. E. Miller, Fac. Mgr.	
			C. L. Piola, Res. Mgr.	
			W. R. Wright, Asst. Mgr.	
			F. H. Johnson, Mgr.	

*Plant not operating.

CALIFORNIA STATE BOARD OF AGRICULTURE.

Rice.

California is the second largest rice producing state in the United States, Louisiana ranking first. Rice is grown in twelve states, but in eight of these the production is very small, amounting in all to only one-half per cent of the total United States production. The other four states, Louisiana, California, Texas, and Arkansas, produce over 99 per cent of the total production.

The office of Cereal Investigations of the United States Department of Agriculture began varietal experiments with rice in the vicinity of Biggs, California, in the spring of 1909. The experiments were conducted in that locality during the three succeeding years, and during the same period similar experiments were made with a smaller number of varieties at several places in the Sacramento and San Joaquin valleys. These experimental sowings, which were conducted in cooperation with ranchers, furnished some valuable data on the commercial possibilities of rice culture in California and laid the foundation of a new industry for the state. In order that these studies might be enlarged and conducted under more favorable conditions, the Biggs Rice Field Station was established in 1912 with the assistance of ranchers, who organized the Sacramento Valley Grain Association for the purpose of cooperating with the United States Department of Agriculture. The station farm, consisting of 57 acres, is located four miles northwest of Biggs and is irrigated by gravity from the Feather River through a canal system operated by a private company. Its soil is black adobe, which is representative of a considerable acreage of land in the Sacramento Valley, on which rice is very productive.

The first commercial crop of rice in California was grown in 1912 on adobe soil in the Sacramento Valley near Biggs. The profits from this crop of 1400 acres were large. The wide publicity that was given to the possibilities of rice culture on black-adobe soil resulted in the sowing of more than 6000 acres in 1913. The greater part of this acreage was in Butte County, though there were several small sowings in the San Joaquin Valley. The average yield of 3200 pounds of grain per acre which was produced by the 1913 crop gave so great an impetus to the industry that in 1914 the area sown to rice was increased to 15,000 acres. Since that time rice production has increased rapidly, as is shown in the following tables:

Rice: Acreage, Production and Farm Value, by States.

State	Thousands of acres		Production (thousands of bushels)		Total value, basis Dec. 1 price (thousands of dollars)	
	1920	1921	1920	1921	1920	1921
South Carolina.....	7	7	175	175	508	170
Georgia.....	4	3	104	78	234	72
Florida.....	3	4	72	88	126	85
Alabama.....	1	1	31	20	90	20
Mississippi.....	3	1	93	20	186	24
Louisiana.....	700	480	25,200	16,560	27,720	14,242
Texas.....	281	155	9,554	5,596	11,942	5,652
Arkansas.....	175	125	8,575	6,688	11,233	6,153
California.....	162	135	8,262	7,290	9,997	8,384
United States.....	1,336	911	52,066	36,515	62,036	34,802

Rice: Yield Per Acre, Price Per Bushel December 1, and Value Per Acre, by States.

State	Yield per acre (bushels)					Farm price per bushel (cents)											Value per acre (dollars) ¹		
	5-year average, 1917-1921	1917	1918	1919	1920	1921	10-year average, 1912-1921	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	5-year average, 1916-1920	1921
S. Carolina	24.4	25.0	23.0	24.0	25.0	25.0	153	93	90	92	90	90	195	195	200	290	97	50.14	24.25
Georgia	26.4	30.0	26.0	24.0	26.0	26.0	146	90	83	88	88	87	195	175	275	225	92	19.18	23.92
Florida	24.4	26.0	24.0	26.0	24.0	22.0	124	90	60	70	75	75	195	140	263	175	97	42.69	21.34
Alabama	25.9	27.0	25.0	26.4	31.0	20.0	137	90	60	70	75	75	190	150	276	290	100	53.75	20.00
Mississippi	26.0	30.0	23.0	29.1	31.0	20.0	126	90	70	85	88	80	190	150	190	200	118	46.24	23.60
Louisiana	33.1	31.0	28.8	35.2	36.0	34.5	130	92	84	93	90	90	190	195	271	110	86	58.29	29.67
Texas	32.8	30.0	32.0	32.0	34.0	36.1	135	94	86	92	89	86	200	197	280	125	101	58.77	36.46
Arkansas	45.5	41.0	37.9	46.0	49.0	53.5	130	94	90	80	95	96	100	180	240	131	92	73.84	49.22
California	58.7	58.0	35.5	60.0	51.0	54.0	133	91	100	100	90	78	175	190	267	121	115	102.36	62.10
United States	37.5	35.4	34.5	39.5	39.0	40.1	131.3	93.5	85.8	92.4	90.6	88.9	189.6	191.8	266.6	119.1	95.3	65.37	38.20

¹Based upon farm price December 1.

Rice Products.

Rice leaves the thresher with the hull or husk attached. It is called rough rice and in this condition is sold to the miller. In the mills it is prepared for the market. After the removal of the hull and seed coat, or skin, the kernels are polished. The polishing improves the commercial value of the rice, but decreases its food value.

After the rough rice has been cleaned in order to remove all kinds of trash, it is conveyed to the milling stones, between which the hulls are removed. From these stones it passes over horizontal screens, where the hulls and the whole and broken kernels are mechanically separated. The unbroken kernels are now conveyed to a set of machines known as hullers, in which the outer skin and much of the gluten layer of the grain, together with the germ, are removed by friction. After leaving the hullers the rice is screened and fanned, to free it from the bran. It is again subjected to another scouring in a second set of hullers or in a pearling cone. It is now ready to be polished, a process which gives the kernels the pearly luster that is demanded by the general trade. In the polishing process more of the gluten layer and many layers of starch cells are rubbed off. This product is called rice polish. After the polishing the rice is screened. If it is to be coated with glucose and talc, as is generally done, it is conveyed to a revolving cylinder where the coating material is applied. The different grades of cleaned or milled rice are afterwards separated.

The unbroken kernels of milled or cleaned rice are known as head rice. This kind of rice always commands the highest price and is sold under several grades, which vary in the different markets but are separated largely according to the brilliancy of the polish and the color and size of the kernels. The broken kernels may be sold as ordinary or broken rice, screenings, or brewers' rice. The last grade is composed of very fine particles of the kernels.

The principal feeds that are obtained from rice are bran, meal, and polish. The bran is composed of the seed coat and the embryo, with

varying quantities of hulls. Bran that contains no hulls or comparatively few is called meal. It is the most nutritious of the rice feeds and when fresh is very palatable to domestic animals. On account of its high percentage of fat it often becomes rancid if kept too long. In the polish the percentage of fat and protein is much lower than in the meal, while the percentage of starch is much higher. Polish is used for feeding cattle and pigs.

Rice in California.*

"Rice culture in California is one of the newer agricultural industries. Though started about ten years ago, the value of the rice crop now almost equals that of wheat.

The three essentials for successful rice culture are (1) climate, (2) water, and (3) soil. The growing season for rice extends from the middle of April to the middle of October. Frost, which may be expected after October 15th and almost invariably after November 4th, effectively terminates growth and further maturing of the grain.

Climatic conditions in California restrict the rice growing mainly to the Sacramento and San Joaquin valleys, with the exception of the delta regions, where the cool winds from the San Francisco Bay render the climate too cool in summer for successful rice culture.

Water must be available continuously throughout the rice growing season. This limits the area available for rice to those regions whose irrigation systems have sufficient water available until the beginning of October.

The rice fields of the Sacramento Valley are watered principally by the canals from the Feather River, Cache Creek (supplied from Clear Lake), and canals supplied by water pumped from the Sacramento River. The San Joaquin Valley lacks the late summer supply of gravity water, and produces limited amounts of rice. This is made up largely by pumping from wells, which is more costly than gravity water.

About five acre-feet of water are required to produce a crop of rice under favorable conditions. If more than eight acre-feet are required, it is not likely that rice growing will be profitable. Gravity water costs from \$5 to \$10 per acre per annum and pumped water much more.

Rice soils consist of clay loam, silt loam, or adobe, containing considerable organic matter. The subsoils are tenacious and retentive of water, and may or may not contain hardpan.

The principal rice-producing counties in California are Butte, Colusa, Yolo, Glenn, Sutter, and Yuba, with small areas in Merced, Fresno, and Kern counties.

Rice lands are fairly level and are prepared for irrigation by placing levees or borders on the contours at each fall of three and one-half inches. The borders are usually made by graders drawn by engines.

Rice fields are plowed, harrowed, and drilled in the same manner as grain fields. From 100 to 120 pounds of seed are planted per acre at a depth of about one inch. The seeding begins about April 15th and ends by June 1st. Rice planted after May 20th is likely to be caught by the cool weather and rain in the fall. The best yields are secured by planting during the ten days following April 25th. A well-prepared seed bed is just as essential as for other grains.

*By W. W. Mackie, Assistant Professor of Agronomy, University of California.

Irrigation water is required to sprout rice, as rain is seldom available. The date of the first irrigation is considered the date of planting, for rice seldom sprouts before the irrigation. The first irrigation thoroughly soaks the soil, after which from three to six slight irrigations may be necessary to keep the soil soft and wet until the rice attains a height of six to eight inches, about June 15th. After this the fields are kept continually flooded to a depth of six or eight inches until drained just before harvest in late September or October. The water is drained off before harvest slowly, because too rapid drainage causes the rice to fall and lodge. Ordinarily from six to ten days are required to dry out the soil sufficiently for harvesting operations.

The rice is cut with a rice binder drawn by three to five animals, usually assisted by an attached gasoline engine which operates the machinery. An average of three acres per day is considered fair, while five acres may be cut under favorable conditions. Within one or two days the rice is shocked. After an interval of ten days or more the bundles are hauled directly to the thresher. Rice is never stacked for fear of rain damage. One binder is required for 60 acres and one thresher for about 400 acres.

The rices grown in California are of the Japanese short grain varieties, which are heavy yielders. In the Sacramento Valley a yield of 3500 pounds per acre of rough rice is considered satisfactory, although under favorable conditions 6000 pounds per acre have been produced. Rice lands yield best the first year and then rapidly deteriorate until the third or fourth year, when the land becomes foul with weeds and is abandoned for a period. On this account the majority of the rice farmers prefer to rent land rather than to purchase it.

The rice lands of the Sacramento Valley rent from \$15 to \$25 per acre per annum, depending upon the nature of the soil and the age of the rice field. The water is usually furnished by the land owner. Where share rentals are asked the tenant gives one-fourth to one-third of the crop.

The cost of growing and marketing a rice crop varies from \$35 to \$50 per acre, varying with the cost of water, labor and seasonal conditions. This high cost necessitates the production of a good crop if decided profits are to be made.

The greatest pests of the rice fields are water grass, blackbirds, and ducks. Water grass exists in all rice fields, but the best growers hand-pull to clean their fields in order that they may continue to grow rice. Water grass is a far more serious problem than the depletion of the soil fertility. Only the cleanest seed should be planted. Red rice in seed should be eliminated, as it shatters and volunteers in the next crop.

The rice growers of California are organized and have largely handled their products through the Pacific Rice Growers' Association, with offices at Sacramento.

The rice industry in the state is well equipped with large rice mills situated at Biggs, Gridley, Sacramento, Woodland and San Francisco."

Caloro a Promising New Rice for California Growers.

A new variety of rice, known as Caloro, and well adapted to both new and old land, is being distributed to California rice growers by the Sacramento Grain Association (Inc.), which has cooperated with the United States Department of Agriculture in rice breeding experiments at Biggs, California. This new variety is pronounced the best of several in selections made and grown under comparable conditions during the past few years. It has outyielded all of the standard varieties of rice grown in California from 8 to 30 per cent during the past four years. In 1919 it gave an average yield of 7874 pounds per acre as compared with 6000 pounds from No. 1600 and 5800 pounds from Early Wataribune, and in 1920 a yield of 6300 pounds as compared with 4800 pounds from No. 1600.

Caloro matures about two weeks earlier than Late Wataribune, or five days earlier than Early Wataribune, seven days later than No. 1600 and 10 days later than Onsen. It is the opinion of those who have the opportunity of watching the results from this new variety that it is superior to Early Wataribune, now generally grown in California, in every respect, and eventually will replace it. Seed for 6000 acres was made available this year.

Beans.

The United States Census showed that in California 472,000 acres of beans were harvested in 1919, and the total production was 6,561,000 bushels, a considerable increase over the estimates for that year. This was rather expected, as a survey of the lima bean acreage for 1920 indicated a much larger acreage the year before than everyone estimated.

By the end of 1920 the crops of 1918 and 1919 had been so well cleaned up that it was possible to check up the estimates of production and arrive at more reasonable figures than had been the case curing and immediately following the war period. The lima bean acreage, of both "large" and "small," dropped to about 150,000 in 1920 and to under 100,000 in 1921. Many fields had to be replanted the second time and the dry season in lima territory made poor and unsatisfactory yields. Henderson Bush or "baby limas" are now included in all estimates of lima beans.

Of "beans other than limas," colored beans were grown principally on account of the very poor market for both "small" and "large whites." A largely increased acreage of Black Eyes was planted, but the yield was disappointing.

In contrast with 1920 the harvest of beans the past year was accomplished with but very slight damage from rain and fog.

Acreage and Production of Beans in California, 1916-1921.

Year	Acreage	Production
1916.....	340,000	3,346,000
1917.....	558,000	4,860,000
1918.....	592,000	5,150,000
1919.....	472,000	3,936,000
1920.....	300,000	3,000,000
1921.....	272,000	3,618,000

Beans (dry): Acreage, Production and Value, by States, 1920 and 1921.

(Leading producing states.)

State and year	Thousands of acres		Average yield in bushels per acre		Production (thousands of bushels)		Average farm price per bushel November 15		Farm value (thousands of dollars)	
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
New York.....	54	67	14.0	16.0	756	1,072	\$3.50	\$2.95	2,646	3,162
Michigan.....	286	263	13.0	11.3	3,718	2,972	2.50	2.40	9,295	7,133
Colorado.....	52	38	8.0	9.0	416	342	3.15	2.70	1,310	923
New Mexico.....	114	105	7.5	7.9	855	830	3.04	2.50	2,599	2,075
Arizona.....	7	8	6.3	8.5	44	68	4.10	3.50	180	238
Idaho.....	25	18	11.5	12.0	288	215	3.04	2.95	876	637
California.....	300	272	10.0	13.3	3,000	3,618	3.30	2.80	9,900	10,130
Total.....	838	771	10.8	11.8	9,077	9,118	2.95	2.66	26,806	24,298

Bean Culture in California.*

"Bean culture in California may be considered under two heads, namely, field bean culture and Lima bean culture. While the soils and culture methods for these two types of beans are similar, they differ materially in respect to their requirements for temperature and moisture, including humidity.

LIMA BEANS—Mainly because of this difference the Lima bean is most extensively produced in the counties along the coast, including San Diego, Orange, Los Angeles, Ventura. In these counties the valley soils are deep and strong, and the peculiar requisite moisture conditions are afforded by frequent fogs from the ocean. The summer temperature in these bean sections is tempered, especially in respect to its uniformity by ocean winds. This industry may be most profitably investigated in the vicinity of Ventura, Los Angeles, and Oxnard. In California the climatic conditions are more important as a limiting factor in the production of Lima beans than the soil, except in cases where the soil is unsuitable because of an alkali condition.

CULTURE METHODS—The bean is a relatively deep-rooted plant, hence deep preparation of the soil is an important factor in the production of the crop. The land is plowed from six to eight or more inches deep as early in the autumn as is rendered possible by rains. The land is left with rough, untreated surface during the winter months, in order to impound as much of the winter rains as possible. During February and March, when most of the rains are over, the surface is worked a number of times to smooth it down, to kill early germinating weeds, and to prepare the surface for the conservation of the stored moisture and for the planting of the seed. The work that has been expended upon the land up to this time comprises the major portion of the culture that the crop will receive, and this is very important, for thorough preparation in bean culture is more than half the labor insuring a crop. In Lima bean culture this thorough preparation is all the more necessary because little or no rain falls in the regions mentioned between the planting and the harvesting of the crop.

Planting is usually best accomplished during the earlier days of May. By this time the soil has become warm and the free water has distributed

*By John W. Gilmore, Professor of Agronomy, University of California.

itself through the soil. If beans are planted in cold, wet soil they will rot, or at best the plants will be non-uniform and retarded in their growth. From 40 to 60 pounds of seed are used per acre, according to the size (the variety) of the seed and the physical condition and the strength of the soil. With optimum physical condition and moisture content less seed is required, for the fewer plants will cover the ground better and yield more. The rows are arranged from 30 to 36 inches apart and the beans are planted and thinned so as to stand 8 or 12 inches apart in the row. On the stronger and moister soils the wider distances are given. Two inches is about the right depth of planting.

During the growing season the crop is given several shallow cultivations until the vines cover the ground and during this period also one or two irrigations are given, unless through excellent preparation of the soil or abundant winter rains the growing crop does not need the moisture. On account of the absence of rainfall during the growing season, Lima beans in California do not have to be staked.

Lima beans ripen from August 25th to September 25th. When the pods have matured and begun to turn yellow, the vines are cut just beneath the surface of the soil and are afterward thrown into small piles for ripening and curing. In cutting, from five to six acres per day is considered a day's work, while in piling a man will accomplish from three to four acres.

Threshing is usually accomplished by itinerant threshing outfits, putting up from 1000 to 2500 sacks per day. The charge is from 35 to 50 cents per sack, according to location or accessibility.

The yield of Lima beans may range from 12 to 30 sacks (100 pounds each) per acre. The average is about 14 sacks. The farmer's selling price ranges from 4 to 6 cents per pound. The cost of production ranges from \$18 to \$25 per acre. On the basis of net returns Lima bean land is worth from \$250 to \$500 per acre.

This crop is produced on farms of all sizes, from small areas of five and ten acres to large estates operated by corporations. The implements of culture and production are not expensive. When land is rented the tenant usually furnishes everything and retains two-thirds of the crop.

FIELD BEANS—There are 11 varieties of field beans of commercial importance grown in California, with a few additional commercial varieties of lesser importance. These are in order of their production:

Pink	Sacramento Valley and Stockton Delta.
Small White	Pajaro, Salinas and Lompoc Valleys.
Lady Washington	Sutter, Colusa, Sacramento and Contra Costa Counties.
Black Eye (Cow pea)	Throughout the interior valleys lowlands along the Sacramento River and streams.
Cranberry	About the same range as above.
Garbanzo	Sutter County and Stockton Delta.
Red Mexican	Range about same as Pink, except rare in southern California.
Red Kidney	Range about same as Bayou.
White Tepary	Throughout the central valleys on dry lands.
Horse bean	Bay region and central Coast.

Climate, soil and moisture are the principal factors that influence the distribution of these varieties. The bean grower must choose those varieties that are adapted to the conditions of his locality.

What has been said regarding the preparation of the land, culture methods and care of the crop for Lima beans applies equally well for field beans. Among the varieties mentioned may be found those adapted to various soils; but generally the light, sandy soils and the adobes are

not suitable to beans because of the poor moisture-holding qualities of the former and the difficulties of keeping the latter in good physical conditions during the summer months.

The major acreage of field beans is not irrigated, but on the drier lands and for those planted late one or two irrigations add much to the yield. The usual practice is to conserve the moisture required by suitable cultivation.

A satisfactory yield of field beans is about 1400 pounds per acre, though on account of climate and soils the yield varies greatly, 2500 pounds per acre being frequently produced. The farm price varies with the variety from 3 cents to 8 cents per pound.

The cost of production of field beans varies more widely than for Lima beans, mainly owing to variation in soil conditions. The most usual figure is between \$15 and \$18 per acre."

COTTON.

Cotton Possibilities of California.

The results of the season confirm the indication of previous years that the Pima variety of Egyptian cotton can be grown in the San Joaquin Valley even to greater advantage than in the more southern valleys. In spite of the earliest killing frost in many years, which occurred on October 27, 1919, yields of a bale per acre were secured from good fields. The behavior of the plant is more regular and normal than in the hotter valleys, with large numbers of bolls matured earlier in the growing season on the lower fruiting branches. It is estimated that the San Joaquin Valley contains at least 1,000,000 acres of land from which normal crops of Pima cotton might be expected. Outside of the range of Pima cotton good results may still be secured from some of the Upland varieties, and especially from Durango, Acala, and Lone Star, so that estimates of 2,000,000 or even 3,000,000 acres of cotton land in California are not considered excessive. Communities that limit themselves to a single superior variety, so that pure stocks of seed can be maintained, will have a further advantage in being able to supply seed for Texas or other states of the eastern cotton belt, especially in seasons when seed of planting quality is scarce.

It is of interest to note in the following table, the average percentage of conditions, of the ten year average of cotton in California in comparison with other cotton producing states. These figures are from those compiled by the United States Department of Agriculture and illustrates the fact that California and Arizona are both practically free from the attack of the Mexican cotton boll weevil, and the necessity of continual vigilance of the quarantine officers of the Department of Agriculture.

Condition of the Cotton Crop of the United States, 1921 and Ten-year Average.

State	Condition (100=normal)			Production
	August 25	September 25		Final 1921 (Census Ginnings)
	1912-1921 Average	1912-1921 Average	1921	1,000 bales
Virginia	79	73	53	16
North Carolina	73	67	54	776
South Carolina	68	62	40	755
Georgia	65	59	33	787
Florida	64	58	50	11
Alabama	63	56	46	587
Mississippi	65	57	48	811
Louisiana	61	56	41	270
Texas	62	58	38	2,193
Arkansas	70	62	53	799
Tennessee	75	66	62	308
Missouri	76	71	70	77
Oklahoma	66	58	38	482
California	92	89	73	*34
Arizona	89	89	81	45
All others			83	9
United States	65.3	59.5	42.2	7,954

*Includes about 8,000 bales grown in Lower California (Old Mexico).

Cotton Acreage and Production in California.

Since 1917 the estimate of cotton acreage and production in California has included all the cotton grown in the Imperial Valley, on account of the difficulty in segregating the seed cotton brought over the boundary line for ginning and reported to the Census Bureau as ginned in California. The entire crop is also marketed through California, and reports on acreage and condition are generally made to cover the whole valley crop.

The terrific slump in cotton prices in November and December, 1920, brought nearly a 50 per cent decrease in the acreage for 1921. The total area estimated to be picked was 140,000 acres, of which 119,500 acres were in the Imperial Valley; 4000 in the Yuma Valley in Imperial County; 14,000 acres in Riverside County, of which 12,000 were in the Blythe district; and 2500 acres in the San Joaquin Valley.

The total production was estimated to be 74,000 bales; the Imperial Valley being credited with 61,800 bales; Yuma Valley, California, 2,000; Riverside County 9,200, and 1,000 bales in the San Joaquin Valley.

The growers of Egyptian cotton in the San Joaquin Valley were particularly hard hit by the price slump, and most of the 1920 crop being still in first hands, offers for the crop would not even pay for picking and ginning. As a consequence, the acreage was cut from 43,000 in 1920 to 6300 in 1921, while the production in 1921 was estimated to be 2300 bales, compared to 9650 bales in 1920.

Number of Ginneries in California in 1921 and Quantity of Cotton, Exclusive of Linters, Ginned from the Crops of 1919 to 1921, by Counties.

County	Ginneries		Total quantity ginned					Number of bales ginned to December 13 (counting round as half bales)			
	Active	Idle	Number of bales (counting round as half bales)			Number of equivalent 500-pound bales			1921	1920	1919
			1921	1920	1919	1921	1920	1919			
The State.....	30	19	34,800	77,892	59,082	34,109	75,183	56,107	19,782	38,131	33,907
Imperial.....	12	12	22,604	49,981	39,082	24,858	47,624	37,434	12,762	25,105	22,026
Kern.....	3	2	1,210	5,152	(¹)	1,234	5,171	(¹)	325	1,148	(¹)
Riverside.....	11	1	10,414	18,740	17,095	10,460	18,257	15,885	6,484	11,517	10,652
All other.....	4	4	581	4,019	2,905	557	4,131	2,788	211	361	1,229

Prices of Cotton and Cotton Seed Received by Producers, 1918-1921.

Yearly averages based on monthly averages weighted by monthly movement.

State	Lint cotton per pound, crop of				Cotton seed per ton, crop of			
	1918	1919	1920	1921	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	\$65 32	\$67 18	\$22 92	\$29 72
United States.....	28.76	35.36	15.84	16.90				
North Carolina.....	27.79	35.44	14.74	17.02	67.36	74.30	25.72	33.19
South Carolina.....	29.10	36.36	16.00	17.33	68.03	74.98	23.09	34.45
Georgia.....	29.35	35.87	16.92	17.27	67.76	75.08	26.50	31.73
Florida.....	40.74	36.08	17.84	16.34	66.23	66.80	28.10	31.83
Alabama.....	28.79	34.94	15.92	16.88	67.15	72.85	26.67	30.70
Mississippi.....	28.21	36.18	15.44	17.03	64.84	65.80	24.10	28.62
Louisiana.....	28.50	36.02	16.80	15.84	63.80	65.57	26.08	27.42
Texas.....	29.48	34.40	17.31	16.76	62.28	59.93	21.38	28.05
Arkansas.....	28.11	35.28	13.69	17.23	64.32	63.30	22.96	28.21
Tennessee.....	27.59	34.05	13.95	16.43	64.19	66.73	25.49	30.49
Missouri.....		31.62	13.42	15.70	62.70	72.68	22.71	31.41
Oklahoma.....	27.30	35.98	12.78	16.42	62.19	60.02	18.88	24.78

World's Production and Consumption of Cotton.

The cotton year ending July 31, 1921, was a most unusual one, and almost universally unsatisfactory to those engaged in the several branches of the industry. The crop of 1920, while larger than those of 1915 to 1918, inclusive, was smaller than that of 1919 and several million bales below the prewar average. The consumption was the smallest for many years with the result that the carry over at the close of the year was the largest on record. The demoralization in the industry was not confined to any country but was world wide. Notwithstanding the fact that the crop of 1920 was the most expensive ever grown, the prices obtaining left the grower a heavy loser. During the year the price of spot middling upland cotton in New York fell from 40 cents per pound to less than 11 cents. However, with the prospect of a very short crop in 1921, with stocks of manufactured goods exceedingly low, and with better economic conditions throughout the world, the outlook in the cotton industry for the season of 1921-1922 is decidedly better.

World's Consumption of Cotton: Seasons of 1919-1921 and 1920-1921.

Country	Mill consumption of cotton (Bales of 500 pounds net weight)	
	1920-1921	1919-1920
Total	16,170,000	18,451,000
United States (exclusive of linters)	4,690,000	6,200,000
Europe:		
United Kingdom	2,040,000	3,700,000
Continent	4,400,000	3,660,000
India	1,840,000	1,646,000
Japan	1,800,000	1,825,000
Canada	150,000	220,000
All other countries	1,250,000	1,200,000

World's Cotton Stocks.

Complete statistics of stocks of cotton for all of the countries are unobtainable under present conditions. Those appearing in Table below have been compiled from various sources. It is believed they fairly approximate the facts and are presented rather in the nature of a reference. American cotton is shown separately.

Probable World's Stocks of "American" and "All Kinds" of Cotton, July 31, 1921.

Location	American (running bales)	All kinds (running bales)
Total	9,172,000	14,540,000
In American mills	1,021,000	1,097,000
In public storage in United States	3,633,000	3,720,000
Elsewhere in United States	1,700,000	1,700,000
In British mills	210,000	300,000
In British ports	760,000	1,180,000
At sea to Britain	50,000	130,000
In continental mills	485,000	750,000
In continental ports	505,000	561,000
At sea to Continent	307,000	348,000
At Bombay		1,189,000
At Alexandria		265,000
In and to Japan, Canada and other countries	460,000	3,300,000

PRODUCTION, BY STATES, OF UPLAND AND SEA-ISLAND COTTON, WITH PERCENTAGE OF THE TOTAL CROP REPORTED FROM EACH STATE, AND RANK OF EACH STATE IN THE PRODUCTION OF COTTON; ALSO THE PRODUCTION OF LINTERS: 1918 TO 1921.

State	Growth year	Cotton produced (exclusive of linters)					Per cent of total ginned ¹	Rank in production ¹	Linters ²		
		Equivalent 500-pound bales		Running bales		Running bales			Equivalent 500-pound bales		
		Gross	Net	Total	Upland				Gross	Net	
					Square						Round	Square	Sea-island
United States.....	1921	7,977,778	7,404,679	8,039,073	47,912,555	123,791	3,327	420,005	440,313	421,465	
	1920	13,270,970	12,859,080	13,374,237	13,165,835	206,584	1,868	595,093	607,969	581,785	
	1919	11,325,532	10,924,485	11,382,684	11,241,463	114,305	6,916	910,236	929,516	889,466	
	1918	11,306,480	11,520,367	11,983,582	11,771,170	154,204	52,208				
Alabama.....	1921	587,669	554,365	587,669	587,669		7	12,836	12,983	12,419	
	1920	670,330	633,204	670,330	670,330		4	35,830	35,475	32,987	
	1919	713,286	681,703	716,655	716,655		8	51,938	51,412	49,127	
	1918	789,265	765,894	789,265	789,265		7				
Arizona.....	1921	42,926	43,434	42,926	42,926		12	(³)	(³)	(³)	
	1920	105,191	98,492	105,191	105,191		8	(³)	(³)	(³)	
	1919	58,472	57,276	58,472	58,472		12	(³)	(³)	(³)	
	1918	54,215	53,219	54,215	54,215		13	(³)	(³)	(³)	
Arkansas.....	1921	788,047	762,292	788,047	788,047		3	38,495	31,752	30,468	
	1920	1,182,010	1,162,469	1,182,010	1,182,010		5	36,041	38,298	36,685	
	1919	867,177	846,317	867,177	867,177		6	56,436	58,566	56,113	
	1918	957,118	945,227	957,118	957,118		5				
California.....	1921	34,809	35,578	34,809	34,809		13	(³)	(³)	(³)	
	1920	77,892	75,183	77,892	77,892		13	(³)	(³)	(³)	
	1919	59,982	55,507	59,982	59,982		13	(³)	(³)	(³)	
	1918	71,479	67,351	71,479	71,479		11	(³)	(³)	(³)	
Florida.....	1921	12,202	10,430	12,202	9,629		15	(³)	(³)	(³)	
	1920	19,443	17,288	19,443	18,267		15	(³)	(³)	(³)	
	1919	17,317	15,227	17,317	14,530		15	(³)	(³)	(³)	
	1918	34,951	28,371	34,951	14,380		14	(³)	(³)	(³)	
Georgia.....	1921	822,621	750,400	822,621	822,621		4	63,052	64,620	61,846	
	1920	1,347,159	1,415,120	1,447,150	1,446,776		3	110,994	110,214	105,331	
	1919	1,078,758	1,659,529	1,078,758	1,078,074		2	166,248	164,670	157,487	
	1918	2,117,860	2,029,730	2,117,860	2,096,381		2				
Louisiana.....	1921	284,330	266,358	285,580	283,071		9	13,639	14,197	13,624	
	1920	389,569	367,063	390,623	388,013		9	15,078	15,659	14,995	
	1919	303,035	294,374	303,838	302,232		10	37,336	39,095	37,452	
	1918	582,698	562,078	582,698	582,698		8				

Mississippi.....	1921	816,961	777,067	816,961	816,961	10.2	2	35,963	36,465	34,883
	1920	900,371	855,686	900,371	900,371	6.7	7	53,570	55,209	52,852
	1919	950,047	910,047	950,047	950,047	8.4	5	43,452	97,267	93,155
	1918	1,193,122	1,173,554	1,193,122	1,193,122	10.2	4	(*)	(*)	(*)
Missouri.....	1921	68,145	66,933	68,145	68,145	0.9	11	(*)	(*)	(*)
	1920	76,328	75,498	76,328	76,328	0.6	12	(*)	(*)	(*)
	1919	62,667	61,273	62,667	62,667	0.6	11	(*)	(*)	(*)
	1918	59,797	59,531	59,797	59,797	0.5	12	(*)	(*)	(*)
North Carolina.....	1921	803,620	740,803	803,620	803,620	9.8	5	30,045	38,613	36,855
	1920	949,481	882,984	949,481	949,481	6.9	6	45,850	45,674	43,657
	1919	830,293	782,574	837,253	857,253	7.3	7	68,895	69,328	66,497
	1918	919,338	897,761	919,338	919,338	7.5	6	30,251	31,039	29,718
Oklahoma.....	1921	477,777	460,621	488,930	466,623	6.1	8	44,824	45,986	44,014
	1920	1,362,610	1,328,268	1,331,628	1,273,591	9.9	4	49,014	50,684	48,523
	1919	1,092,178	1,072,717	1,094,472	979,884	8.9	4	58,757	59,073	56,411
	1918	585,149	570,886	603,119	567,179	4.6	9	82,040	79,422	75,812
South Carolina.....	1921	786,039	719,977	786,039	786,039	14.2	6	56,720	56,411	53,915
	1920	1,682,177	1,560,386	1,682,177	1,682,177	2.9	2	31,407	32,750	32,908
	1919	1,462,277	1,361,889	1,462,277	1,453,832	8.4	3	31,407	32,750	32,908
	1918	1,581,726	1,569,918	1,560,371	1,371,308	10.3	3	82,040	79,422	75,812
Tennessee.....	1921	297,555	288,857	297,555	297,555	3.8	9	21,275	22,048	22,007
	1920	314,811	311,253	314,811	314,811	2.4	10	53,400	55,481	53,131
	1919	301,408	296,782	301,408	301,408	2.7	9	112,608	114,561	109,600
	1918	317,962	325,697	317,962	317,962	2.7	10	147,899	132,070	146,185
Texas.....	1921	2,129,660	2,108,188	2,179,143	2,089,177	27.6	1	225,884	234,458	224,319
	1920	4,148,359	4,345,282	4,221,692	4,075,107	32.3	1	112,608	114,561	109,600
	1919	2,969,802	3,088,967	2,904,390	2,926,279	27.1	1	147,899	132,070	146,185
	1918	2,610,357	2,696,561	2,669,469	2,551,205	22.4	1	225,884	234,458	224,319
Virginia.....	1921	16,680	15,634	16,680	16,680	0.2	14	12,984	14,092	13,521
	1920	21,898	20,373	21,898	21,898	0.2	14	18,791	19,623	18,796
	1919	23,076	21,507	23,076	23,076	0.2	14	28,584	28,903	27,645
	1918	25,255	23,774	25,255	25,255	0.2	15			
All other states ¹	1921	8,737	8,331	8,737	8,737	0.1				
	1920	13,298	12,654	13,298	13,298	0.1				
	1919	4,955	4,947	4,955	4,955	0.1				
	1918	6,228	6,157	6,228	6,228	0.1				

¹Based on equivalent 500-pound bales, excluding linters.

²Monthly reports now collected from oil mills, total lint production not available until close of season—346,762 equivalent 500-pound bales produced from August 1, 1921, to March 31, 1922.

³Includes 37,094 bales of American-Egyptian, distributed as follows: Arizona 34,178 bales and California 2,916 bales.

⁴Included in "All other states" to avoid disclosure of individual operations.

⁵Includes Kentucky and New Mexico, and the lint production of Arizona, California, Florida, Illinois, and Missouri.

Cottonseed and Cottonseed Products.

The demand in recent years for cottonseed for use in manufacture is in striking contrast to former conditions relative to this commodity. Before the advent of the cottonseed-oil mill, the disposition of the surplus of cottonseed was a trying problem, while now this former waste material provides many valuable commercial products. Beginning with the extraction of oil, as the prime object, the industry has developed and improved to such extent that the dirt which attaches itself to the seed in handling is about the only waste matter cast away in the various process of manufacture. In the progress of the industry it was found advantageous to delint the seed more and more closely, at first for the better separation of the meats from the hulls and later, as the uses of linters multiplied and the demand for them became greater, for the commercial value of the linters themselves. The substitution of linters for short-fiber cotton in some lines of manufacture created a demand for information as to the extent of their production. The Bureau of the Census accordingly began the collection of such data and associated them with the statistics of cotton ginned.

The total supply of cottonseed for the oil mills, as indicated by the stocks held August 1, 1921, and the receipts during the year, was 4,257,284 tons. Of this total, 4,069,166 were crushed and 99,821 held at the end of the season. The supply of the several products is practically represented by the production, as the quantities held at the beginning of the year are rather insignificant. The quantities received are in fact a duplication, being counted in production and shipments by the concerns from which received. The large receipt of hulls is due to some extent to their use in the manufacture of hull fiber in specially equipped plants.

Cottonseed Production in California for 1920-1921.

District	Tons
Imperial Valley.....	60,000
Palo Verde Valley.....	8,000
San Joaquin Valley.....	3,000
Coachella Valley.....	2,000
Total.....	73,000

The cottonseed milling capacity on the Pacific Coast is at present considerably in excess of available cotton seed.

Yield of Products per Ton of Seed Worked.

The quantities of the several products obtained per ton of seed crushed in the different states vary considerably. In the western portion of the belt the yield of oil is very much lower than in the eastern section. The relation among the average quantities of the several products that can be obtained from a given quantity of cottonseed depends upon the variety and condition of the seed and the climatic conditions during the growing and harvesting seasons, as well as upon the efficiency of the mill. In this connection attention is called to the fact that there are a number of mills equipped with expeller or cold-process machinery for the expression of the oil. These mills, of course, do not obtain as much oil per ton of seed worked, while the cake and meal also includes the hulls.

The following table, computed from the actual quantities reported, shows, by states, the production of each of the more important products per ton of seed worked for the last three seasons. The average weight of the products obtained per ton of seed crushed for the United States, as a whole, for the last season was 1873 pounds, showing a loss in working of 127 pounds.

Quantities of the Several Products Obtained Per Ton of Seed Crushed, by States, for the Years Ending July 31, 1919, 1920 and 1921.

State	Products obtained (pounds)														
	Total			Crude oil			Cake and meal			Hulls			Linters		
	1921	1920	1919	1921	1920	1919	1921	1920	1919	1921	1920	1919	1921	1920	1919
United States.....	1,873	1,854	1,877	322	302	296	878	906	966	619	570	508	54	76	104
Alabama.....	1,873	1,874	1,882	317	312	300	901	924	972	600	559	507	55	79	103
Arkansas.....	1,875	1,826	1,856	332	279	289	817	897	947	678	574	523	48	76	100
Georgia.....	1,882	1,877	1,886	327	330	310	879	895	947	612	575	532	64	77	97
Louisiana.....	1,866	1,849	1,857	329	297	295	878	942	1,024	600	529	438	59	81	100
Mississippi.....	1,877	1,853	1,884	342	304	305	870	944	1,003	609	526	473	56	79	103
North Carolina.....	1,865	1,864	1,870	329	324	319	930	918	958	546	554	502	60	68	91
Oklahoma.....	1,854	1,812	1,867	311	280	267	882	910	982	619	552	503	42	70	115
South Carolina.....	1,863	1,891	1,860	321	327	312	901	917	959	561	567	495	80	80	94
Tennessee.....	1,879	1,813	1,855	327	281	292	827	885	957	678	569	501	47	74	97
Texas.....	1,875	1,844	1,885	312	282	272	875	883	974	637	603	516	47	76	123
All other states.....	1,863	1,872	1,917	321	300	298	900	954	983	592	533	541	50	85	95

HOPS.

The growing of hops is still quite an important industry, as shown by the following table, and the climatic conditions and soil of California are more perfectly adapted to this crop than any other state in the Union, and its average production per acre is greater with the possible exception of the State of Washington, than any other.

Hops: Acreage, Production and Farm Value, by States, in 1920 and 1921.

(Leading producing states.)

State and year	Acreage		Average yield in pounds per acre		Production (thousands of pounds)		Average farm price, cents per pound Dec. 1		Farm value (thousands of dollars)	
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
New York.....	1,000	1,000	150	580	950	580	60	40	570	232
Washington.....	3,000	3,000	1,910	1,700	5,730	5,100	35	20	2,006	1,020
Oregon.....	12,000	12,000	725	770	8,700	9,240	35	25	3,045	2,310
California.....	12,000	12,000	1,575	1,185	18,900	14,220	35	25	6,615	3,555
Total.....	28,000	28,000	1,224.3	1,049.7	34,280	20,140	35.7	24.4	12,236	7,117

California Crops.

Census 1920.

The following tables summarize the census data relative to all of the crops of 1919 and 1909, except that it does not include nursery or greenhouse products or forest products of farms.

In comparing one year with another it should be borne in mind that the acreage of crops (or the number of fruit trees) and the number of farms reporting are on the whole a better index of the general changes or tendencies in agriculture than either the quantity or the value of the crops, since variations in quantity may be due mainly to favorable or unfavorable seasons, and variations in the value of the crops may result largely from changes in prices between one census year and the next.

For convenience in making comparisons between the crop figures and the total acreage of improved land, a separate total is presented for all those crops for which acreage is reported.

The combined acreage of crops harvested in California in 1919 for which the acreage was reported was 5,756,994, which represents 48.5 per cent of the total improved land in farms (11,878,339 acres). The total crop acreage reported for 1909 was 4,918,917, or 43.2 per cent of the improved land in farms (11,389,894 acres). Most of the remaining improved land doubtless consisted of improved pasture, land lying fallow, house and farm yards, and land occupied by orchards and vineyards, the acreage of which was not reported.

FARM VALUE OF CROPS—At the census of 1920 the farm schedule called for the value of all farm property, including live stock, and the value of live-stock products sold.

In the case of farm crops, however, wherever a unit value could be used, such as the value per bushel or per ton, the farmer was asked to report the acreage and production of each crop but not the value. To supplement the information obtained from the farmers, the Bureau of Crop Estimates of the United States Department of Agriculture secured by special schedule from its crop reporters average values for such crops. These special schedules were tabulated by the Bureau of the Census, and the resulting averages, approved by the Bureau of Crop Estimates as representing a fair average of the farm value per unit, were used in computing most of the crop values presented in the accompanying tables.

For some products it was not possible to find any satisfactory unit on which to base a computation of the total value. Values were therefore obtained in the 1920 census schedule for vegetables, other than potatoes and sweet potatoes, and for the farm garden.

SUMMARY FOR ALL CALIFORNIA CROPS: 1920 AND 1910 CENSUS FIGURES.

Crop	Farms reporting			Acres harvested		Production			Value		
	Number	Per cent of all farms		1920	1910	Per cent of increase!	Quantity		1920	1910	Per cent of increase!
		1920	1910				1920	1910			
All crops.....											
With acreage reports.....											
With no acreage reports.....											
Cereals, total ¹											
Corn.....	8,271	7.0	2,650,482	1,670,492	34.8	Bushels	56,416,858	39,105,917	\$28,099,826	287.2	
Oats.....	3,506	3.1	116,740	51,935	123.8	Bushels	3,448,359	1,273,901	5,852,383	1,077,411	
Wheat, total.....	9,961	8.5	1,458,889	1,921,158	-23.6	Bushels	2,966,776	4,143,688	2,966,776	2,637,047	
Winter.....	8,359	7.1	1,080,428	4,78,217	127.2	Bushels	16,866,382	6,203,206	36,938,477	6,323,983	
Spring.....	1,888	1.6	924,553	45,405	116.8	Bushels	14,611,027	5,340,574	31,998,151	5,483,204	
Barley.....	10,743	9.1	1,618,785	51,812	212.4	Bushels	2,255,855	802,632	4,940,326	840,779	
Rye.....	463	0.4	987,068	1,195,153	-17.4	Bushels	21,897,283	26,441,954	35,035,554	17,184,508	
Kafr and milo.....	7,183	6.1	7,027	7,027	161.8	Bushels	185,520	70,683	343,770	65,846	
Rough rice.....	490	0.4	18,396	44,308	278.7	Bushels	4,051,086	938,049	6,886,848	725,704	
Mixed crops ¹	48	(^b)	130,367	2,760		Bushels	6,926,313	74,239	20,432,627	103,934	
Other grains and seeds, with acreage reports, total ¹	8,743	7.4	498,808	163,776	204.6	Bushels	6,552,351	3,328,218	31,951,816	6,517,453	
Dry edible beans.....	118	0.7	471,674	157,987	198.6	Bushels	49,694	5,534	30,798,869	6,295,457	
Horse beans.....	408	0.3	1,459	150	872.7	Bushels	182,779	57,468	124,235	5,659	
Dry peas.....	161	0.1	20,893	2,959	606.1	Bushels	16,946	2,991	648,864	101,016	
Peanuts.....	80	0.1	516	99	421.0	Pounds	1,182,934	3,168,270	49,145	2,889	
Mustard seed.....	7	(^b)	2,828	1,964	44.0	Pounds	266,606	-62.7	94,655	100,731	
Sugar beet seed.....	50	(^b)	704	257	202.7	Bushels	19,294	6,855	186,624	186,624	
Sunflower seed.....	2	(^b)	778	74	103.5	Bushels	52,004	25,535	48,235	6,264	
Seeds with no acreage reports, total ¹	493	0.4				Bushels	41,021	24,101	6,397,461	800,758	
Other clover and alfalfa seed.....	13	(^b)				Bushels	1,544		1,924		
Vetch seed.....	88	0.1				Bushels	9,315	1,077	10,036	1,323	
Grass seed (other than timothy) ¹	65,953	56.0	2,202,853	2,534,235	-12.6	Tons	4,494,940	4,331,885	96,121,846	42,206,252	
Hay and forage, total ¹	458	0.4	848,816	645,595	31.5	Tons	2,599,232	1,875,374	57,678,388	15,347,884	
All tame or cultivated grasses.....	1,115	0.9	13,725	12,962	5.6	Tons	19,389	20,001	308,391	185,579	
Timothy alone.....	803	0.7	52,276	46,661	12.0	Tons	75,328	73,183	1,393,581	629,575	
Clover alone.....	31,652	26.9	15,227	8,519	78.7	Tons	15,244	20,380	454,999	213,289	
Alfalfa.....			718,515	484,134	48.4	Tons	2,412,554	1,639,707	54,282,479	13,088,530	

Other tame grasses ¹	2,290	3,679	1.9	49,836	92,556	-46.2	Tons	67,367	122,103	-44.8	1,178,938
Wild, salt or prairie grasses.....	3,061	2,679	2.6	178,353	253,127	-29.5	Tons	185,592	281,033	-34.0	2,598,288
Small grains cut for hay.....	39,968	39,397	34.0	1,085,380	1,296,807			1,296,807	30,471,979		30,471,979
Annual legumes cut for hay.....	913	39,397	0.8	25,863	1,604,745	-30.8	Tons	207,913	2,019,526	-34.3	6,011,184
Slage crops.....	1,803	1,803	1.7	29,691	26,470			24,967	1,975,184		1,975,184
Corn cut for forage.....	2,033	1,803	1.2	13,661	24,545			24,545	349,538		349,538
Kafr, sorghum, etc., for forage.....	1,386	1,386	1.2	14,519	4,298			125,827	368,175		368,175
Root crops for forage.....	1,041	6,740	1.4	6,740	4,298			125,827	92,508		92,508
Vegetables, total.....											
Potatoes (Irish white).....	11,516	12,833	9.8	63,305	67,688	-0.5	Bushels	8,917,937	9,824,005	-16.3	27,076,154
Potatoes (Irish red).....	1,814	1,133	1.3	7,032	5,111			8,917,937	47,377,921		47,377,921
Sweet potatoes and yams.....	10,937	33,755	9.3	146,242	79,163	49.3	Bushels	867,300	572,814	51.4	18,901,258
Other vegetables ²	37,123		31.5	187,357	88,765	111.1	Pounds	480,941	4,502		4,502
Farm garden ³	45	12	(4)	700	4			46,418	182		182
Miscellaneous crops, total.....	1,248	18	1.1	87,308	324			21,444	92		92
Tobacco.....								660,866	843,269	-20.9	1,340,253
Cotton.....								4,068	188		1,032
Cotton seed (estimated).....	1,488	1,071	1.3	88,257	78,671	12.2	Tons	614,250	614,250		8,669,268
Sugar beets grown for sugar.....	78	8	0.1	560	45			73,026	3,340		3,340
Sorghum grown for sirup.....	67	24	0.1	2,178	1,023	112.9	Pounds	12,610,055	600,000	-77.2	37,509
Broom corn.....	144	273	0.1	8,118	8,391	-3.3	Pounds	137,000	600,000		63,361
Hops.....	2	2	(4)	113	300	-62.3	Pounds	15,458,726	26,824,120	-42.4	39,000
Hemp.....				123	7			15,458,726	26,824,120		1,731,110
Sundry minor crops ⁴								15,458,726	26,824,120		20,350
Fruits and nuts, total.....	7,290		6.2	7,936	9,637	-18.1	Quarts	270,910,698	50,706,869		3,918
Small fruits.....								3,092,852	1,793,214		3,092,852
Other fruits and nuts.....								267,817,845	48,917,655		267,817,845

¹A minus sign (—) denotes decrease. Per cent not shown when base is less than 100 or when per cent is more than 1,000.
²Excluding 13,661 acres reported for corn cut for forage, which is practically all duplicated in the acreage shown for corn harvested as grain.
³The 1910 figures include small quantities of emmer and spelt and of buckwheat.
⁴Principally wheat and barley grown and harvested together.
⁵Less than one-tenth of one per cent.

⁶Includes small quantities of sorghum seed (1920 and 1910) and of flaxseed and broom corn seed (1910).
⁷Includes small quantities of millet seed (1920) and of timothy seed (1910). The total values include the value of flower and vegetable seeds, as follows: For 1920, \$5,472,623; for 1910, \$594,724.
 The acreage for flower and vegetable seeds was incompletely reported and has not been tabulated. The entire acreage from which the grass and clover seeds were secured is believed to be included in the acreage given elsewhere for hay and forage.
⁸Corn cut for forage was not reported to any extent in 1910; the quantity shown for 1919 is too small, however, to have any appreciable effect on comparisons between the hay and forage totals for 1920 and 1910.
⁹Includes millet and Hungarian grass.
¹⁰The 1920 figures represent vegetables raised for sale only.
¹¹In 1910 the value of the farm garden was largely included in the value of "other vegetables."
¹²These crops comprise cassava (1920) and willows and chicory (1910).

Acreage of Important Crops: Census Figures 1880 to 1920.

Crop	1920	1910	1900	1890	1880
Corn.....	116,740	51,935	53,930	70,303	71,781
Oats.....	146,889	192,158	153,734	57,569	49,947
Wheat.....	1,086,428	478,217	2,683,405	2,840,807	1,832,429
Barley.....	987,068	1,195,158	1,029,647	815,995	586,350
Dry edible beans.....	471,674	157,987	45,861		
Hay and forage.....	2,202,853	2,534,235	2,239,601	1,431,574	758,024
Potatoes.....	63,305	67,688	42,098	38,178	

¹Includes 13,661 acres in corn cut for forage. This crop was not included to any extent in the hay and forage totals prior to 1920.

Percentages and Averages for Important Crops: Census Figures 1920 and 1910.

Crop	Per cent of improved land occupied		Average yield per acre			Average value per acre	
	1920	1910	Unit	1920	1910	1920	1910
Corn.....	1.0	0.5	Bushels	29.5	24.5	\$50.22	\$20.75
Oats.....	1.2	1.7	Bushels	20.2	21.6	20.20	13.72
Wheat.....	9.1	4.2	Bushels	15.5	13.0	34.00	13.22
Barley.....	8.3	10.5	Bushels	22.2	22.1	35.49	14.38
Dry edible beans.....	4.0	1.4	Bushels	13.9	21.1	65.30	39.85
Hay and forage.....	18.5	22.2	Tons	2.04	1.71	43.64	16.65
Potatoes.....	0.5	0.6	Bushels	129.8	145.1	298.57	72.09

Vegetables Raised for Sale: 1920 Census.

(Vegetables other than potatoes and sweet potatoes.)

Crop	Farms reporting		Acres harvested	Value of product
	Number	Per cent of all farms		
Total	10,937	9.3	146,242	\$24,111,588
Asparagus	265	0.2	17,444	2,840,610
Beans (green)	1,606	1.4	4,126	522,332
Beets	200	0.2	439	50,306
Brussels sprouts	61	0.1	441	85,836
Cabbages	1,639	1.4	5,422	953,658
Cantaloupes and muskmelons	2,301	2.0	21,470	3,895,690
Carrots	320	0.3	580	120,342
Cauliflower	380	0.3	3,668	641,161
Celery	517	0.4	5,351	1,518,082
Corn (pop)	77	0.1	408	29,380
Corn (sweet)	1,964	1.7	5,259	459,225
Cucumbers	861	0.7	1,786	313,432
Lettuce	1,409	1.2	6,121	1,691,560
Onions	1,482	1.3	8,512	2,818,194
Peas (green)	1,451	1.2	8,246	1,072,608
Peppers (green)	443	0.4	4,870	753,740
Pumpkins	257	0.2	1,132	39,030
Radishes	40	(¹)	282	29,750
Rhubarb	165	0.1	614	148,790
Spinach	216	0.2	2,401	312,887
Squashes	311	0.3	942	107,804
Tomatoes	4,148	3.5	31,410	3,579,115
Turnips	200	0.2	285	40,587
Watermelons	1,790	1.5	7,341	619,485
All other vegetables			4,223	820,719
Mixed vegetables	620	0.5	3,469	847,256

¹Less than one-tenth of 1 per cent.

Sugar Crops: 1920 and 1910 Census Figures.

Crop	Farms reporting		Acres harvested	Production		
	Number	Per cent of all farms		Quantity	Unit	Value
Sugar beets grown for sugar—						
1920	1,488	1.3	88,257	666,866	Tons.....	\$8,669,278
1910	1,071	1.2	78,671	843,269	Tons.....	4,313,981
Sorghum grown for sirup—						
1920	78	0.1	560	4,068	Tons.....	
1910	8	(²)	45	188	Tons.....	
Sirup made—						
1920				62,973	Gallons....	94,463
1910				4,330	Gallons....	2,340

¹Figures include estimates for incomplete reports.²Less than one-tenth of 1 per cent.

Small Fruits: 1920 and 1910 Census Figures.

Crop	Farms reporting		Acres harvested	Production	
	Number	Per cent of all farms		Quantity (quarts)	Value
Total, 1920	7,290	6.2	7,936	15,458,726	\$3,092,852
1910			9,687	26,824,120	1,789,214
Strawberries, 1920	2,774	2.4	4,974	10,808,048	2,161,612
Strawberries, 1910	2,282	2.6	4,585	15,694,326	1,149,475
Raspberries, 1920	962	0.8	417	882,432	185,310
Loganberries, 1920	823	0.7	459	655,592	131,119
Raspberries and loganberries, 1920	2,524	2.9	1,992	5,222,117	304,169
Blackberries and dewberries, 1920	3,873	3.3	1,742	2,549,082	509,816
Blackberries and dewberries, 1910	3,190	3.6	2,576	4,898,524	282,383
Currants, 1920	298	0.3	298	511,278	97,147
Currants, 1910	364	0.4	407	852,378	43,508
Other berries, 1920	174	0.1	46	52,294	7,848
Other berries, 1910			127	156,775	9,679

ORCHARD AND SUBTROPICAL FRUITS, GRAPES AND NUTS: 1920 AND 1910 CENSUS FIGURES.

Crop	Farms reporting trees or vines of bearing age				Number of trees or vines of bearing age			Production		
	Number		Per cent of all farms		1920	1910	Unit	Quantity		Value
	1920	1910	1920	1910				1919	1909	
Orchard fruits total ¹	54,028	19,671	45.9	22,485,194	27,631,757	Bushels	47,557,570	31,501,507	\$91,687,814	
Apples.....	30,543	19,671	22.3	2,485,762	3,128,386	Bushels	7,842,017	6,355,073	12,163,128	
Pears.....	38,725	21,637	32.9	7,825,011	9,057,760	Bushels	15,969,073	9,267,118	29,542,787	
Plums.....	24,162	15,073	20.5	1,410,905	2,305,646	Bushels	3,925,923	1,328,097	7,115,261	
Plums and prunes.....	29,282	18,105	24.9	8,768,436	11,687,705	Bushels	13,200,805	9,317,979	28,351,734	
Cherries.....	12,268	9,177	10.4	657,470	525,304	Bushels	653,700	501,013	2,614,800	
Apricots.....	15,485	15,181	13.2	3,688,217	2,992,453	Bushels	5,907,645	4,066,823	951,624	
Subtropical fruits, total ¹	18,540	10,975	15.8	14,906,731	8,726,005	Boxes	21,628,444	14,436,180	90,849,592	
Oranges.....	10,125	4,820	8.6	10,297,593	6,615,805	Boxes	14,756,221	9,756,221	67,048,178	
Lemons.....	4,249	932	3.6	2,884,770	941,293	Boxes	6,551,657	2,756,221	18,999,810	
Grapefruit (pomeloes).....	13	9	(^o)	231,136	43,424	Boxes	465,085	125,515	930,170	
Limes.....	78	37	0.1	2,475	3,687	Boxes	136	16	477	
Tangerines.....	4	3	(^o)	1,504	8	Boxes	2,002	6	23,306	
Citrons.....	16,561	7,846	14.1	503,973	269,001	Pounds	21,801,899	22,990,353	8,008	
Figs.....	3,059	3,074	2.6	910,890	836,347	Pounds	17,564,020	16,132,412	2,180,194	
Olives.....	224	11,916	0.2	11,916	7,031	Crates	7,919	95,053	1,405,121	
Alligator pears (avocadoes).....	71	125	0.1	3,654	7,031	Pounds	32,852	95,053	63,352	
Guavas.....	296	175	0.3	3,296	3,711	Boxes	4,328	4,516	17,312	
Loquats.....	270	169	0.2	13,847	3,274	Bushels	21,452	2,696	85,808	
Japanese persimmons.....	212	120	0.2	24,258	1,771	Pounds	953,588	30,075	57,215	
Pomegranates.....	122	8	0.1	17,289	325	Pounds	144,992	3,332	28,998	
Dates.....	26,313	17,793	22.4	153,195,213	144,097,670	Pounds	2,655,644,612	1,673,686,525	65,780,628	
Grapes, total ²	11,261	6,319	9.6	3,682,624	2,034,302	Pounds	67,615,966	28,378,115	19,499,812	
Nuts, total ³	275	217	0.2	2,408,040	1,166,730	Pounds	15,099,748	6,692,513	3,924,640	
Almonds.....	275	217	0.2	2,007	4,226	Pounds	44,935	4,241	700,304	
Pecans.....	14,390	7,557	12.2	1,273,577	853,237	Pounds	51,502,093	21,432,266	15,570,631	
Walnuts (Persian or English)									2,247,192	

¹Includes quinces and (for 1910) mulberries. Since these fruits were not specifically called for by the 1920 schedule, the returns for that year are somewhat incomplete.

²The figures for 1910 and 1909 include nectarines.

³The figures for 1910 and 1909 include mandarinis and bananas.

⁴Less than one-tenth of 1 per cent.

⁵The figures for 1910 and 1909 include black walnuts and several other varieties of nuts not called for by the 1920 schedule.

VALUE OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS.

	The State	Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	Del Norte
VALUE OF ALL CROPS.									
Total, dollars.....	587,600,591	8,682,922	83,742	682,186	11,582,730	593,610	13,240,785	10,044,871	358,955
Cereals, dollars.....	108,570,469	1,482,574	12,016	145,706	6,872,198	73,543	11,024,049	2,345,567	14,307
Other grains and seeds, dollars.....	38,349,277	19,579		818	194,380	2,195	84,989	439,762	1,079
Hay and forage, dollars.....	90,121,846	2,351,151	60,804	253,223	1,325,494	282,121	742,304	2,396,788	293,423
Vegetables, dollars.....	47,377,921	1,081,982	3,566	36,417	96,251	83,919	43,919	3,311,355	39,375
Fruits and nuts, dollars.....	270,910,698	2,765,805	7,300	246,022	2,832,671	151,668	1,311,905	1,587,902	10,910
All other crops, dollars.....	26,270,380	331,828		301,796		166	33,021	2,300	
SELECTED CROPS.									
(Acres harvested and production.)									
Cereals—Total, acres.....	2,656,462	34,988	215	5,174	91,487	2,914	152,486	49,495	320
Bushes.....	56,116,838	877,430	5,850	92,780	2,809,331	45,942	4,756,312	1,349,183	11,926
Corn, acres.....	116,740	1,332		443	676	152	2,245	8,513	3
Bushes.....	3,448,450	33,862		17,880	18,168	2,402	57,163	3,100	110
Oats, acres.....	146,880	2,719	21	1,350	3,967	773	229	3,100	222
Bushes.....	2,906,776	72,554	460	23,743	86,970	14,403	5,116	84,170	8,253
Wheat, acres.....	1,056,428	184	184	1,291	44,177	1,257	29,787	17,257	6
Bushes.....	16,866,882	201,153	4,970	15,959	750,679	14,198	586,347	551,723	112
Barley, acres.....	987,068	19,045	10	1,916	17,546	700	74,490	20,181	89
Bushes.....	21,897,283	569,352	420	32,216	465,219	15,864	1,803,879	611,139	3,451
Kafr, milo, etc., acres.....	1,07,814			173	1,033	27	883	425	
Bushes.....	4,051,086			1,777	19,209	513	35,160	13,974	
Bushes.....	130,367			24,007	24,007		44,842		
Bushes.....	6,926,313				14,987,786		2,268,307		
Other grains and seeds—Dry edible beans, acres.....	145			7	2,177	33	529	5,426	3
Bushes.....	6,552,951	2,797		174	31,928	464	8,475	82,907	33
Bushes.....	2,202,853	60,061		11,082	34,294	12,266	17,051	60,504	4,030
Hay and forage—Total, acres.....	4,494,040	103,680	3,374	12,710	66,184	14,020	22,860	105,970	17,807
All tame or cultivated grasses, acres.....	848,816	9,151	1,144	2,175	10,917	1,223	9,546	11,035	1,247
Tons.....	2,599,232	30,549	2,178	4,026	32,820	4,338	23,082	28,156	2,529
Timothy alone, acres.....	12,962	146	146	52	52	43	43	203	
Tons.....	19,389	202	240	45	72	305	72	305	3
Timothy and clover mixed, acres.....	52,276	205	400	47	47	101	369	50	3
Tons.....	75,328	434	739	82	82	191	375	100	7
Clover alone, acres.....	15,227	3,083	16	274	274	91	79	330	72
Tons.....	24,564	4,848	28	505	505	163	88	478	251
Alfalfa, acres.....	718,515	5,227	414	1,243	6,994	1,159	8,624	6,040	42
Tons.....	2,417,554	24,337	911	3,094	31,449	2,917	22,260	30,711	113
Other tame or cultivated grasses, acres.....	4,836	515		900	550	572	4,472	4,472	1,130
Tons.....	67,367	728	897	739	739	1,067	167	6,562	2,178
Wild, salt, or prairie grasses, acres.....	178,353	454	675	3,055	1,468	4,914	83	5,223	142
Tons.....	185,592	476	1,194	2,392	1,411	3,700	70	6,362	183
Small grains cut for hay, acres.....	1,085,380	48,268	5,428	20,880	20,880	5,544	7,065	44,347	1,747
Tons.....	1,296,807	68,826	5,144	22,840	22,840	5,723	9,198	70,603	4,547
Annual leucum cut for hay, acres.....	25,863	1,799	307	492	492	163	271	50	16
Tons.....	30,057	2,451	135	135	425	222	264	90	40

	170	90	281	67	78	587
Silage crops, acres.....	29,521	905	2,185	292	490	5,028
Tons.....	207,913	862	66	17	69	6
Corn, cut for forage, acres.....	13,661	89	68	17	69	15
Tons.....	24,967	73	21	10	116	3
Kuafir, sorghum, etc., for forage, acres.....	14,519	5	179	18	9	3
Tons.....	24,545	30	384	24	6	3
Root crops for forage, acres.....	6,740	3	9	14	27	282
Tons.....	125,827	298	20	40	57	5,462
Vegetables—Potatoes (Irish or white), acres.....	63,305	899	81	51	6,071	85
Bushels.....	8,217,937	109,752	14,416	4,017	1,144,914	8,944
Other vegetables, acres.....	146,242	26	533	82	4,336	11
Miscellaneous crops—Sugar beets for sugar, acres.....	88,257	.....	.....	.....	.....	.....
Tons.....	666,866	.....	.....	.....	.....	.....
Cotton, acres.....	87,308	.....	.....	.....	.....	.....
Bales.....	46,418	.....	.....	.....	.....	.....
FRUITS AND NUTS.						
Small fruits—Total, acres.....	7,936	403	46	23	5	1
Quarts.....	15,458,736	1,120,312	66,933	17,018	7,854	1,495
Orchard fruits—Total, trees not of bearing age.....	11,598,030	18	251,369	6,661	140,954	291,556
Trees of bearing age.....	27,631,757	1,056	548,762	33,521	117,977	3,607
Bushels harvested.....	41,537,517	4,173	785,900	47,679	391,801	6,595
Apples, trees not of bearing age.....	1,118,847	10	15,673	3,443	18,600	186
Trees of bearing age.....	4,328,386	793	7,950	12,596	11,775	4,489
Bushels harvested.....	7,842,017	3,854	57,425	22,897	24,782	3,246
Peaches, trees not of bearing age.....	1,366,941	3	29,731	1,204	2,655	5,574
Trees of bearing age.....	9,037,760	10	190,716	8,286	7,401	10
Bushels harvested.....	18,969,073	5	301,967	8,459	43,364	7
Pears, trees not of bearing age.....	2,178,526	20,289	10,765	1,447	70,140	1
Trees of bearing age.....	2,305,646	66,949	3,590	1,347	134,791	1
Bushels harvested.....	5,952,923	115,981	21,362	2,065	4,380	138
Plums and prunes, trees not of bearing age.....	5,237,145	50,182	28,131	3,806	199,630	751
Trees of bearing age.....	8,768,436	143,114	196,164	134,670	42,808	15
Bushels harvested.....	13,200,805	123,652	206,270	7,785	101,700	170
Appriots, trees not of bearing age.....	1,243,706	101,963	391,735	9,132	372,314	242
Trees of bearing age.....	292,245	292,245	1,247	76	6,332	.....
Bushels harvested.....	3,688,217	292,245	3,108	655	21,814	.....
Vines of bearing age.....	5,907,645	556,269	18,376	688	3,210	.....
Trees of bearing age.....	21,388,646	22,960	18,376	21,016	31,917	.....
Vines of bearing age.....	153,115,213	2,214,585	74,061	253,949	33,507	.....
Pounds harvested.....	2,655,644,612	13,816,008	534,843	753,779	1,710,451	.....
Subtropical fruits—Oranges, not of bearing age.....	2,598,759	260	12,852	98	778	.....
Trees of bearing age.....	10,297,593	1,100	77,729	274	4,982	.....
Boxes harvested.....	21,628,444	1,025	103,444	368	270	.....
Lemons, trees not of bearing age.....	781,535	144	87	13	142	.....
Trees of bearing age.....	2,884,770	678	2,157	32	110	.....
Boxes harvested.....	6,551,657	581	3,523	25	99	.....
Nuts—Total, trees not of bearing age.....	1,848,559	7,651	83,288	2,556	80,553	.....
Trees of bearing age.....	3,682,624	28,140	269,372	8,900	271,906	.....
Pounds harvested.....	67,615,996	231,970	2,632,417	62,384	827,719	.....
Walnuts (Persian or English)—	.....	.....	.....	.....	.....	.....
Trees not of bearing age.....	435,951	1,700	5,671	1,653	2,186	.....
Trees of bearing age.....	1,272,577	7,635	106,067	1,329	39,493	.....
Pounds harvested.....	51,902,043	135,814	.....	28,850	408,025	.....

VALUE OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS—Continued.

	El Dorado	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen
VALUE OF ALL CROPS.										
Total, dollars.....	867,083	51,861,252	11,571,013	4,985,555	17,200,734	1,503,195	6,085,421	11,940,369	1,619,428	2,104,834
Cereals, dollars.....	46,263	2,267,323	9,653,717	158,781	4,903,233	300,901	2,543,033	3,797,094	334,012	373,275
Other grains and seeds, dollars.....	94	44,253	3,020	31,742	65,017	6,893	10,558	5,784	59,578	65,063
Hay and forage, dollars.....	226,025	6,702,870	1,410,089	2,982,596	2,562,696	1,071,284	2,610,781	2,032,372	475,456	1,513,177
Vegetables, dollars.....	86,012	166,100	24,143	517,696	3,541,078	67,692	297,377	63,532	53,778	98,242
Fruits and nuts, dollars.....	508,689	42,287,283	479,583	308,628	1,233,078	55,898	424,745	5,957,274	662,977	55,177
All other crops, dollars.....	.....	383,423	461	85,292	6,005,632	527	193,927	84,313	33,657	.....
SMALLER CROPS.										
(Acres harvested and production.)										
Cereals—Total, acres.....	1,881	75,007	128,912	3,779	112,618	5,997	76,753	87,271	9,181	15,757
Bushels.....	31,071	1,262,028	4,014,357	110,574	2,762,550	164,054	1,354,527	2,025,230	174,414	187,332
Corn, acres.....	65	3,965	415	418	1,682	3,252	2,953	4,443	1,015	6
Bushels.....	1,575	76,279	8,608	8,650	51,111	92,684	73,708	193,811	25,840	162
Oats, acres.....	732	1,282	528	1,486	544	314	637	237	434	1,039
Bushels.....	15,051	26,628	9,156	50,301	16,805	8,078	12,003	8,102	8,091	19,551
Wheat, acres.....	704	27,476	30,851	967	25,711	2,161	41,772	51,984	5,353	11,986
Bushels.....	8,382	406,619	529,751	18,343	543,756	57,667	496,523	892,852	96,952	140,042
Barley, acres.....	275	36,252	54,631	812	18,225	27	17,481	21,289	2,393	926
Bushels.....	3,687	58,246	1,191,313	31,708	478,051	5,595	348,503	647,282	43,491	17,059
Kafr, mulo, etc., acres.....	17	5,255	3,000	.....	65,421	.....	13,156	7,751	.....	.....
Bushels.....	220	152,252	117,909	.....	1,672,080	.....	463,773	219,334	.....	.....
Rough rice, acres.....	.....	60	38,803	.....	.....	.....	708	.....	.....	.....
Bushels.....	.....	1,050	2,156,230	.....	.....	.....	24,582	.....	.....	.....
Other grains and seeds—Dry, edible beans, acres.....	2	161	50	303	2	20	102	8	86	.....
Bushels.....	20	2,356	504	4,266	32	183	1,623	78	787	.....
Hay and forage—Total, acres.....	9,717	94,921	29,875	36,059	61,452	17,865	50,124	42,942	12,477	66,333
Tons.....	11,025	303,790	64,201	164,030	123,430	52,579	118,711	83,793	21,879	82,740
All tame or cultivated grasses, acres.....	1,714	67,050	16,134	12,516	49,130	14,934	31,107	30,534	6,023	24,191
Tons.....	2,294	259,235	45,908	31,710	97,175	43,741	94,648	71,957	14,067	39,618
Timothy alone, acres.....	5	320	252	208	47	168	225	292	10	.....
Tons.....	6	490	268	323	46	311	313	.....	17	450
Timothy and clover, mixed, acres.....	91	2,019	59	2,312	1,071	1,071	.....	.....	156	2,531
Tons.....	219	2,738	73	4,302	.....	2,075	.....	.....	223	2,940
Clover alone, acres.....	165	14	73	2,312	196	.....	.....	.....	140	3,307
Tons.....	284	22	73	7,147	116	.....	.....	.....	213	3,589
Alfalfa, acres.....	303	64,056	14,026	2,266	48,508	13,189	30,543	30,310	5,375	17,269
Tons.....	707	255,322	43,646	9,122	96,430	40,703	8,799	71,881	13,017	31,912
Other tame or cultivated grasses, acres.....	1,150	641	1,841	5,374	381	358	.....	.....	382	792
Tons.....	1,068	663	1,921	10,816	583	334	.....	.....	587	857
Wild, sat, or prairie grasses, acres.....	2,865	431	813	407	20	1,540	195	258	789	34,707
Tons.....	2,258	553	756	403	10	1,824	143	.....	751	36,844
Small grains cut for hay, acres.....	5,022	23,619	12,139	17,697	7,362	205	17,074	10,708	5,264	7,097
Tons.....	6,219	31,643	14,643	30,409	6,634	181	17,700	14,230	6,045	5,357
Annual legumes cut for hay, acres.....	91	228	143	498	287	2	108	48	6	239
Tons.....	117	392	134	1,125	396	2	111	67	6	217

Silage crops, acres.....	11	2,314	367	467	1,252	779	785	954	229	65
Tons.....	65	9,410	1,943	3,799	12,802	5,871	4,919	6,023	716	640
Corn cut for forage, acres.....	14	518	96	636	1,084	293	201	384	164	1
Tons.....	19	812	116	956	1,999	564	375	603	214	2
Kafr, sorghum, etc., for forage, acres.....	8	747	183	19	2,395	132	717	314	.....	.....
Tons.....	24	1,731	721	36	4,415	396	715	913	.....	.....
Root crops for forage, acres.....	2	14	4	3,821	2	.....	10	.....	12	33
Tons.....	29	14	4	95,592	9	.....	557	.....	73	62
Vegetables—Potatoes (Irish or white), acres.....	89	185	4	942	8	182	557	30	132	324
Bushels.....	15,592	9,705	291	141,324	228	19,101	61,554	3,159	13,193	25,203
Other vegetables, acres.....	33	450	85	181	14,039	33	766	300	29	48
Miscellaneous crops—Sugar beets for sugar, acres.....	.....	.....	.....	.....	.....	13	.....	.....	.....	.....
Tons.....	.....	5,551	3	.....	56,938	33	1,296	1,694	640	.....
Cotton, acres.....	.....	1,974	2	.....	26,343	.....	847	252	.....	.....
Bales.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FRUITS AND NUTS.										
Small fruits—Total, acres.....	15	76	17	105	8	9	21	20	19	16
Quarts.....	25,158	122,628	18,124	154,376	24,300	8,239	33,608	19,415	27,355	8,046
Orchard fruits—Total, trees not of bearing age.....	153,320	271,337	142,226	15,069	5,183	28,051	229,060	160,506	172,066	2,183
Trees of bearing age.....	235,242	2,914,642	83,131	78,942	3,561	28,403	128,487	629,875	169,625	18,130
Bushels harvested.....	256,531	5,662,518	104,812	156,055	2,857	26,473	116,817	1,482,687	314,139	31,270
Apples, trees not of bearing age.....	4,721	12,724	1,840	7,882	268	18,797	89,630	1,837	2,499	1,130
Trees of bearing age.....	26,464	17,364	3,773	51,575	148	17,963	17,899	6,503	17,394	9,258
Bushels harvested.....	57,518	63,847	5,935	113,908	39	16,728	21,818	12,208	28,217	21,520
Peaches, trees not of bearing age.....	4,994	101,082	10,379	1,688	1,142	2,837	19,131	52,250	2,590	432
Trees of bearing age.....	51,011	2,515,288	20,577	7,749	688	6,283	22,509	10,988	10,988	4,016
Bushels harvested.....	32,846	5,059,753	37,355	15,236	449	5,850	17,001	922,242	12,136	1,856
Pears, trees not of bearing age.....	127,154	4,590	30,477	2,295	2,838	6,369	83,452	497	117,937	188
Trees of bearing age.....	108,305	17,412	17,411	5,065	779	3,405	44,696	6,382	85,776	601
Bushels harvested.....	120,013	20,169	11,956	8,658	375	3,198	26,573	10,587	174,210	885
Plums and prunes, trees not of bearing age.....	15,310	109,141	93,731	2,566	443	77	20,176	50,830	48,622	221
Trees of bearing age.....	47,211	120,963	34,342	11,938	190	496	19,005	49,829	54,430	3,679
Bushels harvested.....	41,092	202,057	41,373	15,543	168	500	21,351	117,170	98,526	3,526
Apricots, trees not of bearing age.....	3	40,422	3,814	.....	206	.....	15,259	55,042	90	37
Trees of bearing age.....	30	176,838	6,546	12	1,888	7	23,392	184,112	363	32
Bushels harvested.....	27	312,400	8,097	24	1,786	7	29,434	420,112	220	101
Grapes, vines not of bearing age.....	1,044	12,110,728	6,586	1,963	28,660	930	142,625	447,248	5,620	53
Trees of bearing age.....	181,067	59,881,677	92,547	4,527	246,684	15,809	375,700	5,608,040	243,278	7,278
Pounds harvested.....	570,492	944,281,518	112,956	61,794	1,871,591	303,600	3,367,010	96,843,036	647,252	13,442
Subtropical fruit—Oranges, not of bearing age.....	.....	72,337	7,380	1,498	.....	.....	28,979	72	.....	.....
Trees of bearing age.....	2	40,699	40,699	2,512	.....	.....	5,144	109	38	.....
Boxes harvested.....	87	128,970	42,041	1,710	208	.....	22,834	132	13	.....
Lemons, trees not of bearing age.....	.....	16,264	3,740	208	478	.....	614	.....	.....	.....
Trees of bearing age.....	.....	18,023	1,172	478	.....	.....	962	.....	.....	.....
Boxes harvested.....	.....	16,300	1,098	418	.....	.....	221	.....	.....	.....
Nuts—Total, trees not of bearing age.....	3,431	15,107	105,132	3,862	240	41	6,148	2,477	24,559	.....
Trees of bearing age.....	1,368	10,712	100,231	2,263	4,911	20	9,253	1,999	33,301	.....
Pounds harvested.....	21,413	162,271	337,761	28,050	16,212	300	35,057	44,517	151,567	.....
Walnuts (Persian or English).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Trees not of bearing age.....	1,646	2,716	4,123	3,825	8	28	943	530	10,178	.....
Trees of bearing age.....	4,804	3,857	876	2,102	400	8	87	87	3,403	.....
Pounds harvested.....	20,333	105,723	6,513	27,338	16,000	135	2,405	28,288	43,419	.....

VALUE OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS—Continued.

	Los Angeles	Madera	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey	Napa
VALUE OF ALL CROPS.										
Total, dollars.....	61,366,608	4,697,938	1,452,354	260,064	4,124,824	13,288,914	2,564,801	210,686	9,593,270	4,722,663
Cereals, dollars.....	855,059	2,256,056	100,481	43,178	469,947	3,940,108	301,638	7,323	2,406,114	500,323
Other grains and seeds, dollars.....	2,586,128	12,110	5,462	169	5,030	217,185	111,334	42	1,224,739	789
Hay and forage, dollars.....	5,620,444	1,170,076	771,537	119,719	1,114,175	5,865,411	1,083,025	103,336	2,381,735	779,304
Vegetables, dollars.....	7,694,309	61,745	460,940	37,364	281,873	935,002	103,983	43,385	565,173	82,152
Fruits and nuts, dollars.....	42,117,820	1,195,010	76,344	59,065	1,369,706	2,325,357	64,321	3,200	1,138,169	3,299,579
All other crops, dollars.....	2,282,248	2,211	37,570	29	884,058	5,731			1,837,268	
SELECTED CROPS.										
(Acres harvested and production.)										
Cereals—Total, acres.....	31,293	104,559	2,636	1,875	14,054	131,622	13,431	160	96,671	17,146
Bushels.....	496,213	1,181,235	95,837	27,417	276,383	2,266,360	153,207	4,655	1,342,215	344,315
Corn, acres.....	6,222	889	39	1,060	21,081	97,428	93	125	15,687	1,143
Bushels.....	149,050	24,310	899	108	2,856	3,731	220	30	4,207	4,165
Ons, acres.....	1,363	2,292	2,287	330	76,199	75,928	8,832	1,500	57,123	122,851
Bushels.....	27,162	32,186	80,954	4,415	7,848	29,739	4,583	53	33,315	8,789
Wheat, acres.....	11,563	56,384	78	273	120,670	482,847	95,370	1,630	491,962	136,943
Bushels.....	96,852	614,788	1,402	3,189	2,070	80,002	2,549	70	51,012	2,742
Barley, acres.....	9,223	40,004	229	1,230	2,070	1,305,569	41,213	1,400	764,683	54,872
Bushels.....	162,142	448,153	3,703	19,435	56,941	7,845				
Kafir, milo, etc., acres.....	2,081	2,082	3	1						
Bushels.....	58,850	36,790	179	8		122,048			20	
Rough rice, acres.....		275				437				
Bushels.....		9,247				28,045				
Other grains and seeds Dry edible beans, acres.....		237	41	3	40	4,164	15	1	17,791	20
Bushels.....	50,505	1,153	36	36	349	38,229	244	9	200,009	167
Hay and forage Total, acres.....	546,050	22,883	1,136	6,381	31,707	86,620	89,226	3,430	75,716	19,284
Tons.....	125,542	22,497	34,397	5,240	51,299	269,003	108,391	7,890	105,249	34,220
All tame or cultivated grasses, acres.....	269,554	52,311	210	830	7,070	73,357	43,675	2,648	17,103	3,233
Tons.....	123,700	12,574	411	581	17,415	233,365	62,512	7,107	55,055	7,519
Timothy, alone, acres.....	161		52		55		2,445	60		4
Tons.....	172		77		99		2,247	108		6
Timothy and clover mixed, acres.....	135	3			148		22,010	855		2
Tons.....	189	4			297		30,322	1,577		2
Clover alone, acres.....	139				81		145	181		10
Tons.....	231				173		205	180		53
Alfalfa, acres.....	25,992	12,407	124	121	5,532	72,901	15,383	1,552	16,817	2,317
Tons.....	122,131	41,542	258	186	15,475	222,974	24,889	5,242	52,713	7,217
Other tame or cultivated grasses, acres.....	463	164	34	702	1,231	456	3,692	6,276	248	248
Tons.....	246	246	76	381	1,461	394	4,079	327	241	241
Wild, salt, or prairie grasses, acres.....	949	240	211		1,623	4,545	35,847	663	922	116
Tons.....	231				1,818	4,805	36,578	677	904	106
Small grains cut for hay, acres.....	90,257	9,480	14,182	5,376	21,979	14,005	10,244	63	59,966	16,032
Tons.....	98,985	8,917	25,465	4,501	26,763	17,489	9,172	44	48,572	25,249
Annual leucenes cut for hay, acres.....	749	30	4,589	122	260	17,489	108	4	383	74
Tons.....	870	17	7,443	97	446	302	126	4	260	154

Silage crops, acres.....	3,559					307	1,935			40	209
Tons.....	34,048	437				1,503	11,413			225	765
Corn cut for forage, acres.....	2,087	103			16		541			7	176
Tons.....	6,454	260		39			851		1	8	200
Kafr, sorghum, etc., for forage, acres.....	1,350	251		6			258			9	4
Tons.....	2,083	888		39			655			13	9
Root crops for forage, acres.....	382			80			77			45	50
Tons.....	3,183			725			66		1	20	2,000
Vegetables—Potatoes (Irish or white), acres.....	9,973			1,212			265		250	124	49
Bushels.....	1,020,456	3,136		161,508		4,829	17,242		21,960	17,016	187,597
Other vegetables, acres.....	31,480	587		272			1,211		20	16	6,701
Miscellaneous crops—Sugar beets for sugar, acres.....	21,762			665							543
Tons.....	170,214			2,800							23,484
Cotton, acres.....		39									141,316
Bales.....		9									
FRUITS AND NUTS.											
Small fruits—Total, acres.....	1,250	34		28		70	21		26		106
Quarts.....	4,152,998	25,310		16,220		70,119	29,657		17,366		258,659
Orchard fruits—Total, trees not of bearing age.....	442,425	62,704		2,575		198,805	73,831		4,890		38,004
Trees of bearing age.....	1,057,532	125,302		18,226		227,853	454,584		1,435		134,568
Bushels harvested.....	1,476,400	170,374		28,401		426,522	694,284		36,247		284,178
Apples, trees not of bearing age.....	81,581	3,207		2,094		34,481	1,658		3,931		69,250
Trees of bearing age.....	12,864	8,889		7,222		64,574	4,446		95,076		15,727
Bushels harvested.....	305,657	31,770		7,012		224,521	5,439		29,705		207,850
Peaches, trees not of bearing age.....	36,421	13,505		1,785		13,958	5,302		170		8,928
Trees of bearing age.....	421,680	109,926		1,268		19,377	382,270		2,076		32,600
Bushels harvested.....	609,893	123,126		1,238		2,185	19,337		1,045		9,186
Pears, trees not of bearing age.....	244,209	1,909		11,884		182	53,267		1,179		48,240
Trees of bearing age.....	199,531	1,848		4,841		012	31,087		8,355		01,565
Bushels harvested.....	109,186	1,630		11,780		1,110	87,248		2,226		12,249
Plums and prunes, trees not of bearing age.....	22,252	11,581		4,357		67,309	7,512		269		4,811
Trees of bearing age.....	60,577	3,547		4,187		65,705	7,235		1,947		443,806
Bushels harvested.....	80,098	6,951		4,877		1,656	77,237		1,458		530,456
Apricots, trees not of bearing age.....	35,581	10,904		2,029		47	2,811		28		89,278
Trees of bearing age.....	169,125	15,185		2,847		63	11,425		47		42,371
Bushels harvested.....	296,653	20,466		2,847		129	17,977		69		66,553
Vines not of bearing age.....	134,476	1,190,668		769		1,762	658,166				172,742
Trees of bearing age.....	2,042,556	2,368,056		79,726		17,883	2,355,545				582,727
Pounds harvested.....	18,700,911	25,081,442		605,745		101,090	24,324,197				52,752,224
Subtropical fruits—Oranges, not of bearing age.....	549,361	241		57		52	2,679				186
Trees of bearing age.....	2,624,172	422		76		994	3,388				48
Boxes harvested.....	8,240,673	410		28		1,409	5,737				220
Lemons, trees not of bearing age.....	226,265	51		1		8	52				74
Trees of bearing age.....	829,286	57		9		35	174				34
Boxes harvested.....	2,147,900	44		12		2	41				25
Nuts—Total, trees not of bearing age.....	138,652	9,642		1,073		4,164	118,628				15,378
Trees of bearing age.....	473,833	7,922		330		2,581	53,229				15,772
Pounds harvested.....	18,367,338	65,580		2,145		3,355	282,089				4,442
Walnuts (Persian or English)—											
Trees not of bearing age.....	100,867	855		38		3,888	1,042				695
Trees of bearing age.....	410,478	1,050		79		1,876	1,042				805
Pounds harvested.....	18,210,977	37,475		530		1,515	18,428				10,149

VALUES OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS—Continued.

	Nevada	Orange	Placer	Plumas	Riverside	Sacramento	San Benito	San Bernardino	San Diego	San Francisco
VALUE OF ALL CROPS.										
Total, dollars	399,461	24,465,291	5,080,703	562,728	18,932,449	19,845,858	4,115,671	26,517,455	7,829,041	150,684
Cereals, dollars	11,661	319,878	681,124	62,136	1,556,241	3,285,385	472,112	605,190	795,348	
Other grains and seeds, dollars	320	2,335,901	338		261,148	3,097,539	1,322,442	43,307	570,914	
Hay and forage, dollars	163,576	874,429	261,789	475,322	2,588,202	1,978,778	1,050,191	1,815,296	1,631,621	45
Vegetables, dollars	61,333	1,473,097	49,538	20,033	838,194	3,228,680	104,613	452,718	706,861	150,639
Fruits and nuts, dollars	162,405	17,965,347	4,075,216	5,237	9,689,920	6,344,873	1,151,025	25,429,055	4,065,611	
All other crops, dollars	75	1,466,579	12,789		4,003,744	1,908,603	15,288	121,889	50,986	
SELECTED CROPS.										
(Acres harvested and production.)										
Cereals—Total, acres	453	10,291	33,505	2,270	63,299	101,005	16,662	14,457	35,492	
Bushels	7,518	190,487	366,032	44,605	902,182	1,287,062	260,796	362,516	479,134	
Corn, acres	68	1,505	17		1,388	4,070	613	1,295	3,199	
Bushels	2,293	59,379	533		28,836	159,145	6,871	41,083	51,846	
Oats, acres	110	442	8,131	953	875	17,307	197	748	2,062	
Bushels	1,892	10,574	110,169	27,835	16,322	226,160	2,810	17,965	48,400	
Wheat, acres	117	2,058	25,449	789	18,986	69,669	7,182	1,730	8,899	
Bushels	774	25,630	219,509	10,630	179,776	911,289	94,634	40,200	82,727	
Barley, acres	122	6,137	1,473	77	35,222	18,872	4,445	4,445	18,150	
Bushels	1,919	91,165	15,610	555	542,201	471,930	156,459	183,486	271,533	
Kafir milo, etc., acres	28	149	39		6,763	488		3,208	1,927	
Bushels	550	3,719	305		134,293	6,588		79,688	14,327	
Rough rice, acres			26,707		7	4,500				
Bushels			61			22,222				
Other fruits and seeds—Dry edible beans, acres	6	36,759			701			564	16,067	
Bushels	68	481,980	72		8,305	441,645	1,059	8,421	120,243	
Hay and forage—Total, acres	6,954	34,284	12,774	22,696	57,114	46,820	33,255	37,247	70,041	1
Tons	8,306	39,965	11,566	28,485	118,891	91,800	98,402	61,344	71,928	2
All tame or cultivated grasses, acres	3,443	11,398	1,569	11,352	76,196	35,071	15,087	45,739	20,508	2
Tons	3		2	200	13	15		86	42	
Timothy alone, acres	4	5	2	435	123	10		123	37	
Tons	175	20	22	4,942	86	100		86		
Timothy and clover mixed, acres	280	55	31	6,220	195	100		29		
Tons	301	52	42	96	58	1		1,002	42	
Clover alone, acres	406	14	52	210	47		40	540	32	
Tons	880	2,926	773	1,318	17,694	13,455	85	1,002	42	
Alfalfa, acres	1,368	10,784	1,405	2,627	74,898	51,614	14,828	43,395	20,121	
Tons	1,143		54	811	1,426	280	174	856	517	
Other tame or cultivated grasses, acres	1,325	540	60	1,140	1,083	345	174	1,672	318	
Tons	1,143		403	13,981	11	3,483	3,537	100	2,554	
Wild, salt or prairie grasses, acres	1,400	86	317	15,471	11	3,335	2,298	113	2,006	
Tons	2,913	27,681	11,378	34,300	31,862	27,907	24,947	20,811	56,658	
Small grains cut for hay, acres	2,809	23,226	9,265	1,677	31,862	25,005	25,207	27,494	42,698	
Tons	80	2,515	17	6	163	471	187	217	1,437	
Annual legumes cut for hay, acres	77	1,794	19	2	169	497	155	340	1,433	

Silage crops, acres.....	62	256	37	878	649	166	1,532	1,076
Tons.....	532	2,559	226	6,574	6,186	1,286	11,705	8,925
Corn cut for forage, acres.....	80	155	32	678	270	501	1,407	1,407
Tons.....	183	337	32	1,325	273	1,020	1,596	698
Kafir, sorghum, etc., for forage, acres.....	18	65	4	1,762	198	696	1,033	343
Tons.....	40	91	15	2,404	169	248	26	116
Root crops for forage, acres.....	5	49	10	45	51	248	26	116
Tons.....	22	482	131	360	234	4,369	8,207	519
Vegetables—Potatoes (Irish or white), acres.....	106	607	22	687	1,919	204	1,267	487
Bushels.....	13,084	50,711	1,464	66,826	198,635	14,897	97,117	33,288
Other vegetables, acres.....	30	7,356	12	2,691	17,044	904	1,260	3,652
Miscellaneous crops—Sugar beets for sugar, acres.....		15,093		1,100	515	200	1,294	423
Tons.....		112,607		1,631	2,060	1,176	9,298	3,887
Cotton, acres.....				22,482				
Bales.....				17,169				
FRUITS AND NUTS.								
Small fruits—Total, acres.....	21	18	126	72	722	61	77	48
Quarts.....	30,858	40,578	197,626	85,444	1,957,517	294,103	87,769	79,641
Orchard fruits—Total, trees not of bearing age.....	74,856	36,152	659,045	499	423,435	320,173	273,454	72,479
Trees of bearing age.....	95,987	117,288	1,775,722	2,143	770,494	350,086	1,011,842	227,677
Bushels harvested.....	73,726	180,925	1,759,609	2,884	1,240,496	500,133	1,394,559	288,131
Apples, trees not of bearing age.....	4,804	14,672	4,040	50,395	5,616	2,174	80,957	17,270
Trees of bearing age.....	16,614	25,519	38,555	107,808	16,638	10,838	263,922	44,432
Bushels harvested.....	24,537	36,607	36,270	111,973	31,413	22,688	329,034	84,115
Peaches, trees not of bearing age.....	5,780	5,348	114,112	70,276	64,807	16,963	79,666	28,020
Trees of bearing age.....	11,920	29,700	746,180	204,566	189,848	37,177	549,221	124,429
Bushels harvested.....	10,031	33,285	894,516	40	586,309	199,900	68,793	763,300
Pears, trees not of bearing age.....	58,198	8,518	224,631	22,086	199,408	68,793	763,300	139,501
Trees of bearing age.....	49,295	3,197	224,631	13	22,086	39,496	56,523	11,600
Bushels harvested.....	27,880	4,381	288,703	57	35,670	209,540	21,486	12,573
Plums and prunes, trees not of bearing age.....	3,694	5,311	709,933	149	47,869	182,958	46,789	10,199
Trees of bearing age.....	16,740	5,078	489,574	100	96,687	389,406	154,322	5,976
Bushels harvested.....	10,385	5,078	489,574	100	96,687	389,406	154,322	5,976
Apricots, trees not of bearing age.....	419	3,379	3,152	36,235	6,474	205,091	238,672	16,340
Trees of bearing age.....	57	53,465	2,499	363,918	14,265	126,552	136,173	21,376
Bushels harvested.....	102	97,201	3,544	598,200	14,265	126,552	136,173	21,376
Grapes, vines not of bearing age.....	4,576	15,502	47,282	32,612	338,088	3,582	264,393	159,065
Vines of bearing age.....	73,065	42,510	1,200,816	1,041,495	7,299,341	286,697	6,276,671	1,275,873
Founds harvested.....	315,215	269,448	11,062,986	4,663,117	64,544,341	2,258,370	8,758,069	1,275,873
Subtropical fruits—Oranges, not of bearing age.....	2,321	728,140	27,066	1,041,495	7,299,341	286,697	6,276,671	1,275,873
Trees of bearing age.....	365	1,434,078	21,011	1,041,495	7,299,341	286,697	6,276,671	1,275,873
Boxes harvested.....	410	3,486,304	10,847	1,404,602	89,019	25	5,102,958	222,808
Lemons, trees not of bearing age.....	1,880	72,219	118	72,212	157	12	100,508	72,217
Trees of bearing age.....	15	480,204	656	320,066	2,709	11	233,499	278,480
Boxes harvested.....	16	668,773	372	680,383	3,226	15	802,086	813,365
Nuts—Total, trees not of bearing age.....	1,159	27,475	15,551	42,670	70,187	9,830	16,271	7,122
Trees of bearing age.....	2,376	290,876	31,830	2,120,528	166,780	6,137	36,992	20,830
Pounds harvested.....	24,387	14,119,319	182,275	1,054,942	452,610	46,877	510,738	244,285
Walnuts (Persian or English)—								
Trees not of bearing age.....	1,003	26,311	662	25,895	6,644	3,362	17,410	2,845
Trees of bearing age.....	1,736	290,775	267	35,100	4,176	3,362	10,798	10,798
Pounds harvested.....	21,054	14,118,290	2,847	693,682	44,448	22,645	503,959	223,692

VALUE OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS—Continued.

	San Joaquin	San Luis Obispo	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Shasta	Sierra	Siskiyou	Solano
<p>VALUE OF ALL CROPS.</p> <p>Total, dollars.....</p>										
Cereals, dollars.....	37,956,866	8,071,811	2,445,026	11,206,645	23,792,454	6,706,924	1,928,099	311,656	3,138,775	11,245,439
Other grains and seeds, dollars.....	16,748,208	2,991,194	176,650	531,572	2,614,707	128,591	376,853	6,943	7,244,849	3,992,563
Hay and forage, dollars.....	3,067,428	1,925,401	215,349	6,004,322	673,351	134,096	6,391	9	26,835	722,381
Vegetables, dollars.....	4,497,117	1,959,807	552,482	1,335,180	1,871,097	399,401	973,063	286,023	2,086,118	1,517,188
Fruits and nuts, dollars.....	9,982,932	2,091,177	1,453,674	935,351	1,455,863	322,666	164,368	16,651	298,553	754,000
All other crops, dollars.....	221,606	571,287	45,151	2,392,248	19,513,653	5,654,942	467,347	5,927	10,010	4,244,608
		414,947	2,330	713,362	13,773	67,288	17		20,019	15,000
<p>SELECTED CROPS.</p> <p>(Acres harvested and production.)</p>										
Cereals—Total, acres.....	234,715	86,128	9,678	16,348	7,589	4,856	19,010	542	20,657	87,500
Wheat, acres.....	6,170,383	1,546,071	150,965	340,880	157,606	83,297	174,715	4,430	363,355	2,159,474
Corn, acres.....	30,350	2,413	41	689	2,107	2,463	2,163		212	18,70
Oats, acres.....	1,216,100	614,736	721	104,833	514,82	42,121	5,470		4,655	61,331
Rye, acres.....	19,309	1,768	7,677	2,610	1,51	1,052	100	173	1,506	6,597
Barley, acres.....	341,668	42,266	113,705	13,705	8,123	29,010	7,510	1,736	35,494	143,080
Other grains and seeds, acres.....	73,272	62,777	302	4,351	1,327	557	11,213	14	20,340	42,830
Hay and forage, acres.....	1,594,310	1,083,200	4,504	54,819	32,159	7,279	1,299	1,299	274,910	1,635,049
Vegetables, acres.....	104,332	18,736	1,658	8,568	3,565	735	734	195	2,457	35,979
Fruits and nuts, etc., acres.....	2,878,687	527,867	32,065	251,483	85,672	11,815	11,057	833	33,689	510,421
All other crops, acres.....	5,727	21		64	3		79			122
Rough rice, acres.....	109,587	525			20		2,968			18,73
Bushes.....	45						113			113
Timothy alone, acres.....	2,690						12,320			5,740
Other grains and seeds—Dry clover beans, acres.....	22,487	26,330	159	86,578	1,341	1,634	76		51	
Hay and forage—Total, acres.....	401,780	385,827	2,702	1,117,736	16,979	24,891	1,086	2	797	130,827
Timothy alone, acres.....	75,831	52,665	1,646	41,923	13,327	32,339	14,830		66,588	32,639
Other timothy and clover mixed, acres.....	204,785	86,329	35,411	56,227	80,480	18,151	46,341	17,706	101,079	67,755
All tame or cultivated grasses, acres.....	36,715	5,886	6,672	2,452	9,252	752	14,387	2,437	42,527	8,613
Timothy alone, acres.....	147,116	14,886	2,618	4,317	35,212	1,714	39,300	3,388	76,692	31,998
Timothy and clover mixed, acres.....	300	20	3	5	67	5	67	801		
Timothy alone, acres.....	300	20	3	5	219	10	502	199	1,083	95
Timothy and clover mixed, acres.....	196	33	30	29	10	10	475	675	7,050	45
Clover alone, acres.....	327	16	5	10	12	15	3,649	1,818	11,222	412
Alfalfa, acres.....	53	12			186	15	289	35	385	515
Other tame or cultivated grasses, acres.....	38,088	3,877	406	2,160	7,558	616	6,627	1,918	28,483	7,861
Wild, salt, or prairie grasses, acres.....	144,896	13,391	1,882	7,082	33,692	1,538	21,968	2,021	51,396	32,333
Small grains cut for hay, acres.....	804	1,973	381	322	848	116	2,008	441	6,051	272
Annual legumes cut for hay, acres.....	1,154	1,223	808	221	1,118	176	2,008	382	8,393	413
Wild, salt, or prairie grasses, acres.....	2,855	460	440		572	15	1,118	441	9,054	1,088
Small grains cut for hay, acres.....	34,082	45,370	15,250	36,178	32,882	12,144	11,725	12,155	14,898	22,100
Annual legumes cut for hay, acres.....	44,740	67,307	19,400	46,962	43,264	13,308	5,465	1,183	14,898	22,100
Wild, salt, or prairie grasses, acres.....	188	405	1,242	200	145	135	5,964	1,183	12,272	25,465
Annual legumes cut for hay, acres.....	259	490	312	1,164	426	274	216	194	360	560

Silage crops, acres.....	1,213	387	390	441	616	126	64	84	524
Tons.....	8,503	2,560	2,200	2,373	4,116	1,025	568	472	1,400
Corn cut for forage, acres.....	122	222	4	193	113	152	152	43	107
Tons.....	200	240	4	469	170	277	331	107	8
Kafir sorghum, etc., for forage, acres.....	650	26	36	20	3	5	237	6	6
Tons.....	1,047	38	39	39	103	402	402	12	6
Root crops for forage, acres.....	6	78	11	50	8	52	46	70	22
Tons.....	68	432	157	873	540	858	47	448	1,165
Vegetables—Potatoes (Irish or white), acres.....	18,462	363	623	411	639	873	170	51,916	177,610
Bushels.....	3,208,310	30,531	77,320	25,759	51,613	83,208	16,629	4,401	2,958
Other vegetables, acres.....	10,940	581	6,970	751	8,317	651	105	49	---
Miscellaneous crops—Sugar beets for sugar, acres.....	2,647	2,115	4,165	4,165	33	513	---	---	---
Tons.....	12,907	31,319	54,874	591	5,176	---	---	---	---
Cotton, acres.....	---	---	---	---	---	---	---	---	---
Bales.....	---	---	---	---	---	---	---	---	---
FRUITS AND NUTS.									
Small fruits—Total, acres.....	172	31	43	35	394	507	50	30	4
Quarts.....	185,945	35,939	76,026	48,613	1,184,322	1,087,748	57,185	51,293	4,073
Orchard fruits—Total, trees not of bearing age.....	300,751	78,488	5,459	18,005	2,094,353	251,557	19,622	4,409	301,106
Trees of bearing age.....	531,596	119,360	12,492	49,126	5,216,120	907,910	169,926	2,168	1,286,704
Bushels harvested.....	890,510	143,862	14,385	53,009	8,363,106	3,310,905	213,399	30,504	1,900,126
Apples, trees not of bearing age.....	5,414	8,256	618	3,833	25,536	97,545	3,213	22	858
Trees of bearing age.....	11,347	34,264	4,793	19,856	92,013	665,535	28,688	1,677	5,979
Bushels harvested.....	15,286	61,494	6,463	25,489	267,503	3,016,031	44,723	33,611	17,341
Peaches, trees not of bearing age.....	74,851	3,561	273	2,320	45,228	7,268	55,366	888	25,604
Trees of bearing age.....	318,700	12,065	557	8,847	259,074	15,486	59,153	4,295	214,412
Bushels harvested.....	543,773	12,913	183	12,974	585,463	13,845	61,355	4,702	387,904
Pears, trees not of bearing age.....	43,289	21,900	4,140	779	183,122	23,067	747	7	283
Trees of bearing age.....	21,553	26,838	716	2,734	249,320	27,450	9,472	125	1,806
Bushels harvested.....	38,053	16,265	516	1,436	495,111	46,768	19,592	3,958	381,620
Plums a id prunes, trees not of bearing age.....	111,875	31,255	273	1,386	1,354,155	36,647	31,921	484	162,160
Trees of bearing age.....	94,222	29,275	6,043	1,796	3,371,436	101,983	71,437	3,104	609,755
Bushels harvested.....	168,201	37,264	7,088	2,076	5,615,344	101,854	86,184	2,345	803,495
Apricots, trees not of bearing age.....	15,320	11,358	10	8,406	370,152	71,787	956	5	24,073
Trees of bearing age.....	22,248	15,086	180	14,573	1,113,405	77,749	288	31	217,358
Bushels harvested.....	33,849	10,694	119	14,735	1,500,981	116,647	526	20	281,816
Grapes, trees not of bearing age.....	215,664	10,867	116	5,331	47,768	33,370	4,916	165	31,715
Vines of bearing age.....	13,074,697	188,542	12,551	203,833	3,407,761	629,816	112,007	70	565,624
Pounds harvested.....	217,154,214	883,630	71,500	451,380	33,254,322	3,529,306	677,657	450	4,210,057
Subtotal fruits—Oranges, not of bearing age.....	1,136	429	48	4,235	4,016	288	110	46,685	448
Trees of bearing age.....	3,257	411	22	4,359	5,414	552	83	3,586	3,636
Boxes harvested.....	3,528	566	184	6,811	5,862	633	142	737	290
Lemons, trees not of bearing age.....	265	184	32	19,142	2,950	1,189	30	108	108
Trees of bearing age.....	456	893	11	77,925	2,143	2,183	2	383	27,524
Boxes harvested.....	308	1,042	11	107,831	1,765	3,415	396	157	98,094
Nuts—Total, trees not of bearing age.....	158,564	278,034	390	5,128	49,802	1,191	4,909	2,646	873,189
Trees of bearing age.....	238,225	136,198	375	116,969	87,821	2,746	720	187	---
Pounds harvested.....	1,768,856	988,148	2,895	5,132,344	817,848	38,439	19,974	2,646	---
Walnuts (Persian or English)—	---	---	---	---	---	---	---	---	---
Trees not of bearing age.....	52,835	3,970	252	5,011	36,704	1,049	215	362	1,685
Trees of bearing age.....	13,244	10,363	327	116,826	51,001	2,671	580	98	4,598
Pounds harvested.....	154,518	348,415	2,745	5,151,870	659,103	38,210	9,764	1,876	155,376

VALUE OF ALL CALIFORNIA CROPS, BY COUNTIES, AND ACREAGE AND PRODUCTION OF PRINCIPAL CROPS: 1920 CENSUS—Continued.

	Sonoma	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba
VALUE OF ALL CROPS.										
Total, dollars.....	17,477,370	17,140,114	11,640,133	5,579,305	555,558	30,547,341	429,121	18,520,324	14,027,215	2,072,118
Cereals—(Acres harvested and production).										
Cereals, dollars.....	519,743	5,268,139	4,363,202	1,292,073	28,432	3,355,240	61,473	163,394	7,526,318	877,077
Bushels.....	10,216	1,008,511	1,449,601	39,873	4,369	50,440	562	7,332,756	1,779,460	340,424
Other grains and seeds, dollars.....	2,435,540	5,454,143	900,514	1,165,254	226,159	7,398,926	124,626	823,050	1,532,730	370,729
Hay and forage, dollars.....	2,294,940	1,468,143	54,710	62,500	59,383	139,871	101,739	93,008	425,365	47,449
Vegetables, dollars.....	10,029,355	3,222,325	4,981,698	1,083,337	36,515	19,416,370	137,001	8,360,370	2,642,253	271,495
Fruits and nuts, dollars.....	2,187,546	18,383	90,408	5,248		26,786		1,063,186	1,021,059	372,355
All other crops, dollars.....										
SELECTED CROPS.										
(Acres harvested and production).										
Cereals—Total, acres.....	14,757	154,418	97,978	47,836	1,052	126,134	2,370	7,209	14,851	28,215
Bushels.....	356,427	3,140,541	2,256,511	680,348	15,508	1,786,840	35,676	91,202	3,832,772	422,179
Corn, acres.....	3,360	3,835	2,145	298	127	3,725	81	755	714	762
Bushels.....	81,405	83,027	44,244	5,278	2,119	82,448	1,804	10,412	16,420	14,610
Oats, acres.....	6,204	13,226	5,313	1,629	120	655	369	25	657	657
Bushels.....	167,345	362,205	95,805	20,117	1,530	13,455	8,172	553	15,708	57,006
Wheat, acres.....	4,068	51,357	45,174	20,112	666	74,784	1,246	2,685	55,520	17,035
Bushels.....	76,744	797,106	649,584	281,902	7,436	732,739	16,403	28,612	1,301,555	209,618
Barley, acres.....	1,101	68,006	36,111	18,869	93	31,652	526	3,341	78,308	2,895
Bushels.....	36,436	1,163,700	1,113,876	322,345	2,442	525,726	6,475	47,463	2,027,053	45,542
Kafir, etc., acres.....	1	1,048	1,959	1,651		15,570		491	121	736
Bushels.....	27	336,414	33,561	26,821		424,287		3,499	2,689	14,508
Rough rice, acres.....		1,246	7,112	150					9,511	2,277
Bushels.....		45,566	313,850	8,000		530			469,257	80,895
Other grains and seeds—Dry edible beans, acres.....	155	20,710	16,949	408	78	253	12	118,217	9,444	1,811
Bushels.....	2,133	268,749	300,768	6,218	887	3,353	126	1,646,898	196,939	36,089
Hay and forage—Total, acres.....	57,162	78,859	19,557	25,104	6,845	103,246	5,498	36,216	32,079	10,088
Tons.....	111,204	253,410	41,246	50,725	10,722	347,056	5,959	36,467	70,358	15,563
All tame or cultivated grasses, acres.....	16,225	58,991	7,650	11,879	3,355	54,189	764	3,348	15,401	3,050
Tons.....	4,718	207,922	23,448	34,972	7,195	278,016	1,641	8,973	45,700	6,774
Timothy alone, acres.....	246			5	275	40	75			90
Tons.....	8,715	260	25	12	370	50	66			121
Timothy and clover mixed, acres.....	261	50	25	178	939	85	16			87
Tons.....	421	25	38	158	1,577	53	25			68
Clover alone, acres.....	20	32	201	67	64	77				78
Tons.....	48	34	258	114	151	263				114
Alfalfa, acres.....	1,669	58,214	7,194	11,162	2,045	53,533	492	3,304	14,826	2,347
Tons.....	5,578	206,659	22,948	34,123	4,674	277,155	1,245	8,912	44,751	5,866
Other tame or cultivated grasses, acres.....	820	449	230	467	272	454	120	44	432	200
Tons.....	1,463	644	274	505	423	515	139	61	767	189
Wild, salt or prairie grasses, acres.....	3,513	300	496	1,258	733	2,638	1,542	123	1,792	1,014
Tons.....	4,956	447	1,283	1,128	779	2,075	1,217	118	1,728	955
Small grains cut for hay, acres.....	44,682	16,454	10,313	13,369	2,252	40,340	3,108	26,838	14,098	5,603
Tons.....	82,281	23,634	13,847	13,849	2,605	46,342	3,003	22,834	17,971	7,154
Annual legumes cut for hay, acres.....	479	32	275	115	15	584	37	5,020	103	191
Tons.....	736	51	227	110	20	577	67	3,610	145	176

	520	2,425	208	29	2,167	106	319
Silage crops, acres.....							
Tons.....	31,188	19,095	1,870	74	14,872	499	2,730
Corn cut for forage, acres.....	137	239	27	200	941	648	47
Tons.....	284	480	29	174	1,760	73	394
Kafir, sorghum, etc., for forage, acres.....	133	339	85	307	2,433	152	32
Tons.....	384	1,135	162	6	3,356	60	31
Root crops for forage, acres.....	2,000	99	35	16	14	1	1679
Tons.....	3,210	324	330	65	69	51	4
Vegetables—Potatoes (Irish or white), acres.....	27,685	183	57	55	189	104	31
Bushels.....	827,146	11,849	3,416	4,499	13,882	4,130	12,799
Other vegetables, acres.....	1,973	10,970	173	83	279	4,402	2,307
Miscellaneous crops—Sugar beets for sugar, acres.....		465	6,321		297	10,024	130
Tons.....					114	77,167	600
Cotton, acres.....							
Bales.....							
FRUITS AND NUTS.							
Small fruits—Total, acres.....	2,432	93	1	39	39	16	3
Quarts.....	3,351,258	66,046	2,662	37,040	43,736	30,909	4,219
Orchard fruits—Total, trees not of bearing age.....	1,448,323	150,832	474,245	103,556	362,761	153,013	177,243
Trees of bearing age.....	1,735,093	500,576	712,924	318,577	2,165,901	388,998	581,436
Bushels harvested.....	3,494,075	922,757	1,634,044	461,555	2,195,276	68,852	632,021
Apples, trees not of bearing age.....	401,042	2,845	5,918	2,132	22,488	4,581	1,024
Trees of bearing age.....	617,021	10,172	6,755	22,092	55,263	11,659	6,003
Bushels harvested.....	1,685,104	15,821	10,023	27,997	71,351	17,035	3,287
Peaches, trees not of bearing age.....	17,901	94,343	126,737	6,398	47,833	12,049	7,934
Trees of bearing age.....	61,186	410,394	522,074	155,217	1,319,717	20,258	67,718
Bushels harvested.....	66,304	791,863	1,290,137	215,558	1,207,400	26,724	80,984
Pears, trees not of bearing age.....	85,642	8,296	12,823	19,500	6,800	5,904	54,124
Trees of bearing age.....	124,739	12,294	18,052	24,697	11,866	2,398	7,336
Bushels harvested.....	233,974	18,872	45,458	37,246	26,076	4,476	112,329
Plums and prunes, trees not of bearing age.....	877,983	17,787	319,609	69,797	293,009	25,139	93,541
Trees of bearing age.....	854,411	18,333	154,092	94,526	422,228	10,541	152,485
Bushels harvested.....	1,436,718	23,545	277,427	134,298	703,554	11,137	303,608
Apricots, trees not of bearing age.....	927	23,343	3,808	5,375	11,113	103,889	16,211
Trees of bearing age.....	3,313	40,513	9,242	19,225	12,945	343,543	582
Bushels harvested.....	3,889	63,868	5,192	42,597	112,167	7,781	272
Grapes, vines not of bearing age.....	494,121	160,100	518,234	6,666	3,765,334	3,982	27,700
Vines of bearing age.....	11,414,171	2,096,576	2,417,954	73,057	13,022,279	59,426	951,063
Pounds harvested.....	86,225,840	39,343,953	37,065,879	382,696	230,820,306	579,529	216,263
Subtropical fruits—Oranges, not of bearing age.....	414	1,705	1,187	1,479	527,294	83,050	14,303,487
Trees of bearing age.....	5,539	11,626	6,831	9,843	2,041,277	22,886	37,774
Boxes harvested.....	4,087	17,301	8,023	5,801	2,107,974	505,038	1,958
Lemons, trees not of bearing age.....	666	137	229	517	189,337	105,928	1,807
Trees of bearing age.....	1,026	392	392	265	107,200	407,369	156
Boxes harvested.....	692	1,445	304	151	159,902	836,188	97
Nuts—Total, trees not of bearing age.....	15,215	130,501	34,211	33,437	172,151	33,168	104,671
Trees of bearing age.....	17,227	139,205	177,615	58,631	16,895	188,753	337,779
Pounds harvested.....	155,020	1,144,550	1,643,334	250,508	112,106	10,019,812	2,957,419
Walnuts (Persian or Eng. fish)—							
Trees not of bearing age.....	13,383	12,174	6,198	2,600	2,686	29,249	1,408
Trees of bearing age.....	15,001	4,382	4,068	2,365	2,639	175,375	1,517
Pounds harvested.....	150,120	82,351	74,708	18,718	98,213	9,882,104	26,355

Vegetables.

California ranks as the foremost state in the acreage, production and value of vegetables other than potatoes and sweet potatoes. The area, according to the United States Census Bureau, devoted to vegetable growing in 1919, not including cantaloupes and onions, amounted to 115,260 acres and the total value was \$17,405,000.

As an indication of the importance of California in the production of different vegetables, the following table prepared by the Bureau of Markets and Crop Estimates will be of particular interest:

Carlot Shipments of Vegetables from California.

	1916	1917	1918	1919	1920	1921
Asparagus	268	265	303	377	419	344
Cabbages	446	1,412	1,078	1,395	1,412	864
Carrots	*	*	*	*	116	18
Cauliflower	*	*	792	2,168	2,693	3,111
Celery	1,877	1,877	2,262	1,796	2,494	3,177
Cucumbers	*	*	*	*	*	104
Lettuce	640	2,013	2,051	2,731	7,122	9,538
Peppers	*	*	*	*	31	18
Spinach	*	*	*	*	427	42
Tomatoes	994	518	1,514	2,186	1,956	1,772
Turnips	*	*	*	*	30	7
Watermelons	*	1,634	1,689	3,300	3,394	3,763
Mixed vegetables	*	*	3,097	6,118	4,166	4,165
Totals			12,786	20,971	24,503	26,923

*Not available.

Note.—Shipments are given for the calendar year and not the crop year. For 1921 it was necessary to compile the December shipments from the Daily Market Bulletin which may not have been quite complete but the difference will amount to a very few cars. In 1918 and 1919 carrots, cucumbers, peppers, spinach and turnips were doubtless reported under mixed vegetables.

Vegetable Pack. ‡
All grades and sizes.

	1921 Cases	1920 Cases	1919 Cases
Asparagus	887,030	1,024,813	1,031,269
Beans, String	97,815	99,269	154,278
Peas	86,074	366,684	191,564
Spinach	434,068	685,228	476,866
Spring Pack—			
Tomatoes	357,092	1,858,822	3,809,979
Tomato products	495,101	833,019	885,906
Other vegetables	258,767	382,116	501,657
Total	2,615,947	5,249,946	7,051,519
Grand totals	11,127,798	16,632,809	20,747,922

‡Pack statistics compiled by the Cannery League of California.

Vegetable Growing in California.*

"Truck production holds an important position in California agriculture. California-grown vegetables may be found in all of the large cities of the United States and to some extent in Canada.

The requirements for a successful vegetable garden are so exacting that congenial soil, moisture, and climatic conditions for the crops to be grown should exist.

The supply of all vegetables is subject to sudden and wide fluctuations upon the markets, making it imperative for the grower to determine carefully the proper time for planting and harvesting the various crops.

The largest centers for vegetable production are located in the river delta situated between Stockton and Antioch, at Sacramento, at Imperial, at San Francisco, in Orange County, in Los Angeles County, and in certain sections of the San Joaquin Valley, especially between the cities of Modesto and Merced.

The most favorable soil and climatic conditions depend wholly upon the crops to be grown, but a mild climate and rich sandy loam are the most desirable for the production of the majority of them.

Practically all vegetables in California are grown under irrigation and it is very important that the water be applied at such intervals that the amount of soil moisture should be as constant as possible. When irrigating most crops the water should not be allowed to come in contact with the plants, and it is best to apply the water in a large number of furrows, allowing it to flow slowly, rather than to use a small number of furrows allowing it to run swiftly.

There is a common tendency to substitute irrigation for cultivation. This practice should be avoided. When surface irrigation is practiced the soil should be well leveled before planting.

As a rule the novice does not appreciate the value of a well prepared seed bed. Too much importance can not be placed upon the necessity for thorough working of the soil before planting any vegetable crop.

The most desirable size of truck farm depends upon the location, crops to be grown, financial condition of the grower, amount of water available, and the labor supply.

It is possible to realize a net income of from \$1,000 to \$1,500 per year from five acres of garden properly managed, and in a suitable location, but ordinarily one should have at least ten acres to be reasonably sure of a satisfactory remuneration. Many of the truck growers in California produce from 25 to 100 acres of vegetables annually, and in some sections the amount of land farmed by one individual comprises several hundred acres. In these larger gardens are produced celery, asparagus, onions, and potatoes. Suitable land for vegetable growing can be obtained in practically all sections of California which are level and under irrigation. The purchase price of such land varies from \$150 to \$2,000 per acre. One may, however, procure suitable land in a desirable locality for between \$200 and \$500 per acre. The annual land rentals vary from \$20 to \$80 per acre, cash, or from one-quarter to one-half of the crop, depending upon the vegetables grown and equipment furnished by the owner. The labor is generally done by Japanese,

*By S. S. Rogers, Associate Professor of Olericulture, University of California.

Chinese, Italians, Hindoos and Mexicans, and the prevailing prices during the past year varied from 35 cents to 45 cents per hour, with an average range from 37½ to 40 cents per hour.

Melons.

Since 1917 California has taken the lead not only on acreage but production of cantaloupes. The number of acres planted in 1917 was 18,800, half that of the entire national planting; in 1918, 15,655 acres, compared with 23,940 for the United States; in 1919, 25,440 acres, which was but 11,000 less than the total acreage; in 1920, 31,817 acres in this state against 43,191 for the United States; in 1921, 28,100 acres compared with 39,595 acres for the nation. Imperial Valley takes the lead in production of cantaloupes, the 1921 crop yielding to the growers some \$8,000,000, with a net shipping value of \$13,000,000. The Turlock district in Stanislaus County ranks next in importance as a melon-producing center.

CANTALOUPE.

Carlot Shipments, by States of Origin, for 1917-1921.

State	1917	1918	1919	1920	1921	State	1917	1918	1919	1920	1921
New Jersey	96	50	62	117	241	Texas	(¹)	(¹)	123	(¹)	162
Delaware	702	429	590	581	943	Arkansas	707	699	1,106	936	1,501
Maryland	855	490	535	771	1,209	Colorado	1,898	1,818	3,132	2,454	3,216
North Carolina	1,106	418	523	356	821	New Mexico	227	256	378	937	421
South Carolina	157	31	100	110	300	Arizona	1,215	1,169	1,832	1,164	1,474
Georgia	789	551	314	389	649	Nevada	139	36	36	48	74
Florida	(¹)	26	82	(¹)	32	Washington	145	110	100	329	209
Indiana	664	443	462	635	644	California	8,258	6,848	12,010	13,100	13,177
Illinois	119	103	85	85	97	All other	104	36	39	75	66
Michigan	42	37	204	209	176	Totals	17,430	13,619	22,039	22,377	25,574
Iowa	68	47	26	40	41						
Missouri	(¹)	(¹)	(¹)	38	107						
Tennessee	46	26	(¹)	(¹)	23						

¹Included in all other

ONIONS.

Commercial Acreage, Yield per Acre, and Production of Onions in the United States, 1919-1921.

State	Acreage harvested			Yield per acre			Production (cars of 500 bushels each)		
	1919	1920	1921	1919	1920	1921	1919	1920	1921
Early crop:	Acres	Acres	Acres	Bushels	Bushels	Bushels	Cars	Cars	Cars
California.....	865	3,300	2,000	312	298	245	540	1,967	980
Louisiana.....	972	1,080	1,010	160	158	206	311	341	416
Texas.....	6,590	12,446	10,503	267	256	207	3,519	6,372	4,348
Late crop:									
California.....	6,570	8,400	7,149	325	325	225	4,271	5,460	3,217
Colorado.....	832	755	765	250	344	250	416	519	382
Idaho.....	61	275	145	500	558	570	61	307	165
Illinois.....	909	954	1,052	200	430	210	364	820	442
Indiana.....	4,779	4,582	3,931	200	498	237	1,912	4,564	1,863
Iowa.....	1,266	1,345	1,250	300	454	202	778	1,221	506
Kentucky.....	1,000	900	1,000	300	368	175	600	662	350
Maryland.....	300	300	300	250	300	250	150	180	150
Massachusetts.....	4,405	4,850	4,500	340	497	260	2,995	4,821	2,340
Michigan.....	1,568	1,393	1,275	175	498	225	549	1,387	574
Minnesota.....	1,438	1,415	1,280	275	310	122	761	877	312
New Jersey.....	2,376	2,610	2,380	250	241	239	1,188	1,258	1,138
New York.....	8,563	8,537	7,255	265	410	268	4,538	7,000	3,839
Ohio.....	6,092	6,511	5,593	250	410	191	3,046	5,339	2,137
Oregon.....	760	882	609	300	372	296	456	656	361
Pennsylvania.....	331	350	289	300	425	200	199	298	116
Texas.....	423	750	800	250	250	275	212	375	440
Utah.....	121	120	124	500	480	250	124	115	62
Virginia.....	866	950	820	250	316	280	433	600	459
Washington.....	791	770	789	400	412	271	633	634	428
Wisconsin.....	1,135	1,175	1,010	140	467	114	318	1,097	230

Vegetable Seed Production in California.*

Owing chiefly to the European conditions, vegetable seed production has increased enormously in California, so that at the present time large amounts of practically all of the common vegetable seeds are being produced.

The most serious losses are caused in certain sections by hot winds which frequently burn and shatter considerable quantities of seed. Occasionally not a little difficulty is experienced in planting at the proper time due to unfavorable weather conditions and shortage of experienced labor.

REGIONS—The principal vegetable seed growing centers are located near the cities of Sacramento and Stockton, and in the Santa Clara Valley between the cities of Palo Alto and Hollister. Bermuda onion seed is grown in the Coachella Valley, Riverside County.

SOIL—Vegetable seed is produced on a very large variety of soils ranging from adobe to peat. The most suitable soil is a rich loam.

MOISTURE—A large percentage of the crop is produced under irrigation and it is especially desirable to have a suitable amount of moisture in the soil from March to June, inclusive. The water is applied either in furrows between the rows of plants, or allowed to subirrigate from permanent ditches.

CLIMATE—Vegetable seeds do best in a moderate climate, but are being successfully produced in the hot interior valleys under suitable irrigation systems.

METHODS—The planting is done principally during the months of November to February, inclusive, and the crops mature during the months of July and August. For such crops as beets, carrots, parsnips, mangel, chard, etc., the bulbs are set three feet by three feet, or four feet by four feet apart. Lettuce, radish, mustard, peas, etc., are drilled in rows from two and one-half to three feet apart. Onions are usually placed six inches apart in rows three feet apart.

One should be certain that the soil is rich and that a suitable irrigation system is available before planting.

The size of the seed farms varies from a few acres to several hundred. One person with the necessary labor can best handle from 40 to 60 acres.

Vegetable seed is being produced on land ranging in price from \$100 to \$1,000 or more per acre, but the usual value of lands so used ranges from \$200 to \$500 per acre. The rents range between \$20 and \$50 per acre cash, or from one-fourth to one-half the crop, depending upon the amount of capital and equipment furnished by the owner.

Most of the hand labor is done by Chinese, Japanese, Hindoos, or Mexicans, and the average wage paid during the past season varied from 35 cents to 40 cents per hour.

For the beginner who has not become known to the seed trade it is generally disastrous to attempt to grow seeds except under contract made before the planting. The seed contracts are usually made from June to August preceding the year of delivery.

*By S. S. Rogers, Associate Professor of Olericulture, University of California.

Vegetable Seeds.

The vegetable seed acreage throughout the United States was very much less than in 1920, but from all indications the plantings for 1922 will show a decided increase, the commercial growing of carrot, lettuce, celery, onion, parsley and salsify seed is practically confined to California.

Commercial Vegetable Seed Acreage in California 1919-1921, and Production 1921.

	Acreage planted			Production in lbs.
	1919	1920	1921	1921
Beans, dwarf snap.....	2,275	1,312	100	35,000
Beans, garden pole.....	5,948	6,867	3,000	1,300,900
Beets, garden.....	2,272	145	93	1,482
Beets, mangel.....	527	55		
Beets, sugar.....	689	785	804	983,300
Carrots.....	3,440	530	196	101,920
Celery.....	135	60	100	46,900
Cucumber.....	235	63		
Lettuce.....	2,283	2,010	1,185	347,800
Muskmelon.....	123	41	14	1,554
Watermelon.....	136	137	300	53,250
Onion seed.....	6,446	1,319	1,035	351,900
Parsley.....	146	186	90	56,850
Parsnip.....	299	106	41	26,400
Peas, garden.....	9,937	24,422	3,871	3,282,600
Pepper.....	25	9	66	10,950
Pumpkin.....	291	1,000	235	26,320
Radish.....	5,175	1,065	646	193,800
Salsify.....	205	52	9	2,700
Spinach.....	824	42		
Squash, summer.....	492	574	20	2,160
Squash, winter.....	1,036	622	782	47,700
Sweet corn.....	232	103	5	5,000
Tomato.....	745	450	170	2,600
Totals.....	43,916	42,655	12,852	6,881,086

California Commercial Field Crops, 1918-1921.
(Report United States Department of Agriculture.)

Crop	Acreage	Production			Farm value, Dec. 1		
		Per acre	Total	Unit	Per unit	Total	
Corn.....	1921	116,000	35 00	4,060,000	Bushels	\$0 77	\$3,126,000
	1920	139,000	33 00	4,587,000	Bushels	1 20	5,504,000
	1919	149,000	32 00	4,768,000	Bushels	1 79	8,535 000
Oats.....	1921	140,000	27 00	3,780,000	Bushels	51	1,928,000
	1920	155,000	30 00	4,650,000	Bushels	80	3,720,000
	1919	147,000	29 00	4,263,000	Bushels	96	4,092,000
Barley.....	1921	1,188,000	25 00	29,700,000	Bushels	56	16,632,000
	1920	1,250,000	23 00	28,750,000	Bushels	1 00	28,750,000
	1919	987,000	27 00	26,649,000	Bushels	1 41	37,575,000
Wheat.....	1921	557,000	15 00	8,355,000	Bushels	1 07	8,940,000
	1920	714,000	14 00	9,996,000	Bushels	1 80	17,993,000
	1919	1,087,000	15 50	16,848,000	Bushels	2 04	34,370,000
Potatoes.....	1921	74,000	136 00	10,064,000	Bushels	1 30	13,083,000
	1920	70,000	140 00	9,800,000	Bushels	1 50	14,700,000
	1919	66,000	130 00	8,580,000	Bushels	1 71	14,672,000
Sweet potatoes.....	1921	8,000	120 00	960,000	Bushels	1 25	1,200,000
	1920	8,000	127 00	1,016,000	Bushels	1 60	1,626,000
	1919	8,000	130 00	1,040,000	Bushels	1 79	1,862,000
Rice.....	1921	120,000	49 00	5,880,000	Bushels	1 15	6,762,000
	1920	162,000	51 00	8,262,000	Bushels	1 21	9,997,000
	1919	155,000	60 00	9,300,000	Bushels	2 67	24,831,000
Hay (tame).....	1921	2,129,000	2 25	5,003,000	Tons	11 00	55,033,000
	1920	2,150,000	2 20	4,945,000	Tons	20 00	98,900,000
	1919	2,150,000	2 25	4,838,000	Tons	17 20	83,214,000
Hay (wild).....	1921	167,000	1 10	184,000	Tons	7 00	1,288,000
	1920	170,000	1 04	177,000	Tons	12 00	2,124,000
	1919	178,000	1 04	185,000	Tons	12 00	2,220,000
Hops.....	1921	12,000	1,185 00	14,220,000	Pounds	25	3,555,000
	1920	12,000	1,575 00	18,900,000	Pounds	35	6,615,000
	1919	9,000	1,550 00	13,950,000	Pounds	77	10,742,000
Beans.....	1921	272,000	13 30	3,618,000	Bushels	2 80	10,130,000
	1920	300,000	10 00	3,000,000	Bushels	3 30	9,900,000
	1919	472,000	13 90	6,561,000	Bushels	4 35	28,540,000
Cotton lint.....	1921	140,000	252 00	35,280,000	Pounds	18	6,350,000
	1920	275,000	265 00	73,150,000	Pounds	18	13,167,000
	1919	185,000	268 00	49,580,000	Pounds	43	21,319,000
Cotton seed.....	1921	.....	.....	41,000	Tons	13 00	533,000
	1920	.....	.....	83,500	Tons	17 00	1,419,000
	1919	.....	.....	53,000	Tons	65 00	3,445,000
Grain sorghum.....	1921	140,000	31 00	4,340,000	Bushels	70	3,038,000
	1920	150,000	27 00	4,050,000	Bushels	1 05	4,253,000
	1919	168,000	25 50	4,284,000	Bushels	1 54	6,597,000
Sugar beets.....	1921	122,000	8 40	1,025,000	Tons	7 82	8,016,000
	1920	122,813	8 74	1,073,828	Tons	13 13	14,100,000
	1919	107,174	7 61	815,896	Tons	14 17	11,561,000
Onions.....	1921	9,149	229 90	2,098,500	Bushels	1 71	3,588,000
	1920	11,700	317 00	3,713,500	Bushels	75	2,785,000
	1919	7,435	324 00	2,405,500	Bushels	1 90	4,571,000
Cantaloupes.....	1921	.....	.....	13,163	Cars	.....	5,100,000
	1920	.....	.....	13,147	Cars	.....	5,500,000
	1919	.....	.....	12,010	Cars	.....	3,895,000
Vegetable shipments.....	1921	.....	.....	26,923	Cars	.....	13,900,000
	1920	.....	.....	24,563	Cars	.....	15,500,000
	1919	.....	.....	20,071	Cars	.....	17,405,000

PART VI.

HORTICULTURE.

Apples; Pears; Peaches; Plums and Prunes; Grapes; Raisins; Strawberries; Dried Fruits; Dates; Figs; The Avocado; Olives; Citrus Fruits; Citrus; Walnuts; Almonds; Acreage Planted to Orchards.

Apples.

One variety of apples grown alone, whether one tree or a whole orchard, does not produce as large a yield as when two varieties are planted side by side, according to recent investigations made by the Washington State Experiment Station.

"The cause for the low yield of inferior fruit is the same as inbreeding with animals and marriage of relatives. In such cases we know the offspring to be inferior physically and often mentally, while with apples there is often a total failure of the blossom to set fruit. It has been known for many years that many varieties of cultivated plants are self-sterile, that is, will not produce fruit when the flowers are fertilized with pollen of the same variety. The investigations carried on in many orchards under varying climatic conditions, show that 'self-sterility is more common among varieties of apples than is self-fertility.' In this connection it is interesting and of commercial importance to note that the size, shape, quality and color of the apples are not changed by the blossoms being fertilized with pollen of other varieties. In addition, most of the common commercial varieties in the Pacific Northwest have been found to overlap in their time of blossoming, so that almost any combination of varieties may be planted in the same orchard with satisfactory results. The experiment cited gives the records on 80 different varieties grown in the same locality, so that it seems safe to assume that in other sections the most common varieties may be planted together and have cross-pollination insured."

Apples being grown in every state, and their heavy export and use in by-products, naturally lead in production. The California crop in every apple-growing district shows an increase in production over last year.

Carlot shipments for the season to December 31, according to the Bureau of Markets and Crop Estimates amounted to 4356 cars as compared with 4096 to December 31, 1920. The commercial or boxed apple crop of 1921 is estimated at 3,840,000 boxes out of a total crop of 6,500,000 bushels.

Production of Commercial Apple Districts.

District	1921 Packed boxes fancy grade	Average price to grower per box	Tons dried or canned	Tons used for cider and vinegar
Pajaro Valley, Watsonville section—				
Newtown Pippin.....	1,154,619	\$1.25	4,5000	7,500
Bellflower.....	1,035,083			
Sebastopol—				
Gravenstein.....	390,000	2.35	3,000	300
Other varieties.....	175,000	1.50		
Yucaipa District, Riverside County.....	25,300	2.50		248
Humboldt County.....	20,000	1.50	200	100
Tuolumne County.....	14,000	2.40		150
Ramona and Julian sections, San Diego County.....	10,000	1.25	16	30
San Luis Obispo County—				
Bellflower.....		1.75		
Other varieties.....	8,000	1.90		100
Inyo County.....	8,000	2.50		
Paradise District, Butte County.....	6,000	1.85		45

Pears.

California has for many years held the lead in production, and in 1920, with 3,600,000 bushels, furnished one-fifth of the total crop of the United States, but owing to damaging frosts in April and a heavy north wind on July 4, which caused a fall of several thousand tons of fruit in the Sacramento Valley, the 1921 crop was very much less than for several years.

Pear Production of the Three Leading States, 1919-1921.

	Total crop			Farm price per bushel November 1		
	1919	1920	1921	1919	1920	1921
California.....	4,600,000	4,080,000	3,120,000	\$1.80	\$2.75	\$1.50
New York.....	1,830,000	2,700,000	1,525,000	2.40	1.05	1.70
Washington.....	1,781,000	1,140,000	1,710,000	1.70	1.30	1.70
United States.....	15,101,000	16,805,000	10,705,000			

Pear Culture in California.*

“SOIL AND CLIMATE—The best pear soil is deep and rather heavy, with plenty of moisture. Alluvial river bottoms and moist clay-loam foothill slopes characterize our chief pear sections. The tree will stand more drouth, moisture, and alkali than most fruits, however, and thus is often used to fill in low, wet or slightly alkali spots or sloughs in orchards of peaches or apricots where the latter trees would not live. Pears are not very particular as to climate, flourishing equally well near the coast, in the interior valleys, and among the foothills. Irrigation is usually needed.

DISTRICTS—The greatest acreage of pears in California is to be found in the central coast valleys, the Sacramento Valley and adjacent regions and the Sierra foothills of El Dorado, Placer, Sacramento, Lake, and Nevada counties. San Jose, Sacramento, Placerville, Marysville, and Anderson are centers of production.

*By Ralph E. Smith, Professor of Plant Pathology, University of California.

CULTURE—The Bartlett is the principal and almost the exclusive variety grown in California. A few others like the Winter Nelis are sometimes quite profitable, but their culture is exceptional. French seedling has been the usual rootstock, but the Japanese pear is coming into use on account of some resistance to blight and woolly aphis. Pears are planted about 24 feet apart, or 75 trees per acre. The trees cost about 30 cents each in quantity. Five to eight years is required to commence commercial bearing. The trees are long-lived and very hardy. Other crops may be grown between while the trees are young. Orchards should be plowed in spring, irrigated from two to five times according to locality, and cultivated frequently. Severe pruning is practiced.* The tree when planted should be cut back to a height of 20 inches and each year's growth thereafter is usually shortened to a length of 12 to 18 inches, thinning also to a framework of three to five frequently branched main limbs. Lateral branches should be headed in to produce fruit spurs. Fertilization is not much practiced and is often undesirable on account of making the trees more susceptible to blight. Spraying is necessary to control scab, codling worm and other pests. The usual practice is a late winter application of lime-sulphur as the buds are swelling, one combined spray of Bordeaux mixture and lead arsenate after blooming, and one or two later sprayings with lead arsenate.

HARVESTING—The fruit is picked carefully from the tree by hand when 'hard ripe.'

MARKETING—There are three principal uses for California pears: Canning, drying, and shipping fresh. The Bartlett is preeminent on account of its suitability for all of these purposes. The fruit is shipped to the canner in loose boxes. Drying is often done by the grower himself. For shipping, each pear is wrapped in paper and they are then packed carefully in standard sized boxes.

COST OF PRODUCTION—Production and harvesting expenses vary widely, but \$75 to \$100 per acre is a fairly liberal average of yearly expense with good care.

RETURNS—Production of trees ten years of age and up varies from three to ten or more tons per acre, and the usual price from \$25 to \$60 per ton. The foothill districts of smaller yield per tree make up to some extent by high shipping quality of the fruit. Orchards average from 10 to 100 acres.

COST OF GROVES AND LAND—Good pear land, with water, can be bought at from \$60 to \$400 per acre, and producing groves are worth from \$300 to \$1000.

TROUBLES—Two diseases, blight and scab; two insects, codling worm and thrips; and an occasional late frost are the chief obstacles to pear culture. Scab and worms can be controlled by spraying. Blight is a very serious enemy and has ruined thousands of acres of pears in California and elsewhere. Pear planting is somewhat hazardous on account of this disease, although it can be fairly well controlled by very careful work. Control is effected by very thorough removal of affected parts, especially during the winter. The disease is extremely infectious. Partially resistant trees are being developed. Special information should be sought in blight control."

*This is the standard method heretofore practiced. Experiments conducted by the University at Davis show that less severe pruning produces stockier trees which bear earlier and is being adopted by many orchardists.

Peaches.

In the production of peaches, California leads all other states, producing more than one-third of the entire crop of the United States. The 1921 peach crop was reduced to some extent by the killing frosts of April. The 1919 crop was the largest on record, while the 1920 crop was above the average. Two big crops in succession and three dry years were big handicaps for a "comeback" in 1921, but nevertheless the crop was above the average and has been exceeded only three times in total tonnage.

Out-of-the-state shipments in 1919 were 2774 cars; 3148 cars in 1920 and 3334 cars in 1921. Last year's dried peaches amounted to 26,000 tons, while the estimate this year is about 20,000 tons. Contrary to early indications, the tonnage canned was much larger than expected. Final figures show practically 86 per cent as many cases of canned peaches as in 1920.

While a good many peaches are grown in northern and southern California, these are mostly of the canning varieties. Fully two-thirds of the whole peach crop of the state is produced in the eight San Joaquin Valley counties. Due to the fine sun-drying qualities of the central California climate, Fresno County, the geographical center of the state, has naturally become the headquarters of the dried peach industry.

At the same time it is a question whether the average peach orchardist in California realizes the tremendous advance made in the last few years in the marketing of this fruit. There has been a distinct tendency, in spite of the better and bigger financial results accruing from cooperative organization and national advertising and selling, to ease up on the planting of freestone peaches. It can not be said, either, that the average orchardist has paid the care and attention to his trees that the profitable return from their bearing demands.

There have been heavier plantings of canning peaches than of the drying varieties. It cannot be said that the demand for canned peaches was more active than for dried, for there has been a steady increase in the tonnage of canning varieties of peaches for the past two years. Prices for canning peaches have remained more stable than for any other green fruit. This is perhaps due to the fact that the California canned peach is the favorite of the consumer and practically all that can be produced find a ready sale.

Peaches originally grew wild in the hills of China, where it was prized for its beautiful blossoms and foliage, they having many superstitions in connection with the peach woven through their legends, none of which reveal its ever having been considered as an edible.

From China it was taken to Persia, where it was first cultivated as a fruit, and later introduced into Southern Europe. It was brought to America by early Spanish colonists, where it was familiar to the Indians in Spanish territory.

About 1800 A. D. the first seedling budded peach trees were grown in America. Previous to this time seedling orchards had of necessity been of mixed varieties, and the first plantings in California were made about 1845. It is a noteworthy fact that in spite of the peach being of Chinese origin and under cultivation for many centuries in other lands, practically every commercial sort we have today originated as a seedling in America.

Peaches are best grown in deep, light, well-drained, sandy loam or decomposed granitic soils of the Sierra foothills. They can, however, be grown successfully in a great variety of soils and localities. Avoid alkali, adobe, wet, undrained land, coast influences and liability of spring frosts as much as possible.

On account of light soils being preferable for peaches, irrigation is usually required. In fact, it is necessary in almost all locations at least twice during the season.

The varieties may be divided into three classes, for drying, for canning and for shipping green.

Drying (Freestones): Best varieties for this purpose: Muirs, Lovells, Elbertas, Crawford, preference in the order named.

Canning (Clingstones): Tuscans, Phillips, Orange, Lemons, McKeivitt. Shipping Green: Elbertas, Crawford, St. Johns, Hales Early.

Peach Production of the Three Leading States.

State	Total crop (thousands of bushels)			Farm price per bushel (cents)		
	1919	1920	1921	1919	1920	1921
California.....	17,200,000	15,200,000	12,848,000	\$1 50	\$1 90	\$1 00
Georgia.....	5,855,000	3,799,000	6,550,000	2 50	1 71	1 60
Texas.....	4,621,000	800,000	2,200,000	1 80	3 10	1 65
United States.....	53,178,000	45,620,000	32,733,000			

Plums and Prunes.

The plum crop was one of the few fruit crops that showed an increase of production over last year, out of state carlot shipments numbered 3099 compared with 2564 in 1920, and 2918 in 1919.

The April frosts caused a considerable reduction to the 1921 prune crop, which was very spotted, and sizes not up to the average. There was an increase of bearing acreage but not sufficient to make up for the decrease of production.

Years	Production		Farm value			
	Tons		Per ton		Total	
	Plums	Prunes	Plums	Prunes	Plums	Prunes
1919.....	42,600	135,000	\$60 00	\$240 00	\$2,250,000	\$32,400,000
1920.....	35,000	97,250	90 00	130 00	3,150,000	12,643,000
1921.....	40,000	90,000	53 00	130 00	2,120,000	11,700,000

Prune Culture in California.*

“All prunes are plums, but all plums are not prunes. A prune is a plum which can be dried without the removal of the pit without fermenting.’ The prune belongs to the genus *Prunus*, of which there are a great many cultivated varieties. Some of the most common grown commercially are the Prune d’Agen, or French, Robe de Sergeant, Imperial and Sugar.

The culture of prunes constitutes a very large branch of California horticulture, because the prune is a standard article of diet and is marketed

*By Thomas Francis Hunt, Associate Professor of Agricultural Extension, University of California.

as fresh and dried fruit. More prunes are sold than any other dried fruit in California. The range of soil and climatic conditions for the prune is very large. They are grown successfully in the valleys near the coast (not on the coast), as in the Santa Clara Valley, Santa Rosa, Napa, and other of the smaller valleys. In the San Joaquin and Sacramento valleys, where conditions are quite different, we find prune orchards doing well, as in the vicinity of Hanford, Visalia, Vaca Valley, Yuba City, and Chico. Smaller areas are found in the foothills near Auburn and Newcastle, where they do well.

SOILS—The prune is grown generally in deep, fertile, well-drained soils, not too sandy nor too heavy like the clays and adobes. Because the tree is quite adaptable, a great many are planted on soils that are not suitable, such as the light sands, clays and adobes, and under these conditions the trees grow with varying degrees of success. In selecting a soil for prunes there are certain things one should observe very carefully before planting, and try to avoid. The soil should be deep, not underlaid with hardpan, standing water, strata of coarse gravel, or impervious clay near the surface. One may not always be able to get a soil where all these conditions are ideal, but should select as nearly this type as possible. The conditions to avoid named above are quite often improved by deep plowing, the use of explosives, drainage, barnyard manures, and green manure crops. These factors will have an important bearing on the value of the land. Unimproved land in sections of the state where the industry is highly developed, as in the Santa Clara Valley, sells for \$250 to \$500 an acre. Improved lands in these sections bring from \$600 to \$900 per acre. In the San Joaquin and Sacramento valleys unimproved land brings from \$125 to \$250 per acre, and improved land brings from \$300 to \$500.

DEVELOPING—There is quite a choice of locations and one should take into consideration climatic conditions in regard to one's personal comfort, price of land in various sections, returns from crop, amount of money to be invested, and income desired. The high priced land is found where the industry is highly developed and where living conditions are particularly desirable, as in the counties along the coast. Good prune land, not so high priced, can still be obtained along the streams in the San Joaquin and Sacramento valleys. Still cheaper lands adapted to prunes, usually in small tracts, can be obtained in the foothill sections of the state. In all of these three general sections prune growing is usually beyond the experimental stage, so that with a given type of soil selected and the local experience in regard to varieties for that locality, one can proceed. The trees can be propagated in several ways, but budded trees are universally used. Several stocks may be used for various soil conditions, but experience has taught that the Myrobalan root is generally used, particularly if the soil is heavy or drainage conditions are bad. The peach and almond root are used considerably on the lighter soils and where the drainage is good. It is usually better to obtain trees from some reliable nursery firm, of which there are a great many in the state. The trees are planted in squares, rectangles, or triangles. The usual distance is 22 to 26 feet, depending on local conditions, varieties, etc. The general practice is to cut the tree back to a single stock 20 to 24 inches high at the time of planting, then shape the tree, by pruning, the next two or three years. Others do not prune at all, but let the tree grow as it

will. The cultural method will vary a little in different sections, but is not unlike the general care given other orchards in regard to plowing, cultivating and irrigating.

HANDLING THE CROP.—There are three general methods of handling the crop. These are governed usually by the size of the farm. The first and most common is the case of the owner who has 10 or 20 acres, and he and his family do all the work, with, perhaps, additional help at harvest time. The second class is of large tracts of from 20 to 100 acres, which are handled almost entirely with hired labor. Third, the renter. In this case the land is rented for a cash rental, or on a crop basis, which is usually one-fourth to one-half for the owner and one-half to three-fourths to the renter. The labor is supplied chiefly by white people who live in the community and by transients, mostly Orientals, who are employed during the rush season. The fruit ripens on the tree and falls to the ground, when it is gathered, hauled to the dipping shed, dipped in a solution of lye, and placed on trays in the sun to dry. After the fruit has been dried it is put in sacks and sold to the large packing concerns or handled by the farmers' cooperative organizations.

INSECT PESTS AND DISEASES.—The prune, like other fruit trees, is attacked by certain insects and diseases. The most serious insect pests are thrips, root borers, and red spider. The worst diseases are crown gall and gummosis."

Deciduous Fruit Growing in California.*

"In choosing the species or varieties of deciduous fruit to plant the new farmer should be guided by (1) the adaptability of his soil and conditions; (2) the purpose for which the fruit is grown; (3) the accumulated experience of the successful growers in the neighborhood; growers in the neighborhood; and (4) he should avail himself of what has been accomplished by organized effort in the establishment of grades, brands and market demands for the crop.

The best varieties of fruit for the new farmer to plant are those which have been found to be especially adapted to his neighborhood. This point may be determined by consulting the more successful fruit growers having soil and conditions similar to his own. In districts which are adapted to a wide range of species and varieties, a number of kinds of fruit may be planted if desired. This admits of a better distribution of labor, since different varieties need care and harvesting at different periods.

Certain districts have become widely known for their adaptability to a single kind of fruit which reaches the highest perfection. In such a district the new farmer should take advantage of this fact. It is an asset which the community has made for him.

Just why a given soil or surroundings may prove, upon extended trial, to develop a given fruit to perfection is not fully understood. Enough is known of the general requirements of the different species, however, to be very helpful in determining their best location. All deciduous fruits require a well-drained soil, though some are far more partial to thorough drainage and aeration than are others.

The pear requires a heavier, finer loam with more liberal admixture of clay than do the other deciduous fruits. Even the pear, however, will

*By J. C. Whitten, Professor of Pomology, University of California.

not endure a very wet, sticky soil, which is cold while wet and which bakes severely when dry. Often it may safely be planted on heavier land than is adapted to other fruits. It is more resistant to oak fungus and alkali and is often used for replanting in parts of orchards where other fruits have died out. The apple perhaps ranks next to the pear in respect to the above adaptations. The walnut requires a deep, moist soil, when worked on the California black walnut stock. The almond, cherry, and peach require deep, well-drained soil. Prunes, plums and apricots have an intermediate drainage requirement.

Spring frosts should be considered as a factor in determining the location of the different species. Since heavy cold air settles or drains into the low places, the latter are more likely to be frosty; while the higher elevations (not high altitudes) are freer from frost. The susceptibility to frost injury of a species depends mainly upon its season of blossoming; the later it blooms the safer it is from injury. The almond blooms first, while the nights are cold, and a first requisite for its success is an elevation above the frost line. Its blossoming season is followed by that of other species in the following order: Apricot, Japanese plum, peach, cherry, pear, apple, prune, quince.

Other things being equal, all fruits do better in rich soils; some, however, require much richer soils than others for profitable results. The relative requirement of the different species in this respect is based partly upon field observations of the growth and partly upon determinations which have been made, showing the relative amount of plant food annually removed from the soil by each species and not returned in their leaves when they fall. The walnut probably requires the richest, deepest soil, followed in order by the peach, almond, prune, Japanese plum, apricot, apple, cherry, and pear.

Fruits which are to be sun dried require emphatically abundant sunlight and higher day temperatures. Abundant sunlight and warmth are essential to the development of the desirable sugar content, during their ripening period, and should be prolonged sufficiently to complete the drying process after the fruit is ripe. The dried fruit industry is, therefore, greatly favored by conditions prevailing in California fruit districts.

A limiting factor in pear production the country over is blight. Soft, succulent, rapid-growing tissue favors, and slow growing, firm tissue opposes the entrance and spread of blight. For that reason blight is most serious in districts where high temperatures favor rank, succulent growth of the pear tree in early summer. In some of the cooler sections of California, such as the coastal valleys and to a degree in the cooler elevations of the foothills, blight is less serious. In these districts pear growing is favored to a degree not possible in any other part of the country.

A given community may be famous for its dessert fruit, shipped fresh, or for its dried or canned fruit. Usually definite grades or brands are established. Market demands usually have been created. One should plant to conform to the established industry of the neighborhood, using the varieties and methods upon which the business has been built up.

As a rule it is safest to advise the new farmer to be guided by the best local practices, employed by the more prosperous fruit growers, in producing, handling and marketing the fruit crop. The very fact that a successful fruit growing industry has been developed is evidence

that it has been based upon sound practice and years of organized effort in building up the industry. One should not lightly discard established practice to adopt, indiscriminately, new varieties, new methods or alleged 'short cuts' to success, even when these are advised by the enthusiast. Innovations should be tested only on a small scale until their superior worth is proven beyond doubt.

If the farmer is in doubt as to the soundness of a given practice he may consult his local farm bureau, farm advisor, horticultural commissioner or the experiment station. These agencies are helpful in enabling the orchardist to determine whether, in a given case, he may more safely conform to standard practice or whether he may make progress by adopting the new.

In starting a deciduous orchard, moderate sized, one-year-old trees are preferable to large, strongly branched, older trees, because (1) the smaller trees suffer less back-set in transplanting, and (2) they may be given the desired form, or distribution of branches.

At the time of planting the young fruit tree should be pruned to a single whip and cut back to about two feet in height.

The tree should be whitewashed as soon as possible after planting to prevent sunscald and drying out before it starts growth in spring. The whitewash reflects the heat of the sun, keeping the tree at atmospheric temperature. A tree not protected by whitewash warms up to 15 to 25 degrees above atmospheric temperature during the sunny part of the day and cools to atmospheric temperature (freezing or sometimes below) at night.

As soon as new shoots two or three inches long start on the tree in March attention should be given to spacing properly the main, permanent branches. About three main limbs should arise from the stem. These should be spaced six or eight inches apart, up and down the trunk, and spread about equally in different directions. If the main limbs form opposite each other, in a single whorl, they form bad forks, later crowd at the base and result in diseased trunks.

The strongest shoot at the top should be selected for the upper main limb. Another bud or shoot 15 or 16 inches lower down, and 8 or 10 inches from the ground, should be selected for the lower main limb. A bud or shoot about midway between these two should form the third limb. These three main limbs may be encouraged to outgrow all the others by pinching back the remaining shoots that push out between them.

Do not remove any of the shoots that start. Pinch them back so as to leave two or three leaves at the base of each shoot. The leaves on these short twigs up and down the stem shade the trunk, cool it by evaporation and digest plant food to nourish the trunk of the tree and the root system. They result in a larger, stronger tree. They also may become the first fruiting branches.

The following winter, when the young tree has completed its first summer's growth, the three main limbs should be headed back to where they should divide into two branches each. They should be cut to about a uniform height. Usually the lower one will be cut to about two feet and the upper one to about 15 inches in length.

In March or early April two main shoots near the top of each of these main limbs should be encouraged to develop, thus establishing six main

limbs. Superior growth of these six branches is secured by pinching back any additional shoots that tend to outgrow them. Again, do not prune off the surplus shoots; keep them short by pinching them back.

By May of the second spring these six strong, growing branches will have reached a height where most of them should divide again. At this time they should be cut back, about breast high. With this May heading about eight or ten permanent main branches will be secured.

No subsequent heading back should be done, except with meager branching sorts like cherries. The eight or ten main limbs, when once established, should be left to make and retain their normal length growth annually.

Except for heading back the three primary limbs the first winter and heading back the six limbs that arise from these the following May, winter pruning should consist of thinning out limbs that grow too close together; removing strong, outside branches, low down, which may get in the way of cultivation; of removing any strong water sprouts that start in the center of the tree, and shortening inner branches that tend to cross or interfere.

A broad, spreading tree should be maintained with open center to admit filtered sunlight from above. Small branches and fruiting twigs should be preserved throughout the length of the main limbs. They protect from sunscald, nourish the tree, and become the first fruiting branches.

If thinning out at the top is practised, fruiting twigs may be maintained throughout the body of the tree, from the trunk upward. The tree will reach bearing age one or two years earlier and will carry heavier crops. Main limbs not headed back spread outward, droop with a gradual curve that does not break and admit of pruning and handling most of the crop from the ground.

Trees annually headed back make numerous rank sprouts just at the point where the limbs are headed. These rank, late growing sprouts rob the twigs on the branches below and shade them out, resulting in long, bare, unfruitful lower limbs which are subject to sunscald, gumming, borers or other injury."

Table Showing Number of Cars of Deciduous Fruit Shipped, 1908-1921.

	Apricots	Cherries	Grapes	Peaches	Pears	Plums	Miscellaneous	Total
1908	232	208	3,819	1,980	2,702	1,763	15	12,020
1909	210	250	5,880	2,599	2,538	1,526	19	15,280
1910	290	250	4,948	2,518	2,361	1,552	17	14,072
1911	215	216	6,374	2,027	2,325	1,366	16	12,539
1912	196	244	6,357	1,621	3,135	1,776	15	13,344
1913	158	231	6,363	2,359	2,496	1,706	19	13,332
1914	382	166	8,773	2,144	2,725	1,907	49	16,146
1915	392	205	9,563	1,689	2,646	2,225	58	16,778
1916	290	164	9,722	1,909	3,701	1,999	106	17,891
1917	403	330	13,944	2,432	4,802	2,651	66	24,628
1918	441	351	16,358	3,137	4,570	2,483	77	27,417
1919	420	335	19,228	2,773	4,248	2,918	49	29,971
1920	287	494	24,152	3,148	4,391	2,564	210	35,246
1921	285	665	33,873	3,334	4,160	3,099	115	45,571

Grape Growing in California.*

"Grapes are grown commercially in every county in California, except one or two in the extreme north and two or three in the higher mountain regions.

VARIETIES AND LOCALITIES.—Raisin grapes are grown principally in the San Joaquin Valley, with Fresno as the center. Here the Muscat and Sultanina develop the necessary sugar early enough to be dried in the sun while the weather is still hot and dry. Minor centers where good raisins are made occur in the central part of the Sacramento Valley and even near the coast in the extreme south, but drying the fruit is often uncertain and dipping or artificial driers must sometimes be resorted to.

The earliest shipping grapes are Sultanina and Malaga from the Coachella and Imperial valleys. The next, principally of the same varieties, come from the foothills of Tulare County and the neighborhoods of Winters and Vacaville. Malaga is the principal white shipping grape and is grown most largely in the San Joaquin Valley south of Modesto. The Flame Tokay, which constitutes the main bulk shipped, is grown principally in San Joaquin County, with Lodi as a center, and in Sacramento County along the American River. Farther south it fails to develop sufficient color. The next most important shipping grape is the Emperor, grown principally in Tulare and Fresno counties. The latest shipping grapes are grown in Contra Costa and Santa Cruz counties principally. In general, shipping grapes can be grown profitably only in localities where packing and transportation facilities have been established. Rich soil and abundant water are necessary.

Grapes for dry wine have been grown most profitably in the coast counties from Mendocino to San Diego, where the acidity of the fruit and the cool weather of the vintage are suitable; sweet wine grapes in the great interior valleys from Shasta to Kern and also in parts of the San Gabriel Valley in southern California, where rich soil insures large crops and the climate promotes low acidity and high sugar content in the grapes.

On a 20-acre vineyard most of the work except harvesting can be done by the owner himself. Unless he has had considerable experience, it would be unwise to attempt to handle more.

In starting a vineyard great care should be used in choosing the planting stock. As a rule one-year-old rooted vines grown from cuttings carefully selected from healthy, profitable vines should be used. In rich, moist, sandy loam the cuttings may often be planted directly in the field with considerable saving in expense and some in time. In most of the coast regions phylloxera resistant bench grafts must be used.

The soil should be cleared, leveled where irrigation is needed, and plowed or subsoiled at least 12 inches deep before planting. Great care in training and pruning the young vines for the first three years before they come into bearing is necessary. Stakes must be used from the end of the first year until the vines can support themselves. Some varieties, such as Sultanina, require trellising. Pruning must be done by expert hands and must be adapted to the particular variety. Sulfuring once, twice or three times during the season is needed to control the Oidium.

*By F. T. Bioletti, Professor of Viticulture and Enology, University of California.

Special methods of thinning and harvesting are needed for some table grapes.

A well-managed vineyard on suitable soil in a suitable locality may yield a net profit of from \$75 to \$300 per acre when in full bearing. One planted on poor soil or in an unfavorable locality, or one which is neglected or improperly handled, will often fail to pay running expenses.

Suitable land can be obtained for from \$225 to \$375 per acre in small tracts. The cost of planting and care of an ordinary vineyard for the first three years will be about \$200. Where resistant vines are used about \$60.00 per acre must be added to this. If the vines are to be trellised like Sultaninas from \$30 to \$40 per acre must be added.

The average cultural expenses of bearing vineyard will seldom be less than \$20 per acre per annum, and the fixed charges for taxes, depreciation, and interest on the investment will usually exceed \$40.

It should be recognized by the planter that the land suitable for grape growing of all kinds in California is practically unlimited. When prices are high most vineyards are profitable and new plantings rapidly increase the crop of the state with a consequent drop in prices. Under these conditions the poorer vineyards become unprofitable. Any vineyard, however, which has some peculiar advantage of soil, location or management that enables it to produce more than the average crop will pass safely through the period of depression and be very profitable when the reaction of high prices recurs."

Grape Production.

The 1921 grape crop had just reached the critical stage of the blossom period when struck by the April frosts and was damaged more severely than any other fruit crop. The damaged area included all the grape growing territory of the Sacramento and San Joaquin valleys and the coast counties of central California, probably most severe in Fresno County and least severe in Tulare.

Of the raisin varieties Thompsons suffered less than Muscats, not because they were Thompsons, but on account of the fact that in Muscat territory the temperatures were lower and the freeze more severe. The average yield per acre of raisins was estimated at 1300 pounds and the area harvested at 200,000 acres, making the estimated total production 130,000 tons.

The total grape shipments the present year for the whole state, as reported by the Bureau of Markets and Crop Estimates, amounted to 33,873 cars. Out-of-the-state shipments were 28,529 cars north of the Tehachapi, and about 1800 south of the Tehachapi, leaving some 3500 cars for the intrastate movement. Just what proportion of the total out-of-the-state shipments were table grapes it is impossible to say, but under the conditions as reported during the season a reasonable estimate would appear to be about 10,000 cars. On this basis the table grape production was estimated to have been 125,000 tons. Prices were very well maintained throughout the season and, based upon the reports of gross sales, it is believed that the growers received on the average about \$75 per ton.

An estimate of wine grape production, if anything, is still more difficult. Less wine and grape juice were produced in the state than in 1920 and

the total shipments evidently were much greater. As bills of lading do not specify the class of grapes contained in the car, there is no definite way of checking shipments. Wine grapes, like table grapes and raisins, were hit hard by the April freeze. Final reports warranted an estimate of the production of wine grapes amounting to 310,000 tons, which sold at an average price of about \$82 per ton to the grower.

Grapes.

Carlot Shipments, by States of Origin, for 1919-1921.

State	1919	1920	1921	State	1919	1920	1921
New York	3,751	6,079	2,451	Missouri	36	26	(1)
Pennsylvania	881	1,245	390	Washington	37	(1)	67
Delaware	(1)	44	(1)	California	21,600	26,974	32,565
Ohio	87	50	68	All other	61	74	42
Michigan	3,783	4,607	1,237				
Iowa	108	106	68	Total	30,349	39,205	36,888

Raisin Growing in California.

The first raisin grape, it is believed, was introduced in California in the year 1851, by Colonel Augustin Haraszthy of San Jose. The colonel first raised Muscatel vines from seeds of the Malaga variety. His vineyard experiments extended over many years; in 1861 he imported from Spain the Muscatel Gordo Blanco, and developed this variety rather extensively. Meanwhile, in 1855, A. Delmas imported the Muscat of Alexandria, and planted a vineyard near San Jose. Raisins of this variety were exhibited at the State Fair as early as 1863 by Dr. J. Strentzel.

The raisin industry in the San Joaquin Valley had its beginning in 1873, when T. F. Eisen, a pioneer grape grower of the Fresno district, discovered accidentally that the dried muscata were edible. Other growers in the Fresno district proved that they were also marketable in this condition. One of these pioneers was T. C. White, foreman of a vineyard owned by three school teachers, of whom the business head was Miss Lucy Hatch, still living in Fresno and known as "the mother of the raisin industry." W. S. Chapman also experimented successfully along these lines in his vineyard in the Central California Colony at Fresno. What is certainly on record is that Fresno dried Muscatels were sold by fancy grocers of San Francisco in 1877 and from that time this district has been pre-eminently associated with the development of the raisin industry.

The varieties of raisin grapes are few in number, the white Muscat of Alexandria and the Muscatel Gordo Blanco holding first place among the seed kinds, while Malagas and Feherzagos are used to a small extent. The seedless varieties are the Sultana and the Sultanina, commonly called Thompson Seedless, and both grown extensively near Smyrna in Asia Minor (where the Fresno figs also find their origin). These are all distinct from the Zante currant, the product in which Greece specializes, and also grown in Fresno and other San Joaquin Valley counties.

The name "Thompson Seedless" is traced back to W. Thompson, Sr., of Yuba City, who in 1878 planted cuttings that had reached an eastern

shipper from Constantinople. Sultanians, now common in the Fresno district, were introduced there on a commercial scale by W. R. Nutting of Del Rey about 25 years ago.

The growth of the raisin industry in California has been progressive as to production, but checkered as to prosperity, until the last few years. Joint processing, packing and marketing under a cooperative association was the magic wand that waved the industry out of financial bankruptcy; there was never anything the matter with the production end of the business.

Away back in 1879 the one million mark in raisin production in California was passed; six years later it had increased to nine million pounds. During the last nine years the production has tripled, reaching in 1920 a total of 175,000 tons or 350,000,000 pounds, of value about \$44,000,000. Divided among the 14,000 growers in the state this represented an individual return of a little better than \$3,000 or at the rate of 14½ cents a pound to the ninety per cent of the growers in the cooperative association. Even in 1921, with a short crop due to early frosts, the production was over 120,000 tons, with again very satisfactory prices, despite the world wide trade depression.

A sure indication of the growers' faith in the future of the industry is in the fact that of Thompson Seedless alone the new plantings in the three years from 1919 to 1921 inclusive, have amounted to 63,200 acres. Throughout the state the total raisin grape acreage in 1921 was 309,920, of which roughly three-fifths was in Fresno, and one-fifth in Tulare County.

Fresno County is the world's greatest raisin-producing center. For more than seventeen years the geographical hub of California has maintained this position. For centuries preceding 1904, Spain was the leading and almost the only raisin-producing country of the world. In that year Fresno passed Spain in raisin raising and with each day since has increased its lead, until now Fresno's dried grape production is more than three times that of the European country and approximately one-half of the world's total. Other competitors on a smaller scale are Asia Minor and Australia.

Excepting limited quantities grown in Arizona, all of the raisin crop of the United States comes from California. Ninety-five per cent of the total is produced in the eight counties of the San Joaquin Valley. A fraction over 70 per cent of the whole total again is grown in Fresno County, amounting in 1919 to 141,340 tons, in 1920 to 140,500 tons, and in 1921 to 108,000 tons, the drop last year being due to the very unusual frost conditions.

The importance of the raisin industry to the Fresno section can be gauged by the fact that the growers there through the cooperative marketing organization received for their crop over \$25,858,000.

Nearly one-third of the whole total raisin acreage represents new plantings since 1919, which at the normal yield is estimated to bring up the 1924 crop to 350,000 tons, or more than double that of 1920. To meet this steadily increasing production the cooperative association of growers known as the Sun-Maid Growers is carrying on an active advertising and sales campaign in the United States, Canada, South America, Britain, Scandinavia, Japan and other importing countries. As some indication that there is plenty of marketing scope for California's growing

raisin production, it is known that the per capita home consumption in the United States is not much more than one-half what it is in Britain and other countries which do not grow raisins, but have the appetite for them well developed.

An idea of comparison between the production in California and its chief competitor may be had; the Smyrna (Turkey) crop last year was closely estimated at under 33,000 tons, or about one-quarter of the American crop.

An interesting feature of the California industry is that within the last several years new plantings of the so-called Thompson Seedless have brought the total of those vines well in excess of the originally planted Muscats, for a long time the supreme raisin grape. The big advantage of the Sultanina is, of course, that it requires no seeding and can be marketed just as it is sun-dried. The future tremendously enlarged market for this variety is indicated by the more than successful experiment of placing 5-cent packages of "Little Sun-Maids," as they are popularly known, in candy, tobacco and other stores, and nationally advertising them as a between-meal, fatigue-forestalling confection.

The history of the raisin industry in California up to 1912 is one drawn-out story of long-deferred hopes and heart-breaking failures—all be it remembered connected with the marketing end. Nature, always kind to Golden State growers after they had learned the lessons of irrigation, has made the center of the state in particular a pre-eminently tropical fruit and vine land. Grapes, like other rich fruits of the soil, just grew; and in the case of the grapes when they grew too plentifully, nature showed how they could be dried in the sun, right between the rows of the vineyards, and could be shipped ready for table or for cooking anywhere in the world.

The whole trouble lay at the marketing end; there never was any stable market; the growers were at the mercy of indifferent packers who gambled at will and paid to the producers such "return" as they pleased. In 1909 the price of Muscats dropped to less than a cent per pound, and in these darkest hours of the industry, through the foresight and persuasion and patient planning of a few of the pioneers, the growers after several disappointing failures got together and formed the "California Associated Raisin Company." The first big task facing this organization was to stabilize the market for raisins so that the growers might be reasonably sure of a living price for their product. After much hard work, the association succeeded in saving the industry from ruin and putting it upon a sound and prosperous basis. Compare, for instance, last year's 14 cents a pound return with the 1909 packers' pourboire of three-quarters of a cent per pound!

Climatic conditions in certain parts of California are ideal for the production of raisins. The raisin is a sun-dried grape and curing is altogether a sun process. In the early spring, frosts are rare when the vines are budding. A warm, dry climate in summer is needed to give the raisins a full sugar content. In the fall, when the harvest is on the way, it is very seldom that rains occur that do any damage to the curing crop.

Rooted vines and cuttings are used for the planting of vineyards. After the ground has been prepared they are planted 8x10, 10x10, or 6x12 feet apart in properly defined rows. The land is irrigated and cultivated and the vines are pruned annually. Raisin grapes begin to produce

in the third and fourth years. They reach full bearing at 4 to 7 years old, according to variety, and from then on success is obtained almost altogether by the amount of care that is given the vineyard.

The average production of a Muscat raisin vineyard runs about a ton or a ton and a quarter of dried fruit to the acre, although there are vineyards that produce as high as two and one-half tons to the acre. Some Thompson vineyards will produce three tons and over. It takes three to four tons of grapes to make a ton of raisins.

The Muscat vine is pruned to spurs. By this method the body of the vine is grown to the desired height and shoots are permitted to grow from the two uppermost buds. The spur method of pruning the vines consists of building a trunk from which spring four or five arms.

The cane method is used for Thompsons. The vine is pruned to long canes and these canes are tied to stakes or strung on a trellis. The Thompson vines are trellised.

A raisin grape vine does not need a great quantity of water if the rainfall season has been normal. Usually three irrigations are ample to insure a good crop, although in many cases, one or two are all that are required, and in some localities where vines are planted on sub-irrigated soil no irrigation is necessary. The territories in which raisins may be produced on sub-irrigated soil are very limited, and consequently, practically all of the raisin grape vines in Fresno County are irrigated. Good, deep plowing in the spring, and good cultivation after each irrigation are the principal requirements, aside from pruning, in producing good crops.

In the early days the drying process for raisins consisted of breaking the vine canes, thus stopping the flow of sap and the grapes were transferred into raisins while hanging on the vines. The present method consists of picking the grapes from the vines and laying them on wood or paper trays in the open where the sun has access to them.

They are exposed to the sun's rays for about ten days and then turned so that the sun strikes the other side until the grape dries down to storage conditions in the process of drying. The raisin grapes, which are green, turn to a deep purple after the grapes have been exposed on both sides to the sun for a period of 10 to 15 days. They are then placed in boxes holding about 150 to 200 pounds each and are left there for another ten days. These boxes are called "sweat boxes." This process equalizes the moisture retained by the raisins, making them soft and highly palatable.

Muscats are generally put on the market in three different forms, as loose raisins, as clusters and as seeded raisins. The loose raisins are merely raisins that have had the stems removed. A brief account of the process by which seeded raisins are prepared will not be without interest.

The raisins are first subjected to a dry temperature of 140° F. for three to five hours, immediately after which they are subjected to a chilling process which enables the cap stems to be removed without difficulty. They are then passed through cleaning and brushing machines which remove absolutely every particle of dust; they are then taken automatically by elevators to a room where they are thoroughly washed and subjected to 212° F. heat, which brings the fruit back to its normal condition. The raisins are then passed through seeding machines, each of which has a capacity of from 10 to 12 tons daily.

The raisins are pressed between rubber or similarly surfaced rollers which at first flatten the berries and then press the seeds to the surface where a saw roller gets the seeds between its teeth, deftly removing them from the fruit. The seeds are removed from the roller by a whisking device and are sent along to a seed receptacle.

The raisins, now devoid of their seeds, pass down chutes to the packing tables, where they are washed and packed into one-pound cartons. The waste from seeding and grape stemming amounts to about 10 to 12 per cent of the original weight of the raisins, according to the conditions or quality of the raisins.

Counties Growing Raisin Grapes.

The following table, compiled by the Sun-Maid Raisin Growers, shows how the raisin acreage in California was distributed in 1921:

County	Muscats	Malagas	Thompsons	Sultanas	Fehrzags and Black grapes
San Joaquin.....	15	50	186		280
Stanislaus.....	186	1,458	3,102	52	297
Merced.....	90	2,007	4,146	23	430
Madera.....	3,015	1,827	10,016	379	2,660
Fresno.....	73,512	20,058	77,980	7,499	7,282
Tulare.....	12,966	6,885	30,760	5,041	892
Kings.....	11,199	298	2,773	748	242
Kern.....	1,640	1,036	5,475	82	55
Southern California.....	4,035	6	47	292	679
Northern California.....	139	25	7,542	363	90
Totals (acres).....	106,857	33,650	142,027	14,479	12,907

Grand total, 309,920 acres.

Strawberries.

California strawberries, grown in sections scattered from the Imperial Valley, on the south to the Florin country, near Sacramento, on the north, make their appearance at the breakfast table, fresh and full-ripe, nine months out of the year.

To the native Californian, hardened to production miracles, this nine-month harvest season is not surprising, but to the visitors from the East it is remarkable, for in no other state in the Union is the strawberry picking season so long.

California accomplishes this nine-month production feat because her berry patches give forth from two to four crops a year, thereby, incidentally, putting the state far ahead of all others in yield per acre. In other states only one crop is harvested each year.

Strawberries have been grown in California since the fifties. In the intervening years the industry has grown until now there are approximately 3400 acres in strawberries and the value of the 1921 crop has been set at \$2,500,000. Probably the central counties of San Mateo, Alameda, Santa Cruz, San Benito, Santa Clara and Monterey lead with their total acreage of 1200 with the Los Angeles district second with 1100 acres. In the Florin district there are 700 acres in strawberries, in the Imperial Valley 40 acres and in the Fresno district 60 acres. In addition, there are small acreages throughout the state.

Among the first, if not the very first, strawberries grown in California for commercial purposes were the prolific Longworths, whose big yield years ago enriched the Santa Clara Valley. Now the Longworth has

almost entirely disappeared from the market, except occasionally when it brings a fancy price for its rich flavor, and in its place have come about a dozen of the more than 1800 varieties of strawberries known.

In the south the Klondykes and the Brandywine are predominant, with the Excelsior coming into favor. In the Florin district, the Dollar and the Oregon Plum varieties are grown in numbers, while in the central section the Banner, New Oregon and Nick Ohmer are produced in the greatest quantity, with the Marshall and Malindas trailing far behind.

Strawberries appear on the California markets sometimes as early as February, coming from the Imperial Valley, which sends its berries to the market first. Los Angeles picks next, one crop in April and May and another in September and October. Before the end of April the Los Angeles growers are sending carload lots as far north as Seattle. In the central counties the major crops are picked in May and June and in August and September. In between there is another crop, with a fourth in October and even extending into December. This year there will be strawberries in the market at Christmas, berries grown in the San Francisco peninsula district and in other parts of Central California.

The highest of the central producing region is about May 20. The Florin country picks two crops, the season ending August 1, with the peak coming about the last of May.

California, it has been estimated, has about \$4,000,000 invested in strawberries, taking into account the value of the land planted to berries and the cost of bringing them up to the second year, when the yield is the greatest. Before the war it was possible to bring an acre of strawberries into full bearing for from \$200 to \$300 per acre, but during the past year \$700 has been a minimum and, in some instances, the cost has gone to \$1,200, with \$1,000 a fair average in Central California.

Nearly all strawberry land is leased, for the life of the plant is but four years, after which some other grower puts in a crop of another sort. Berries planted in the late fall or early spring, yield but very little the first year, but in the second season they are in full bearing. The third year finds them dropping off in quantity; the fourth brings smaller berries and light production. Then comes the plow.

Several years ago, when the acreage began to increase, it became apparent the strawberry growers must organize, for each year, during the peak of the season berries were sold at "red-ink" prices and annually many of the growers were forced out. Producers found that the berries, highly perishable as they are, must be sold the same day they reach the market, and therefore, those not disposed of to legitimate dealers early in the morning were sold to peddlers, who later undersold the retailers. Canners were not inclined to buy because of the market's uncertainties. Attempts to organize the growers to solve their problems were unsuccessful and many large growers agreed to a price from the canners at which they could sell their market surplus, but always under the cost of production.

Finally, after a few disastrous years, and with prospects of another ahead, growers in the central counties, from Monterey to Alameda, organized, in 1917, the Central California Berry Growers Association. Immediately the effect of the organization was felt and the growers had their first real profitable year. The association arranged for the sale of berries to the canneries, cleaned the market of unsold berries

every morning at nine o'clock and, in other ways stabilized market conditions.

Cleaning of the markets of unsold berries at nine every morning was a big step forward, for it assures the consumers fresh berries in their homes and also makes it possible to use every berry, as the "holdovers" are disposed of to the canneries and to other buyers.

By its moves, the association took some of the gamble from the production of berries and growers, feeling it safer to plant than before, increased their production. The effect of the association was also felt in other ways soon after its organization, for at that time costs began to soar and other troubles, which came to the producers, were solved by the organization.

With the organization and increased production came new methods of disposing of the crop, and one of the first steps taken was a successful move to reach distant markets, up to this time most of the berries having been disposed of in coast centers.

By pre-cooling, it has been found possible to ship into Texas and other distant points. Central California strawberries were shipped by fast express this year for the Thanksgiving trade to New York, and strawberries, blackberries and raspberries to Chicago under the new refrigeration schemes adopted.

Motor trucks are brought into play to help in the long jumps, and two refrigerator vans, used for the first time this year, carry berries from the Oak Grove Farm at Salinas, the largest strawberry farm in the West, to the Fresno markets. The vans are equipped with spare gasoline engines to blow cold air through the berries in the cars and thus thoroughly cool them.

Another step used in getting strawberries East, adopted on a large scale this year, is the barreling method, a plant for this purpose having been established at San Jose by the association. The barrels are filled with a mixture of about two parts berries and one part sugar and are frozen and shipped to all parts of the country, for use at soda fountains, in making jam and the like.

California Dried Fruits, 1918-1921.

	1918 Tons	1919 Tons	1920 Tons	1921 Tons
Apricots.....	18,000	14,500	10,750	10,000
Apples.....	5,600	10,500	5,000	6,000
Figs.....	8,750	11,000	11,500	15,000
Peaches.....	20,000	35,000	25,000	21,000
Prunes.....	37,500	135,000	95,000	75,000
Raisins.....	170,000	184,000	185,000	130,000
Pears.....	1,750	5,000	2,500	1,200
Totals.....	261,600	395,000	334,750	258,200

California Canned Fruits, All Grades and Sizes, 1919-1921.

	1919 Cases	1920 Cases	1921 Cases
Apples.....	134,245	9,041	98,500
Apricots.....	4,395,204	2,312,020	1,150,514
Blackberries.....	114,349	161,359	85,542
Cherries.....	460,614	647,977	222,772
Grapes.....	101,446	114,886	91,886
Loganberries.....	11,708	14,267	6,198
Pears.....	1,071,687	1,184,288	872,396
Free peaches.....	1,962,700	1,547,687	1,633,418
Cling peaches.....	5,096,249	5,205,511	4,162,849
Plums.....	280,261	164,740	141,348
Strawberries.....	22,123	5,525	437
Raspberries.....	233		1,200
Other fruits.....	42,584	15,562	44,791
Total.....	13,696,403	11,382,863	8,511,851

Semi-Tropical Fruits in California.*

"In addition to citrus fruits, olives and figs, the following semi-tropical fruits are now being grown in California and are of sufficient importance to warrant commercial plantings: Pomegranate, feijoa, loquat, Japanese persimmon, avocado, carob, and date. All these crops require irrigation.

The pomegranate thrives in all the interior valleys of California, there being at present over 150 acres. The Wonderful is by far the best variety for market. The pomegranate bushes are resistant to alkali, but they can not be expected to produce the best quality fruit on soils strongly alkaline. On account of the common habit of splitting, the fruit of most varieties of pomegranates must be picked before it is fully mature. The fruits continue to ripen well if placed in cold storage, and there they will keep in excellent condition for several months, becoming richer and more vinous in flavor and better in quality. Growers should pay special attention to such products as bottled juice and syrup.

The feijoa is closely related to the guava, being sometimes known as the pineapple guava. The plants are hardy, not being injured by a temperature as low as 5° Fahrenheit. The greatest obstacle in the way of extension of feijoa plantings at present is the lack of good stock. Seedlings are variable in productiveness and in shape, size, and quality of fruit. Grafted stock should be more plentiful in a few more seasons.

The loquat is one of our neglected fruits. Experience in the last few years has shown that the fruit can be profitably grown if the right varieties are planted in a protected situation. The Thales, Champagne, and Advance are all good varieties for market on account of large size and uniformity of fruit. The tree blooms during the late fall and early winter, and must therefore be planted where the blossoms and fruit will escape frost injury. If carefully handled the fruit keeps and ships well even to distant markets, the wholesale prices ranging from a few cents up to 25 or even 30 cents a pound.

The kaki, or Oriental persimmon, is a deciduous tree and is therefore not so liable to frost injury. Experience has shown that California grown trees are preferable to those imported from Japan on account of the former having a better root system. Trees propagated on the lotus stock (*DIOSPYROS LOTUS*) are showing excellent results in the

*By I. J. Condit, Assistant Professor of Citriculture, University of California.

orchard; those on the American persimmon root are vigorous, but the stock has a tendency to sucker. Persimmon trees fruit well except in the very coldest sections of the state. The crop is earliest in the hot interior valleys, but later fruits grown along the coast are of excellent quality and are marketable to good advantage during November and December when other fresh fruits are not so plentiful. The Hachiya is leading in popularity for commercial plantings, while the Tanenashi is a close second.

The avocado industry is passing from the experimental stage into that of an assured success, at least in parts of southern California. Large orchards are in bearing and fruits are being marketed in quantity. The question of varieties is still a critical one, but the list has been shortened to six or eight approved by the California Avocado Association. Avocado trees are not particular as to soil as long as drainage is good. They vary in their climatic requirements according to the race to which they belong. In general, it can be said that so far as minimum temperatures are concerned trees of the Mexican race should thrive wherever the orange tree thrives, trees of the Guatemalan race wherever the lemon thrives, while trees of the tropical West Indian race can be grown only in the most protected and frost-free localities.

The carob, or St. Johns Bread, like the loquat, blooms and sets fruit during the fall and winter. In order to insure a profitable crop, therefore, planting should be restricted to the foothill sections where frosts are not severe. Most carob trees produce male or female flowers only. Some varieties, however, bear perfect flowers, and such are preferable for commercial planting. The pods, produced in September and October, are rich in sugar and make excellent cattle feed.

Dates.

The following data on the date industry is offered by Paul Popenoe, manager of the Tropical Date Company of Thermal, Riverside County:

Production of dates by counties for 1920: Riverside, 100,000 pounds; pounds Imperial, 5000 pounds.

The principal varieties commercially grown are:

Early-maturing dates: Khadhrawi, Halawi, Khustawi, Ghars, Tazi-zaut.

Mid-season dates: Zahidi, Maktum, Dubaini, Yatimeh, Asharasi.

Late-ripening dates: Thuri, Deglet Nur, Tafazwin.

Other varieties grown to a slight extent commercially: Barhi, Kasbeh, Kanta, Halwa, Khalaseh, Hurra, Tabirzal, Tantabusht, Rishti, Fursi.

There is no available data on the proportionate yield of any of these varieties, but those mentioned in the three classes named above probably comprise more than 95 per cent of the acreage planted to imported varieties.

It is estimated that there were in 1920 about 400 acres planted to dates of imported varieties. In addition there are thousands of seedlings, most of which have been neglected, and in some cases abandoned. There are probably about 50 acres of seedling dates set in orchard form and well cared for as a commercial proposition.

Of the 400 acres of standard varieties mentioned, 320 would be in Riverside County (Coachella Valley) and 80 in Imperial. Practically all of the commercial seedling orchards are in Riverside County.

According to H. H. Laughlin, who has recently made a study of the subject, there are, scattered over the San Joaquin Valley, about 4000 female date palms (all seedlings), of which about 100 have borne fruit. Of the total acreage in the state probably one-half has reached an age where it is beginning to bear fruit.

Prices for the 1920 crop showed extreme variation. A few of the best dates, put in a fancy 15-oz. confectionery pack, were sold at \$1.50 per pound wholesale. Thousands of pounds of seedlings were sold at 20 or 30 cents per pound. Broadly speaking, it might be said that the grower received anywhere from 20 to 60 cents per pound for standard varieties, and from 7 to 30 cents per pound for seedlings.

Thousands of pounds of seedlings and culls were seeded, ground up, and sold as "shredded dates," particularly to bakers and confectioners.

Practically all of the crop in Imperial Valley was grown and packed by one corporation. In Riverside County there were two associations packing dates. The California Date Association handled 33,000 pounds, and the Deglet Nur Date Growers' Association 4000 pounds. The rest of the crop was handled by individual growers.

The date industry in the state is being increased as rapidly as offshoots are available, importation of offshoots from the Orient now being prohibited by the Federal Horticultural Board's quarantine. Offshoots grown in California on palms of imported varieties sell for \$8 to \$25 each.

At present the culture of suitable varieties of dates in selected localities in the Coachella, Imperial and Palo Verde valleys is recommended. Eventually varieties may be found adapted to the San Joaquin and Sacramento valleys. Seedlings are not recommended as a commercial venture, but offer a cheap source of fresh fruit for local use."

Date Culture.

The date industry established by the Bureau of Plant Industry in the hot irrigated valleys of Arizona and California shows promise of becoming one of the great fruit industries of the Southwest. Certain varieties of dates succeed very well in the United States, and yield a product of superlative excellence, much superior to any now imported. It is believed that the culture of dessert dates of high quality offers a very promising field for future commercial development wherever the soil and climatic conditions permit.

A new method of ripening dates—A discovery of the greatest importance, the Trabut-Drummond bag method of ripening dates, was made in the autumn of 1919 in connection with the investigations of the establishment of date culture on a commercial scale in the United States. By this method heavy paper bags are put on the bunches of fruit when the latter have reached full size but before the dates have begun to soften in the final ripening process. These bags protect the ripening fruit against dust and insects, and, what is a further advantage, against dews and rains, while at the same time they equalize the humidity and temperature; that is, the humidity is kept up over the hot mid-afternoon period and the temperature is kept up during the cold part of the night preceding sunrise.

As a result of the use of this method the percentage of fancy dates of the Deglet Noor variety as grown in the Coachella Valley of California

has been more than doubled, and the number of pickings reduced from 12 to 2. In addition, the final curing of the fruit is greatly simplified, being accomplished by proper handling in a moist, warm room for only a few hours. As a result of this method, it is believed that date culture will be extended from the Coachella Valley, where it is now centered, to the Imperial, Yuma, and Palo Verde valleys in California, the Salt and Gila River valleys in Arizona, and to some parts of the Rio Grande Valley in Texas.

Origin of new varieties of dates by breeding—During the past ten years steady progress has been made in the breeding of new varieties of dates by using the pollen of pedigreed trees to fertilize choice varieties. Probably 50,000 seedling dates have fruited in California during the past ten years, and a few of these are choice varieties worthy of propagation.

There can be no doubt at the present time that date varieties as good as any that have been imported from the date gardens of the Old World are being originated in the southwestern United States. Even the famous Deglet Noor, perhaps the choicest sort now grown commercially, has been reproduced in seedlings, having, it is true, certain slight differences from the mother variety, some of them advantageous.

Importation of date offshoots from Egypt—In the spring of 1920 an expert of the Bureau of Plant Industry went to Egypt and was able to secure, with the cooperation of the Egyptian Government, a large number of offshoots of two Egyptian varieties that have proved to be well adapted to cultivation in the United States. Some 2000 offshoots are of the Saily variety, which is adapted for culture in the hottest valleys of the Southwest, such as the Coachella and Imperial valleys of California, and some of the hotter irrigated districts of Arizona. This variety is noteworthy in that the fruit improves on storage and is distinctly better at Easter than when picked from the trees in November. The standard Deglet Noor variety, on the contrary, is best when first picked and unless stored very carefully deteriorates after a few months. It is confidently believed that the Saily and Deglet Noor can be grown together advantageously in the principal date regions of the Southwest.

The Saily also has a very great advantage in that the mother tree produces a very large number of offshoots; 25 or even more may be produced during the offshoot-bearing period of the mother tree, whereas an average of only half this number of offshoots will be produced by a Deglet Noor palm in the same period of time. Furthermore, the Saily offshoots are very easy to root.

It appears certain that the Saily, with its ability to produce numerous offshoots that can easily be rooted, will drive out the inferior varieties which might otherwise be propagated. This is a matter of very great importance, since the planting of inferior varieties of the date palm is more dangerous than with any other fruit tree, because date palms can not be top-worked by budding or grafting to better varieties. The inferior trees must be dug up and destroyed if they are to be replaced by better sorts. Because of the expense of this it is probable that in many instances an inferior sort once planted would be allowed to remain, even though it yields little or no profit.

In addition to the 2000 offshoots of the Saily, several hundred offshoots of the Hayany variety were also secured. This is an early-ripening

date which has proved well adapted for growing in Arizona. It is one of the handsomest of the palms, and a few trees in a dooryard lend a strikingly ornamental effect to the landscape, while at the same time yielding a supply of fresh dates for home use.

Figs.

Among the many and varied fruit products of California none is being more progressively grown and handled than the fig. While this, probably the oldest known fruit to man, has been grown in California for many years, it is only within the present generation that planting has become general. The California fig industry is now on the threshold of production on a large commercial scale.

Four-fifths of the United States production of figs is grown in California, and four-fifths of the California production comes from Fresno County. This is due to climatic reasons, as the fig demands a warm dry climate. Central California is the only section of the country where the figs can be dried naturally and successfully. Other sections, as those in several Southern states, produce figs for canning only.

The importance of the fig industry to the state and to the Union may be judged from the following facts. Close estimates place the 1922 acreage of this fruit in California at 36,000 acres. Approximately, 24,500 acres of this total have been planted in the last five years, representing trees that are beginning to come into bearing or have yet to bear. This will give an idea of the prospective large increase in homegrown fig production.

The waiting field for this production may be understood from the fact that even now America imports over 50 per cent of its figs, and the consumption of this fruit in the country has been steadily increasing for the last ten years.

Although the fig is one of the oldest known fruits, and has been acclimated to California since the days of the Spanish friars, its production has been put on a commercial scale in the last 15 years. Originally, and for many years the Black Mission, imported from Spain, was the only variety planted. It was followed by the Adriatic, which still figures well at the head of the California production table.

Then about 1886 the Smyrna varieties from Asia Minor—for centuries the chief producer—were introduced rather extensively. The trees flourished splendidly, but the fruit did not mature. The reason why was for years a secret of nature; the figs required to be fertilized. The fertilizing agent discovered was a tiny wasp, which carried the pollen from the wild fig of Capri, sometimes called the male fig, to the edible or "female" variety. The acclimated California Smyrna fig then became known as the Calimyrna. The latest of the four commercial varieties, the Kadota, has begun to bear in marketable quantities, and its qualities are highly regarded.

The drop in 1921 was due to unusual frost conditions. This was the first time the frost had hit the figs in 25 years, but the prices realized for the crop were highly satisfactory. Taking the highwater mark of California production of figs, in 1920, at 24,000,000 pounds, and the imports for the year of 31,437,000 pounds, it will be seen that the homegrown product, without reckoning on increased consumption and widening of markets, has still a large field to cover. These possibilities are being

taken care of by the growers' cooperative organization as well as by other marketing agencies.

The year 1920 marks the beginning of a new era in the fig industry. The directors of the California Peach Growers, Inc., decided in May to undertake the marketing of figs as well as peaches, and a successful campaign was carried on to sign up the fig acreage and secure contracts for the crops. While there has been a temporary slump in prices of figs, as there has been with all dried fruits, the cooperative marketing of the crop both fresh and dried has already put fig culture on a substantial basis.

The organization, whose headquarters is at Fresno, is now known as the California Peach and Fig Growers, Incorporated. Its products are marketed under the well-known Blue Ribbon, Purple Ribbon, Fig Brownie, Fig Meat and other brands.

The largest fig orchards in the world are in Fresno County, these being the plantings of the J. C. Forkner Company of over 12,000 acres, and just about coming into bearing.

The bulk of the crop of California figs is dried. The points desirable in a variety of figs used for drying purposes are: First, vigorous growth of trees; second, heavy production of trees; third, resistance of the fruit to splitting and souring; fourth, quality of dried products.

THE MISSION FIG tree grows vigorously and produces heavily, both of the first and second crops. The fruit resists unfavorable conditions which induce splitting and souring. The main point against the Mission fig is the color; the purchasing public have been used to getting figs of lighter color.

THE ADRIATIC tree grows vigorously and bears heavily, the fruit being secured mainly from the second crop. Under good conditions of soil and climate, the Adriatic fig is an excellent variety and enjoys a wide reputation.

THE CALIMYRNA tree grows vigorously and produces one crop, as the figs require caprification. The quality of the fruit is excellent, and considerable plantings of this variety have been made in recent years.

For shipping the fruit should be large and firm with a fairly tough skin and a good quality. Results secured this season have demonstrated that fresh Calimyrna figs can be delivered in good condition in New York, and that a good demand can be assured. For canning purposes, figs should be medium in size, light in color and have good quality. It has been fully demonstrated that practically all varieties of figs can be caprifid and made to produce a large proportion of fertile seeds. In most cases caprification improves the quality of the dried product; the fruit is larger, more meaty and of better texture when caprifid.

The Adriatic fig has been for 40 years the chief drying variety of California. It still leads in production of dried figs. This state now produces a total of 10,700 tons of figs or about 21,500,000 pounds. Of this quantity about 8000 tons are Adriatic; 1500 tons Calimyrna and 1200 tons Mission.

The White Adriatic has been extensively planted in orchard form in the San Joaquin Valley. The trees grow rapidly after planting and come into bearing early if given good care. Four-year-old trees usually bear considerable fruit while trees six years old produce profitable crops. The first crop ripens from the first to the middle of July. The second

crop ripens throughout August and during September and October. On account of the dark color of the dried fruit, Adriatic figs are generally sulphured either before or after the drying process. In the valley and foothill districts the trees require very little irrigation if the orchard is kept thoroughly cultivated.

The Mission fig, although the oldest variety grown in California, ranks fourth in acreage at the present time. The reason is that the eastern market is prejudiced in favor of the light-colored dried fig. The true Smyrna fig has a beautiful amber or straw color and is translucent, which has gained it a reputation in all markets. The Mission figs are resistant to unfavorable climatic conditions, which affect the crops of other varieties. The fresh figs seldom split or sour. The black smut is rarely found in the Mission.

The Smyrna fig is recognized as the standard of quality among dried figs of the world. The term "Smyrna" designates a type or group of figs rather than a single variety. The word Calimyrna which refers to the variety now most largely planted in this state is a name copyrighted by Mr. Geo. Roeding for a variety which he introduced from Asia Minor. This variety is identical with the Lob Ingir, the principal drying variety of Asia Minor. The chief advantage of the Smyrna fig from a commercial standpoint is due to the excellent quality of the dried fruit. No other fig-growing country has been able to produce dried figs of other varieties which approximate the Smyrna in flavor and quality. Figs of Italy, Spain and Portugal are all inferior and are exported to other countries mainly for cooking purposes. Since the trade and the consuming public have recognized this superior quality, dried Smyrna figs have always been in greater demand and are quoted at higher prices than white figs of other varieties. Calimyrna fig trees grow as rapidly and bear as early as those of other varieties except possibly the Kadota. A few figs are frequently produced the third season but the trees can not be expected to produce profitable crops until the sixth or seventh year in the orchard.

The Kadota fig has been most commonly planted in Fresno and Tulare counties, where orchards from one to ten years old are common. The tree is a rank grower when given an abundance of water. Continued frequent irrigations are practiced in order to encourage a vigorous growth of the tree and a heavy production of fresh fruit. The figs are resistant to splitting and souring, faults which are so common with some other varieties.

The rapidity of growth and early development of the Kadota, its heavy bearing qualities and resistance of its fruit to unfavorable climatic conditions, have placed the Kadota among the four leading fig varieties in California. The fruit can be readily marketed fresh both to local and distant markets. It can be preserved or canned or made into jam, such products finding wide favor and good demand. The dried Kadota, while tough and inferior, is a clean and sweet product; with more careful methods of processing it can be marketed to advantage.

COST OF PRODUCTION.

Value of Land—		Cost of Harvest—	
Raw land.....	\$200 00	FRESH:	
Leveling and ditching.....	45 83	Picking, per lb.....	\$0 02
Water rights, wells.....	37 50	Packing, per lb.....	005
Preparation of ground and planting.....	46 05	Hauling, per lb.....	002
Trees (30x30).....	13 25	Picking boxes, per lb.....	015
After care.....	13 25		
Annual cost from first year to self-sustaining age.....	25 00	Total, shipping fresh, per lb.....	\$0 042
Total.....	\$382 88		
Annual Cost or Bearing Orchard:		DRIED:	
Irrigation, cultivation, spraying, fertilization.....	29 69	Picking up, per lb.....	\$0 0075
Pruning.....	2 66	Hauling, per lb.....	001
Caprifigging (Smyrna).....	12 76	Spreading, stacking, boxing, etc.....	003
Taxes, interest, etc.....	5 72	Sorting, per lb.....	0025
		Delivering, per lb.....	0015
		Sulphuring (if necessary), per lb.....	00125
Total per acre per harvest.....	\$50 83	Total, \$33.50 per ton, or per lb.....	01675
Market Value of Yield:			
Average for fresh fruit, per lb.....	\$0 08		
Average for dried fruit—			
Mission, per lb.....	07		
Adriatic, per lb.....	06375		
Calimyrna, per lb.....	0825		

The following table gives the home production of figs in the last six years:

Year	Tonnage	Year	Tonnage
1916.....	6,700	1919.....	12,000
1917.....	8,000	1920.....	12,000
1918.....	8,000	1921.....	8,000

THE AVOCADO.

The fruit has well been named the poor man's food. In the countries of South America and Mexico, where it grows wild, the very fact that the trees are such abundant bearers and that the fruits possess all the food ingredients to sustain the human body, are the combinations which have caused this fruit to be so designated. The fruit sells with us at very high prices, and it is more than likely it will continue to do so for many years to come. The fruit is about the most tasteful and nourishing food that grows out of the ground.

The avocado, or perhaps better known as the alligator pear, tree can be, and is, successfully grown in California, particularly in the southern part. There are today more than 500 acres planted in orchard form and perhaps as many more are grown in the gardens surrounding homes. It is also one of the most beautiful evergreen trees that grows.

The oldest budded orchards in California are about ten years old, and are very scarce. They were previous to the spring of 1921 about 45,000 avocado trees growing in California, and an estimate of 15,000 budded trees planted out this year. The thin skinned Mexican fruits contain the most desirable seed from which to produce root stock and are generally used in California. Today there are five recognized commercial varieties, the Fuerte, Spinks, Dickinson, Sharpless and Puebla.

The avocado tree will grow and bear fruit as regularly as any other fruit tree when the proper varieties are planted in proper localities in southern California, and contrary to the belief of many the avocado is not over particular about the kind of soil it is grown in. Very fine trees are grown in adobe, light sandy loam and decomposed granite soils. Although the tree is indigenous only to the tropics, we have varieties fully as hardy as any of the citrus, and the scope of this industry is wider than is generally believed. In the beginning many inferior varieties were planted, but each year through knowledge gained, many varieties which then seemed desirable have been eliminated.

Growing avocados has proved the most profitable of any horticultural experiment yet conducted in California. This fruit is selling from \$1 to \$2 each for fruits weighing a pound or more. As high as \$14 per dozen wholesale has been received, and a great part of the crop has been marketed at from \$7 to \$9 per dozen. There can never be any serious over-production of this fruit as there are only two small areas, Southern California and Southern Florida, where the avocado can be grown and because it is an all around food that people will continue to buy because they like its taste and because of its nourishing food value. A pound of avocado has as many food units as a pound of meat or eggs. When ripe they are ready to serve without any treatment or curing. There are varieties that mature all the year round and a supply can be kept coming to the markets continuously.

The California Avocado Association by its organization has made possible a great deal in the development of this fruit in California as a market product.

Olive Culture in California.*

“REGIONS—Olives may be grown in most of the foothill sections of the interior valleys as far north as Redding and in the warmer sections out on the floor of these valleys. They may, also, be grown in favored spots in all the coast valleys south of Mendocino County, although the cooler atmosphere retards somewhat the development and ripening of the fruit, and black scale is often troublesome and hard to control. It would be well for those who contemplate the planting of olive orchards to visit such places as Oroville, Fresno, San Bernardino, Los Angeles and San Diego, as the factors in these places and the districts around them will give some idea of conditions required. If the visit be made in late summer the disadvantages of shallow, leachy, heavy or poorly drained soils, as well as close planting, poor pruning, poor cultivation and poor drainage, will be readily seen.

CLIMATE—Olive trees will grow wherever the temperature does not go below 15° Fahrenheit in winter, but for fruit the latest killing frost in spring should be in April and the earliest killing frost in the fall late in November. From blossoming time to frost or for at least six and one-half months the mean daily temperature should not be less than 66° Fahrenheit. A higher mean would be better.

SOIL—A deep, rich, well-drained, sandy loam is the ideal soil for olives. They will do fairly well, however, on any well-drained soil. Very heavy or poorly-drained soils, as well as those too coarse or gravelly to hold moisture, should be avoided.

IRRIGATION—No olive orchard should be planted without making provision for irrigation. The trees may do well and an occasional crop may be obtained, but an unirrigated olive orchard will prove of little commercial value. An olive orchard should be irrigated from three to twelve times per year, according to the character and depth of the soil. An equivalent of one miner's inch continuous flow during the growing season should be provided for each five acres of orchard as a minimum.

CULTIVATION—Olive orchards should be plowed deeply at least once a year, and thoroughly cultivated after each irrigation.

PRUNING—Annual pruning is necessary if annual crops are to be expected. If the pruning is neglected the tree will produce crops biennially or less frequently. Pruning should keep the head of the tree low and open, and should regulate the amount of fruiting brush left from year to year.

HARVESTING—All olives should be hand-picked. The degree of ripeness depends on the use to which the fruit is intended. If for green pickles, fruit should be full grown but still green in color. For ripe pickles and oil, fruit should be well colored, color varying according to variety. Varieties grown should be confined to those that grow large enough fruit for pickling. Mission, Manzanillo, Sevillano, and Ascalano are the most favored at present.

LABOR—Price of labor will vary from \$3 to \$4.50 per day, according to the work done, expert growers and grafters getting the higher price. The picking of the fruit by hand will cost from \$30 to \$60 per ton. One

*By W. F. Oglesby, Former Assistant in Viticulture, University of California.

man may care for from 10 to 40 acres. In any case he will need help at picking and pruning time.

LANDS STILL AVAILABLE—The lower foothills, bench lands, and alluvial fans and, in the warmer sections, the well-drained bottom lands of situations mentioned under 'Regions.'

COMMERCIAL VALUE OF DEVELOPED AND UNDEVELOPED LAND—Developed land is valued at from \$300 to \$600 per acre; undeveloped land at from \$25 to \$300 per acre, price depending on location, character of the land, cost of leveling, etc.

MARKETING—For the most part olives are sold directly to the canners and oil makers. Some growers have their own plants for pickling, but oil making requires such expensive machinery that very few individuals have them. There is little money in oil, so that the present tendency is to grow only such varieties as are good for pickling. Oil is a by-product. Only the undersized and frosted olives are now turned into oil."

Olive Production in California, 1919-1921.

	Production, tons	Farm value, December 1	
		Per ton	Total
1919.....	8,800	\$160 00	1,408,000
1920.....	8,000	95 00	760,000
1921.....	8,200	90 00	738,000

Citrus Fruit Culture in California.*

"There are about 200,000 acres planted to citrus fruits in California, the proportion of lemons to oranges being as 1 to 4. There are about 10,000 citrus growers, the average holding being therefore about 20 acres. The annual shipments are now about 50,000 cars, or 21,500,000 boxes, being approximately one-sixth of the world's supply.

Citrus fruits are grown in favorable localities from San Diego County to Shasta County. The localities are in the order of present importance: (1) the area enclosed in and adjacent to a triangle drawn through Pasadena, Redlands, and Santa Ana; (2) the eastern foothills of Tulare County; (3) Ventura and Santa Barbara counties; (4) San Diego County; (5) Butte County. There are a great many smaller areas scattered through the state which are well suited to citrus fruits. The industry is older in southern California and there the lands and water have been further developed and prices of land and water are much higher than in the central and northern parts of the state. The cost of land varies from \$150 to \$500 an acre and water rights from \$75 to \$300 or more. It costs to establish an orchard and care for it through the first five years from \$800 to \$1,200 per acre in southern California, and from \$500 to \$900 per acre in other parts of the state.

It is not the custom to rent citrus properties in California. The labor in California citrus groves is done principally by Americans, although a good many Mexicans, Italians, and Orientals are employed. Foremen receive from \$75 to \$125 per month, teamsters from \$65 to \$80, irrigators from \$3 to \$3.50 per day, pruners from \$3 to \$4.50 per day, pick-

*By J. Eliot Coit, Professor of Citriculture, University of California.

ing foreman from \$3 to \$4.50, pickers from \$2.50 to \$3.50, and fumigators from 25 to 50 cents per hour. Ordinary labor is paid \$2.50 to \$3.50 per day.

Orange trees which have been properly grown should yield 350 to 400 packed boxes, or a car per acre after 12 years old. Lemons will yield about one-third to one-half more tonnage per acre than oranges.

About 75 per cent of the fruit is sold through a very well organized cooperative selling agency known as the California Fruit Growers' Exchange. The grower buys stock in proportion to his acreage in a local packing-house which is owned and operated by an association of growers. Several associations together form a district exchange, which orders cars, ships the fruit, and distributes the returns. All of the district exchanges belong to the central exchange, which furnishes facilities for marketing the fruit in the shape of bonded agents working under salary in the principal markets. The central exchange also furnishes daily market reports and other information. Grower-members are prohibited from selling and delivering fruit outside of the association. Growers may withdraw from the association at the end of any year.

There are about 40 cooperative marketing associations outside of the Exchange and a number of independent grower-shippers. Very little fruit is shipped on consignment.

Some persons have made fortunes in citrus fruit while many others have lost money. Others would have lost money had it not been for the timely advance in the value of the land for residence or other purposes.

Any person, however, with sufficient capital, a reasonable knowledge of horticultural operations, and ordinarily good business judgment, who is industrious and persevering, may expect to make a good profit by raising citrus fruits, provided he or she pays attention to the following points:

1. Select a location in a proved citrus district reasonably free from frosts and winds and within hauling distance of a packing house.

2. Select a deep soil, easy to work, fertile, well drained, and drive a good bargain for it.

3. Be sure of an ample supply of good water to which the land has an inalienable right. For full bearing trees near the coast on a retentive soil about $1\frac{1}{4}$ miner's inches of water is needed for ten acres. The same trees in interior valleys and especially on gravelly soils need not less than three miner's inches to ten acres. When buying a young grove bear in mind that only a small amount of water is needed for small trees and that some people develop groves with insufficient water rights with the intention of selling to an inexperienced person at the critical time. Beware of a citrus development based on surplus water.

4. Secure good, strong trees, free from scale, which have been propagated from carefully selected buds of standard varieties. The standard varieties in California are few in number. They are: Navel and Valencia oranges, Eureka and Lisbon lemons, Marsh seedless pomelo, and Dancy tangerine.

5. Plant the trees properly, using great care not to let the sun strike the bare roots. Inexperienced planters should purchase balled trees, as there is less danger of losing them during transplantation.

6. Care for the trees personally and conscientiously in regard to cultivation, irrigation, fertilization and pruning.

7. Prevent scale insects and diseases from gaining a foothold. Remember that the average cost of fumigation is \$30 per acre every alternate year, and this is 6 per cent on \$500, consequently in a scale-infested locality land is worth less for citrus production, other things being equal.

8. Join a local marketing association and cooperate with the neighbors in frost fighting, insect and disease control, and in other ways for the general good of the neighborhood.

9. Write freely to the California College of Agriculture for advice and enroll for the Correspondence Course on Citrus Fruits."

Shipments of Oranges and Lemons from California.

The production of oranges and lemons, and particularly oranges, has in the history of the citrus fruit industry in California, been intimately connected with and dependent upon the methods of handling fruit from the tree to the consumer and the marketing facilities available to the grower. The first oranges were shipped east via San Francisco over the Southern Pacific Railroad, which was built about 1873. The introduction of the Washington Navel orange into the United States in 1870, and into California in 1873, marked the most important period in the history of citrus fruit culture in California.

The table following shows the shipments of oranges and lemons from southern California from 1887 to 1921, and for northern California from 1903 to 1921:

Shipments of Citrus Fruits for California (in cars).

Year ending October 31	Southern California		Total Southern California	**Northern California		
	Lemons	Oranges.		Oranges	Lemons	Grand total
1887	12	2,200	2,212			
1888	20	2,500	2,520			
1889	26	2,782	2,808			
1890	34	3,467	3,510			
1891	40	4,016	4,056			
1892	52	4,400	4,452			
1893	65	5,871	5,936			
1894	145	5,762	5,871			
1895	335	4,687	5,022			
1896	565	7,010	7,575			
1897	1,378	5,972	7,350			
1898	1,166	13,987	15,153			
1899	903	9,448	10,351			
1900	1,447	16,362	17,809			
1901	2,924	21,173	24,097			
1902	2,816	17,571	20,387			
1903	2,649	19,776	22,425	*1,304		23,729
1904	2,782	25,117	27,899	*1,567		29,466
1905	4,274	25,608	29,882	*1,734		31,616
1906	3,789	22,175	25,964	*1,564		27,528
1907	3,507	23,986	27,493	*2,333		29,826
1908	4,959	24,538	29,497	*3,150		32,647
1909	6,196	31,875	38,071	*2,501		40,572
1910	4,782	25,331	30,113	2,921	109	33,143
1911	6,764	36,821	43,885	2,687	127	46,399
1912	5,961	30,327	36,288	4,220	172	40,680
1913	2,192	13,574	15,768	2,453	112	18,331
1914	2,954	39,024	41,978	6,282	78	48,338
1915	6,843	33,317	40,160	6,427	225	46,812
1916	7,016	31,871	38,887	6,026	170	45,083
1917	7,748	40,702	48,450	5,889	167	54,506
1918	6,197	14,346	20,543	2,773	140	23,456
1919	9,741	35,436	45,177	3,993	266	49,436
1920	8,733	38,758	47,491	5,654	312	53,457
1921	11,584	41,330	52,914	6,978	220	60,112

*Includes lemons.

**Northern California not reported prior to 1903. Includes Central California.

NOTE—The average number of boxes per car of oranges has varied from 374 to 462 and for lemons from 310 to 400 per car.

Acreage—It is estimated that there are now within this state 143,293 acres of oranges and 45,829 acres of lemons.

ORANGES.

Production and Value, 1915-1921.

Year	United States			Florida			California		
	Production (000 omitted)	Average price per box Dec. 1	Farm value December 1 (000 omitted)	Production (000 omitted)	Average price per box Dec. 1	Farm value December 1 (000 omitted)	Production (000 omitted)	Average price per box Dec. 1	Farm value December 1 (000 omitted)
	Boxes	Dollars	Dollars	Boxes	Dollars	Dollars	Boxes	Dollars	Dollars
1915	21,200	2 39	50,692	6,150	1 88	11,562	15,050	2 60	39,130
1916	24,433	2 52	61,463	6,933	2 05	14,213	17,500	2 70	47,250
1917	10,593	2 60	27,556	3,500	2 30	8,050	7,083	2 75	19,506
1918	24,200	3 49	84,480	5,700	2 65	15,105	18,500	3 75	69,375
1919	22,528	2 67	60,202	7,000	2 50	17,500	15,528	2 75	42,702
1920	29,700	2 19	64,908	8,100	2 20	17,820	21,600	2 18	47,088
1921	30,700	2 08	63,850	8,200	1 75	14,350	22,500	2 20	49,500

Estimated Acreage Citrus Fruits by Counties, 1921.
1921 plantings not included.

	Grapefruit		Lemons		Oranges	
	Bearing	Non-bearing	Bearing	Non-bearing	Bearing	Non-bearing
Northern California—						
Butte.....	16		46		2,100	53
Colusa.....			553	2	55	8
Glenn.....			48	53	684	57
Placer.....					315	
Sacramento.....	33	11			1,332	32
Solano.....					85	14
Tehama.....					110	17
Yolo.....					20	10
Yuba.....					50	10
Total.....	49	11	647	55	4,951	201
Central California—						
Fresno.....	5	12	180	160	1,788	724
Kern.....	23	5	10	12	1,167	115
Mered.....					38	11
San Joaquin.....					49	7
Stanislaus.....			56		94	12
Tulare.....	1,145	26	2,574	102	35,294	553
Total.....	1,173	43	2,820	274	38,430	1,422
Southern California—						
Imperial.....	120	100				
Los Angeles.....	363	110	11,352	5,037	39,987	7,960
Orange.....	50	50	7,080	1,075	34,320	2,115
Riverside.....	415	60	4,822	460	17,844	728
San Bernardino.....	1,360	61	4,831	827	37,515	2,964
San Diego.....	75	20	6,671	394	4,094	270
Santa Barbara.....	5	2	1,035	300	71	55
Ventura.....	10		6,556	1,307	2,251	1,160
Total.....	2,428	403	42,347	9,400	136,082	15,261
Total for the State.....	3,650	457	45,814	9,729	179,463	16,884

Estimated Acreage Planted in the State, 1921.

Grapefruit.....	42
Lemons.....	229
Oranges.....	1,705

Walnut Culture in California.*

"SOIL AND CLIMATE—Fairly heavy soils needed and walnut culture is not advisable on that which is of coarse sand, dry, shallow, or 'alkali.' The best soils are six feet or more in depth to water, hardpan, sand, or other unfavorable strata, and well drained.

Climatic disadvantages are late spring frosts and extreme summer heat. Different varieties are adapted to various conditions in these respects, if not too extreme. Walnuts require a considerable amount of water. They can be grown without irrigation in some places, but it is usually better to have water.

DISTRICTS—The principal walnut orchards of the state are located between Santa Barbara and Santa Ana. The industry is now developing in some of the northern counties. Santa Ana, El Monte, and Santa Barbara are important centers of production, while San Jose, Walnut Creek, Stockton, and Santa Rosa represent the northern districts.

CULTURE—The first essential is a proper choice of variety for a given locality; the beginner should seek reliable advice from the Agricultural

*By Professor E. Smith, Professor of Plant Pathology, University of California.

Experiment Station. The northern California black walnut is the usual root. The older groves of the state are of seedling trees, but these are no longer planted. Franquette, Concord, Placentia, and Eureka are the best varieties. Promising new varieties are appearing. Trees cost from 75 cents to \$2 each. Some plant black walnuts in orchard form to top graft later; this method is of advantage where no irrigation can be practiced. Planting distances average 50 by 50 feet, requiring 17 trees per acre. Young orchards may be interplanted with alfalfa, tree or small fruits, vegetables, or other crops, provided plenty of water is available. Producing orchards are usually plowed in spring, irrigated in June, August, and in winter if the rainfall is short, cultivated after irrigation and occasionally between. Little pruning or fertilization is practiced, although desirable in older orchards. Spraying is commencing to be practiced in some sections against two pests, the blight and aphid. Walnuts should pay expenses by the fifth year after planting and reach good bearing at ten. The production should continue to increase for many years; the tree is long-lived and fairly hardy.

HARVESTING—The nuts ripen in September and October and are picked from the ground after light shaking of the trees. They are then dried in the sun, bleached and graded. In the south most of the growers belong to cooperative associations with central packing houses, where the nuts are bleached, graded and shipped.

MARKETING—The demand for walnuts is greater than the supply. Prices are established by the association and the crop sold through brokers. Independent growers easily sell to private customers.

COST OF PRODUCTION—Production expenses vary from \$25 to \$75 per acre, averaging between these figures. Taxes and interest on the investment must be added.

RETURNS—Groves average 1000 pounds of nuts per acre per year, with an average selling price of 18 cents per pound for all grades and sizes. The better groves frequently produce 2000 pounds per acre and average 25 cents per pound. Greater returns are exceptional. This gives a net income of say \$80 to \$200 per acre. Orchards average from 10 to 40 acres.

COST OF ORCHARDS AND LAND—Walnut orchards in Southern California can be bought for \$700 to \$2,000 per acre. One thousand dollars is an average price. In this section good bare land with water costs at least \$400 per acre and usually more. In the central or northern portion of the state \$150 to \$300 per acre are average prices for desirable land with irrigation possibilities.

LABOR—The crop is well adapted to a working family. Father or sons can do the heavy work, while women and children can pick up the nuts.

TROUBLES—These are due principally to sandy or shallow soil, lack of water, improper varieties, bad treatment, injurious climatic conditions, and the disease called blight. These conditions can be largely avoided by proper choice of locality and varieties, and good culture."

State Production of Walnuts, 1921.

County and district	Total of district, tons	Total of county, tons	County and district	Total of district, tons	Total of county, tons
CONTRA COSTA COUNTY		234	SAN JOAQUIN COUNTY		59
Walnut Creek	234		Stockton	59	
LOS ANGELES COUNTY		4,377	SANTA BARBARA COUNTY		1,515
El Monte	995		Carpinteria	314	
Florence	80		Coromar	88	
Lankershim	88		Goleta	1,113	
Leffingwell	37		SANTA CLARA COUNTY		347
Los Angeles	255		Cupertino	85	
Puente	715		Santa Clara	217	
Rivera	575		Wayne Station	45	
Walnut	352				
Whittier	1,280				
NAPA COUNTY		12	TULARE COUNTY		121
Zinfandel	12		Visalia	124	
ORANGE COUNTY		8,373	VENTURA COUNTY		4,511
Anaheim	595		Fillmore	28	
Capistrano	270		Limco	173	
Des Moines	162		Moorpark	283	
Fullerton	1,654		Oxnard	280	
Francis	761		Santa Paula	1,408	
Garden Grove	413		Santa Susana	184	
Orange	676		Saticoy	2,096	
Santa Ana	3,842		Simi	59	
RIVERSIDE COUNTY		151	NORTH OF THE TEHACHAPI		200
Hemet	151		Miscellaneous	200	
SAN BERNARDINO COUNTY		168			
Chino	168				
			Total State production		20,068

Almond Culture in California.*

"The almond can be grown only in limited areas, owing to its susceptibility to frost. This is not due, as often supposed, to any greater tenderness of the blossoms or young fruit, but to the fact that this tree is the earliest of all our tree fruits to bloom in the spring, thus rendering it liable to more severe frosts than fruits which bloom later.

The localities where the almond succeeds best are where there are no late spring frosts. Lowlands should be avoided because of the settling of cold air in these spots, causing later and more severe frosts than in adjacent higher land. Rolling hills just back from the lower levels of our large interior valleys and the alluvial fans projecting out from the hills furnish the larger portions of our safe almond localities. Where large streams have built up the general level along their banks far out into the main valleys freedom from frosts is again marked.

The soil best suited to the almond is a deep loam which is free from hardpan, or gravelly substrata, and at all times well drained. The almond will not endure standing water around its roots for any length of time and especially during its long growing season. The lighter soils, therefore, are the ones which should be sought. Too light a soil is equally undesirable, in being unable to retain a sufficiently uniform moisture content.

In the most favorable soils the almond is grown on the almond root. Where the soil is inclined to be variable in character at different depths, where it is less than 8 to 12 feet deep, where irrigation is practiced, or wherever the water content in the soil is noticeably variable, the peach root is used. The Myrobalan plum root is not satisfactory as a stock. Plantings on heavy soils do not ordinarily do well unless surface and sub-surface drainage is unusually satisfactory.

Almonds should be planted 30 feet apart for best results.

After planting, the tree is generally headed to 18 to 24 inches above the surface of the ground, leaving three or four branches well spaced up and down and around the trunk. These branches are then headed back moderately to serve as a foundation for the branching framework of the future tree. If thoroughly satisfactory branches can not be found, prune to a whip and during the first summer, about May, choose main framework branches and thin out or cut back all the others to a subordinate place. At the end of the first year head the main framework branches moderately heavy and then head these lightly during the second summer, about May, when they have made from 18 to 24 inches growth. After this limit all pruning to winter, thinning out to secure well shaped, reasonably open trees. Encourage fruiting well down to the center of the tree.

The trees should come into profitable bearing about the fifth or sixth year.

Harvesting, which commences a little before the middle of Aug st, and continues in the various varieties until the middle of September, is done by knocking with long poles on to sheets spread under the trees. From here the nuts go to the huller, where they are separated from the hulls, then dried, bleached and sacked for shipment.

*By R. H. Taylor, Assistant Professor of Pomology, University of California.

Late ripening varieties will not do in regions subject to early rains or where fogs are prevalent, as the shells are darkened too much. In choosing varieties plant several varieties together to secure crosspollination. All varieties are self-sterile, and a few others, like the Nonpareil and I. X. L., Languedoc and Texas, and possibly others, are inter-sterile. Ne Plus Ultra and Drake make thoroughly practical pollenizers for Nonpareil, I. X. L., etc.

The most important pest of the almond is the red spider, of which there are two kinds. One kind spends its entire life on the trees and may be controlled largely with a winter spray of lime-sulphur or crude oil emulsion. The other spends only the summer on the trees and may be controlled by spraying with "Atomic Sulphur" or with dry sulphur dusted on the trees late in June or early in July.

Root knot and oak fungus (*Armillaria*) must also be guarded against when the trees are being planted.

The almond is grown on farms ranging from an acre or two up to 100 or more acres. The average orchard is not over 30 acres.

Good unimproved land for almond culture which is not subject to spring frosts may be purchased for from \$150 to \$500 per acre. Land with trees in bearing runs from \$200 to \$600 per acre and over.

Marketing of the crop has been stabilized and greatly improved by the California Almond Growers Exchange, with offices in San Francisco. This is a purely cooperative, nonprofit organization of over 2000 growers, representing well over 75 per cent of the growers of the state."

State Production of Almonds.

	Production tons	Farm value	
		Per ton	Total
1919.....	7,250	\$140 00	\$3 190,000
1920.....	5,500	360 00	1,980,000
1921.....	5,500	320 00	1,760,000

Adverse weather conditions at blossom time is the annual bugbear of the almond grower. The past year was no exception and the result was very spotted conditions, some counties reporting almost a normal crop while in others less than 25 per cent of a normal crop was harvested. Very late reports indicate the tonnage given in the table for 1921 will be ultra conservative.

CALIFORNIA COMMERCIAL ORCHARD CROPS, 1921.

Report of United States Department of Agriculture.

Crop		Production	Unit	Farm value Dec. 1	
				Per unit	Total
Apples	1921	6,500,000	Bushels	\$1 35	\$8,775,000
	1920	6,000,000	Bushels	1 60	9,600,000
	1919	8,200,000	Bushels	1 45	11,890,000
Peaches	1921	320,000	Tons	42 00	13,440,000
	1920	360,000	Tons	76 00	27,360,000
	1919	430,000	Tons	60 00	25,800,000
Pears	1921	78,000	Tons	62 50	4,875,000
	1920	102,000	Tons	90 00	9,180,000
	1919	115,000	Tons	72 00	8,280,000
Prunes	1921	90,000	Tons	130 00	11,700,000
	1920	97,250	Tons	130 00	12,643,000
	1919	135,000	Tons	240 00	32,400,000
Apricots	1921	105,000	Tons	50 00	5,250,000
	1920	110,000	Tons	85 00	9,350,000
	1919	175,000	Tons	80 00	14,000,000
Oranges	1921	22,500,000	Boxes	2 20	49,500,000
	1920	21,600,000	Boxes	2 18	47,088,000
	1919	15,528,000	Boxes	2 75	42,702,000
Lemons	1921	5,300,000	Boxes	2 50	13,250,000
	1920	4,955,000	Boxes	2 92	14,469,000
	1919	3,499,000	Boxes	2 00	6,998,000
Raisins	1921	130,000	Tons	180 00	24,700,000
	1920	177,000	Tons	235 00	41,595,000
	1919	182,500	Tons	210 00	38,325,000
Grapes (wine)	1921	310,000	Tons	82 00	25,420,000
	1920	375,000	Tons	75 00	28,125,000
	1919	400,000	Tons	50 00	20,000,000
Grapes (table)	1921	125,000	Tons	75 00	9,375,000
	1920	190,000	Tons	75 00	14,250,000
	1919	200,000	Tons	75 00	15,000,000
Cherries	1921	13,000	Tons	125 00	1,625,000
	1920	17,500	Tons	200 00	3,500,000
	1919	12,400	Tons	150 00	1,860,000
Plums	1921	40,000	Tons	53 00	2,120,000
	1920	35,000	Tons	90 00	3,150,000
	1919	42,000	Tons	60 00	2,520,000
Olives	1921	8,200	Tons	90 00	738,000
	1920	8,000	Tons	95 00	760,000
	1919	8,800	Tons	160 00	1,408,000
Figs	1921	8,000	Tons	145 00	1,160,000
	1920	12,300	Tons	90 00	1,107,000
	1919	12,000	Tons	150 00	1,800,000
Almonds	1921	5,500	Tons	320 00	1,760,000
	1920	5,500	Tons	360 00	1,980,000
	1919	7,250	Tons	440 00	3,190,000
Walnuts	1921	19,500	Tons	400 00	7,800,000
	1920	21,000	Tons	400 00	8,400,000
	1919	28,100	Tons	550 00	15,455,000

Santa Barbara.....	140	165	20	3,000	700	2,000	560	12,257	185	30	400	100	45,679	14,336	2,000	2,000	100	5	10	6	325	50	4	200	160	4,600	75	6,556	563	
Santa Clara.....	400	3,000	800	150	50	400	400	1,750	500	500	300	50	1,200	200	250	200	100	50	35	16	16	35	4	200	160	1,100	390	67,146	20,703	
Santa Cruz.....	15,000	800	400	200	30	20	30	20	20	15	5	5	1,000	300	15	5	5	5	12	2	2	200	1,000	60	---	---	---	2,775	1,837	2,000
Shasta.....	318	800	400	200	30	20	30	20	20	15	5	5	1,000	300	15	5	5	12	2	2	200	1,000	60	---	---	---	2,775	1,837	2,000	
Shelby*.....	284	36	43	10	15	3	3	3	3	3	3	3	31	5	11	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Solano.....	50	21	7,000	780	4,600	1,240	3,420	350	350	350	2,700	385	8,000	1,190	1,400	23	8	8	8	4	4	30	14	1,736	140	100	62	29,264	4,228	
Sonoma.....	7,713	5,013	612	175	1,247	856	40	12	700	100	11,344	6,080	734	642	68	24	580	495	22,640	14,077	171	171	171	1,379	171	580	495	22,640	14,077	
Stanislaus.....	61	14	14,150	553	415	72	1,443	568	35	20	182	59	182	59	65	26	2,621	2,245	3,117	3,117	3,117	3,117	3,117	3,117	3,117	111	11,032	3,688		
Sutter.....	134	128	5,220	3,719	380	422	39	236	164	236	1,590	4,921	62	164	62	164	195	197	85	110	1776	377	151	382	382	151	98	9,795	10,766	
Tehama*.....	315	30	1,552	64	247	195	242	66	40	7	105	690	26	5	207	41	750	423	676	676	676	676	676	676	676	654	5,070	8,920		
Tulare.....	623	571	8,120	1,222	245	73	1,501	227	1,309	435	8,161	3,885	97	19	2,621	2,245	5,524	364	468	250	654	222	68,236	10,194	654	222	68,236	10,194		
Tuolumne.....	600	150	150	120	25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Ventura.....	255	71	45	38	69	85	7462	2,013	12	4	175	9	28	14	1	8	280	431	141	40	694	40	694	40	14,005	3,151	31,554	7,900		
Yuba.....	110	85	1,072	603	1,531	232	683	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Totals.....	49,732	14,451	107,789	22,518	35,677	23,922	58,333	21,830	20,443	5,061	106,338	52,294	1,191	3,161	12,011	30,791	23,875	8,987	39,988	26,534	67,023	18,437	7,294	26,880	2,403	18,437	7,294	26,880		
Estimated average planted in state, 1921.....	1,344	6,057	3,274	2,130	1,941	4,238	5,307	4,003	1,100	3,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403	2,403

*1920 census figures.

PART VII.

LUMBER INDUSTRY, MANUFACTURES,
CANNING AND PRESERVING
FISH AND GAME.

The Lumber Industry.

The wooded land of the state is estimated to have an area of 44,700 square miles, or 22 per cent of the total area of the state. Most of the timber in this area is found upon the Sierra Nevada range and upon the Coast ranges north of San Francisco Bay. A little is found in the Coast ranges farther south, and in those of southern California. The principal species are redwood and yellow pine, with smaller amounts of sugar pine, Douglas fir, and incense cedar.

Redwood is the only important kind of lumber, the production of which is limited to one state. California has no competitor in its production, nor can it ever have, since there is no commercial supply of redwood timber elsewhere. This species is found in a narrow strip stretching from the Oregon line southward, closely bordering the coast, nearly to Monterey Bay. In this strip, comprising some 2000 square miles, there is estimated to be 80,000,000,000 feet of redwood in a pure forest. This is probably the most dense forest, as measured by the amount of timber per acre, in the world. Lumbering is carried on mainly about Humboldt Bay, at Crescent City, near the Oregon line, and at various points in Mendocino County.

Yellow pine is found along the entire length of the Sierra Nevada and in the Coast ranges. It occupies in the Sierra a well-defined belt which, in the southern part of the range, is limited by a contour 3000 feet above sea level, while northward it gradually descends, coming down to about 1500 feet in the upper Sacramento Valley. Its upper limit is on an average about 6500 feet, above which it is succeeded by species which are fitted to a colder climate. Throughout its range at higher elevations, it occurs with sugar pine in the average proportion of about three of the former to one of the latter. The forest also contains varying amounts of incense cedar and of Douglas fir. The composition of the forests in the northern part of the Coast ranges is quite similar to that in the Sierra, excepting that the proportion of Douglas fir is somewhat greater.

Scattered about in the yellow pine forests, on the slope of the Sierra Nevada, at altitudes ranging from 4000 to 6000 feet, are ten groves, differing greatly in size, of *SEQUOIA GIGANTEA*, the big tree. These trees range in height up to 325 feet, and in diameter to a little over 30 feet. The Big Trees do not occur in pure stands but are intermingled with yellow and sugar pine, firs and cedar.

The total merchantable stand of saw timber in California, exclusive of the redwood belt, has been estimated at 263,600,000,000 feet, board

measure, of which 131,200,000,000 feet is privately owned and 132,400,000,000 feet is the property of the government. Of the latter amount, 115,800,000,000 feet is in the national forests and the rest in national parks and Indian reservations or upon the public domain. The private and national forest timber taken together, a total of 247,000,000,000 feet, board measure, is composed of the principal forest species in about the following proportion: Sugar pine, 15 per cent; western yellow pine, 38 per cent; Douglas fir, 19 per cent; white fir, 14 per cent; incense cedar, 3 per cent; California red fir, 4 per cent; lodgepole pine, 2 per cent; big tree, 2 per cent; other species, 3 per cent.

The figures shown in the accompanying table for 1919 do not include the value of sawlogs produced in the logging camps conducted by sawmill operators and sawed into lumber in the mill operated by the same establishment, but give the value of the products as marketed. Likewise, the value of rough lumber, cooperage stock, and veneers produced and used in remanufacturing plants operated by the same establishment are not shown but included in the value of the finished products. Consequently there is no duplication in the value of products except as the finished product of one establishment may be used as material by another.

In addition to the values of products shown in the table, planing-mill products valued at \$5,387,877 were reported by establishments engaged primarily in the manufacture of other products, also wooden packing boxes valued at \$13,020,855 were manufactured and reported by other industries.

Reported Production of Each Kind of Lumber and of Lath and Shingles of the Pacific Coast States, 1919.

Lumber Sawed (M feet B. M.)

	United States	Washington	Oregon	California
Number of active mills reporting.....	30,001	798	544	173
Douglas fir.....	5,902,169	3,876,631	1,795,492	141,327
Western yellow pine.....	1,755,015	217,839	480,514	444,150
Hemlock.....	1,754,998	286,854	52,906	909
White pine.....	1,723,642	63,214	664	.....
Spruce.....	979,968	229,145	166,056	4,190
Redwood.....	410,442	.....	.....	410,442
Larch.....	388,121	63,870	18,968	.....
Cedar.....	332,234	205,393	32,763	20,406
White fir.....	223,422	17,979	22,731	108,374
Sugar pine.....	133,658	.....	4,503	129,155
Oak.....	2,708,280	.....	.....	410
Maple.....	857,489	83	1,160	.....
Ash.....	154,931	19	375	.....
Cottonwood.....	144,155	180	1,205	.....
All others.....	61,308	13	6	.....
Totals.....	17,529,832	4,961,220	2,577,403	1,259,363
Lath (thousands).....	1,724,078	339,058	122,848	53,042
Shingles (thousands).....	9,192,704	7,095,122	530,066	191,831

Redwood.

Redwood lumber was reported exclusively from California. It is cut chiefly from the coast redwood, which grows in a narrow belt along the coast north of San Francisco, and the big tree, which is confined to a limited region on the western slope of the Sierras. Owing to the extremely large size of the trees and the rough character of much of the ground on

which they stand, the logging and manufacturing of redwood is one of the most difficult and expensive lumbering operations in the United States. Comparatively few mills are engaged in the industry, but their output is relatively large. The average cut per mill in 1919 was 12,437,636 feet, which was greater than that for any other species. The production since 1899 for all years for which records are available has been fairly constant, the largest cut being 659,678,000 feet in 1906. The average value at the mill per thousand feet of redwood lumber for 1916 was \$13.93; for 1917, \$21; for 1918, \$24.30; and for 1919, \$30.04.

Production of Redwood¹ Lumber, by States, 1919.

State	Number of active mills reporting	Quantity (M feet b. m.)	Per cent distribution	Average value per M feet f.o.b. mill
United States	33	410,442	100.0	\$30.04
California	33	410,442	100.0	30.04

¹REDWOOD (*Sequoia sempervirens*) is the species chiefly cut; BIRCH (*Sequoia washingtoniana*) furnishes a minor part of the redwood production.

Western Yellow Pine.

The stand of western yellow pine (*Pinus ponderosa*) is perhaps the third largest in the United States. The importance of this species for lumber has increased considerably since 1899, and the cut reported for 1919 is the second largest annual cut for which records are available, the total production for 1917 being reported as 1,865,282,000 feet, or 110,267,-000 feet more than for 1919.

For 1918 and 1919 Oregon reported the largest production. California was the leading state for all previous years for which records are available.

The average cut of western yellow pine lumber per mill in the United States for 1919 was 2,064,724 feet. The average cut per mill in Oregon was 3,559,363 feet. The average value at the mill per thousand feet of this lumber for 1916 was \$14.52; for 1917, \$19.59; for 1918, \$20.87; and for 1919, \$27.75.

Production of Western Yellow Pine¹ Lumber, by States, 1919.

State	Number of active mills reporting	Quantity (M feet b. m.)	Per cent distribution	Average value per M feet f.o.b. mill
United States	850	1,755,015	100.0	\$27.75
Oregon	135	480,514	27.4	27.11
California	115	444,150	25.3	30.38
Idaho	110	250,320	14.5	27.53
Washington	139	217,839	12.4	25.79
Montana	87	108,548	6.2	22.92
New Mexico	49	75,439	4.3	26.83
Arizona	20	73,622	4.2	28.40
South Dakota	41	42,570	2.4	33.37
Colorado	85	32,775	1.9	25.67
All other states	69	23,840	1.4	27.63

¹WESTERN YELLOW PINE (*Pinus ponderosa*) is the one species cut as such.

Douglas Fir.

The stand of Douglas fir timber in the United States is greater than that of any other single kind of wood. This timber is common in the Rocky Mountains and westward to the Pacific coast. Its growing importance in the lumber industry is manifested in these statistics. The lumber cut from this wood in 1919 was the largest for any year for which figures are available and exceeded the output for 1918, the next largest, by 83,028,000 feet, or 1.4 per cent. The relative rank of the principal producing state has remained practically the same for several years, Washington being by far the greatest contributor to the total cut for each year since 1899.

The average cut of Douglas fir lumber per mill in the United States for 1919 was 4,930,801 feet, and the average cut per mill in Washington was 7,863,349 feet. Of the 1197 mills cutting Douglas fir, 225 cut more than 10,000,000 feet each, 75 cut from 5,000,000 to 10,000,000 feet each, 265 cut from 1,000,000 to 5,000,000 feet each, and 632 mills cut less than 500,000 feet each.

The average value at the mill per thousand feet of Douglas fir lumber for 1916 was \$10.78; for 1917, \$16.28; for 1918, \$18.77; and for 1919, \$24.62.

Production of Douglas Fir Lumber, by States, 1919.

State	Number of active mills reporting	Quantity (M feet b. m.)	Per cent distribution	Average value per M feet, f.o.b. mill
United States	1,197	5,902,169	100.0	\$24.6
Washington	493	3,876,631	65.7	24.89
Oregon	393	1,795,492	30.4	24.11
California	61	141,327	2.4	20.01
Montana	77	40,675	0.7	22.60
Idaho	103	32,580	0.6	20.97
All other states	70	15,464	0.3	24.90

¹DOUGLAS FIR (*Pseudotsuga taxifolia*) is the principal commercial species.

Cedar.

Of the many species classed as cedar in the reports of the sawmill industry, the most important is the western red cedar, ranging from Idaho to the Pacific coast. Other important western species are yellow cedar, Port Orford cedar, and incense cedar, the last mentioned being found in the Sierra Nevada Mountains of California and southern Oregon.

The most important of the eastern cedars represented in the lumber statistics is red cedar, which grows from Maine to South Dakota and southward to Texas and Florida, although the commercial production is limited to Tennessee, Florida, and Alabama. It is in great demand for lead pencils.

The production of lumber does not represent the only drain on the cedar timber, since a large quantity of this wood is consumed in the manufacture of shingles, poles, posts, and ties. The greatest production of cedar lumber for any one year for which records are available was in 1914, the cut for that year being reported as 499,903,000 feet. Washington

has been the greatest producer, furnishing in 1919 more than three-fifths of the total output in the United States.

The average cut per mill of cedar lumber in the United States for 1919 was 600,785 feet. In Washington the average cut per mill was 2,667,442 feet. The average value at the mill per thousand feet of cedar lumber for 1916 was \$15.24; for 1917, \$19.40; for 1918, \$24.86; and for 1919, \$33.80.

Production of Cedar¹ Lumber, by States, 1919.

State	Number of active mills reporting	Quantity (M feet b. m.)	Per cent distribution	Average value per M feet, f.o.b. mill
United States.....	553	332,234	100.0	\$33.80
Washington.....	77	205,393	61.8	31.74
Oregon.....	32	32,763	9.9	31.67
Idaho.....	21	26,165	7.9	28.55
California.....	37	20,406	6.1	23.50
Tennessee.....	107	14,708	4.4	71.27
Maine.....	71	7,445	2.2	32.57
New Jersey.....	29	5,010	1.5	46.35
North Carolina.....	19	4,136	1.2	65.73
Michigan.....	34	4,014	1.2	30.06
Kentucky.....	10	2,513	0.8	71.85
All other states.....	116	9,681	2.9	36.11

¹WESTERN RED CEDAR (*Thuja plicata*) is cut in Washington, Oregon and Idaho.

PORT ORFORD CEDAR (*Chamaecyparis lawsoniana*) is cut in Oregon.

ALASKA OR YELLOW CEDAR (*Chamaecyparis Nootkatensis*) is cut in Washington.

INCENSE CEDAR (*Libocedrus decurrens*) is cut in California.

NORTHERN WHITE CEDAR (OF ARBORVITAE) (*Thuja occidentalis*) is cut in the Lake states and the Northeastern states.

SOUTHERN WHITE CEDAR (OF "JUNIPER") (*Chamaecyparis Thyoides*) is cut in the Atlantic Coast states.

RED CEDAR (*Juniperus virginiana*) and SOUTHERN RED JUNIPER (*Juniperus barbadensis*) are cut principally in Tennessee, Florida and Alabama.

Sugar Pine.

Sugar pine forests extend several hundred miles along the Sierra Nevada Mountains in California and cover a considerable area in southern Oregon. The tree is the largest American pine, and the wood resembles white pine.

The annual cut of lumber from this species has not varied greatly since 1905. The largest output, 169,247,000 feet, was reported for 1916.

In 1919 the average cut per mill of sugar-pine lumber in California was 3,490,676 feet, and in Oregon, 750,500 feet. The average value at the mill per thousand feet of this lumber for 1916 was \$16.77; for 1917, \$24.69; for 1918, \$28.26; and for 1919, \$35.99.

Production of Sugar Pine¹ Lumber, by States, 1919.

State	Number of active mills reporting	Quantity (M feet b. m.)	Per cent distribution	Average value per M feet, f.o.b. mill
United States.....	43	133,658	100.0	\$35.99
California.....	37	129,155	96.6	36.35
Oregon.....	6	4,503	3.4	25.67

¹SUGAR PINE (*Pinus lambertiana*) is the only species cut as such and is found commercially only in California and southern Oregon.

Shingles.

COMPARATIVE PRODUCTION—The production of shingles reflects to a certain extent the activities in building lines, but the substitution of other materials for roofing has doubtless affected the output considerably.

The largest cut during the past 20 years was reported for 1905, and the smallest for 1918. The 1919 cut compared with that of 1918 increased 61.6 per cent.

Washington has been the leading shingle state for all years since 1899 for which records are available. Michigan, Louisiana, and Oregon have each in turn occupied second place.

PRODUCTION, BY STATES—By far the greater number of establishments which produced shingles were also engaged in the manufacture of lumber. In 1919, however, 449 establishments which did not manufacture lumber reported the production of 5,830,345,000 shingles, or 63.4 per cent of the total quantity for the United States. More than one-half of the exclusive shingle mills were located in the Pacific Coast states, which is the main shingle-producing region, largely because of the particular adaptability of the western cedar.

Production of Shingles, by States, 1919.

State	Number of active mills reporting	Quantity (thousands)	Per cent distribution	Average value per thousand
United States	1,726	9,192,704	100.0	\$4.19
Washington	292	7,095,122	77.2	4.16
Oregon	53	530,066	5.8	3.77
Louisiana	52	300,784	3.3	4.47
California	40	191,831	2.1	4.18
Maine	182	188,576	2.0	4.19
Michigan	63	144,173	1.6	3.89
Florida	71	128,286	1.4	4.41
Georgia	142	114,806	1.2	4.54
Arkansas	63	98,937	1.1	4.32
Wisconsin	58	96,928	1.1	4.13
North Carolina	74	92,139	1.0	6.58
Alabama	124	62,241	0.7	4.66
Mississippi	28	34,002	0.4	4.72
All other states	484	114,813	1.2	4.81

Manufactures—California.

Principal Industries, Ranked by Value of Products, 1919.

Industry	Number of establishments	Wage earners		Value of products		Value added by manufacture	
		Average number	Per cent distribution	Amount (expressed in thousands)	Per cent distribution	Amount (expressed in thousands)	Per cent distribution
All industries	11,942	243,692	100.0	\$1,981,205	100.0	\$762,346	100.0
Petroleum, refining	45	5,132	2.1	213,292	10.8	71,416	9.4
Canning and preserving, fruits and vegetables	303	19,575	8.0	189,956	9.6	61,316	8.0
Shipbuilding, steel	18	46,052	18.9	179,152	9.0	104,690	13.7
Slaughtering and meat packing	91	3,405	1.4	92,554	4.7	15,138	2.0
Flour-mill and gristmill products	134	1,779	0.7	65,448	3.3	8,566	1.1
Foundry and machine-shop products	595	9,827	4.0	51,337	2.6	28,698	3.8
Bread and other bakery products	1,095	5,394	2.2	48,957	2.5	17,657	2.3
Lumber and timber products	195	16,957	7.0	47,311	2.4	36,772	4.8
Lumber, planing-mill products, not including planing mills connected with sawmills	325	6,215	2.6	42,832	2.2	14,616	1.9
Cars and general shop construction and repairs by steam-railroad companies	60	16,213	6.7	41,927	2.1	26,166	3.4
Butter	121	1,268	0.5	40,660	2.1	4,314	0.6
Automobiles	12	1,327	0.5	36,627	1.8	9,601	1.3
Printing and publishing, newspapers and periodicals	764	4,779	2.0	34,343	1.7	24,666	3.2
Tinware, not elsewhere specified	16	2,915	1.2	26,807	1.4	5,894	0.8
Sugar, beet	10	1,512	0.6	26,354	1.3	12,200	1.6
Coffee and spice, roasting and grinding	70	796	0.3	26,311	1.3	6,430	0.8
Automobile repairing	1,648	5,962	2.5	24,894	1.3	15,627	2.1
Confectionery and ice cream	298	4,083	1.7	23,226	1.2	9,732	1.3
Leather, tanned, curried, and finished	21	1,453	0.6	21,416	1.1	4,945	0.6
Gas, illuminating and heating	57	2,444	1.0	20,441	1.0	12,441	1.6
Rice, cleaning and polishing	14	337	0.1	20,261	1.0	3,095	0.4
Printing and publishing, book and job	661	3,818	1.6	19,871	1.0	12,093	1.6
Iron and steel, steel works and rolling mills	8	3,476	1.4	18,192	0.9	8,683	1.1
Canning and preserving, fish	57	2,989	1.2	17,483	0.9	7,069	0.9
Oil, not elsewhere specified	24	411	0.2	16,777	0.8	2,808	0.4
Food preparations, not elsewhere specified	172	1,049	0.4	16,633	0.8	4,380	0.6
Cloths, women's	165	3,124	1.3	14,246	0.7	5,716	0.8
Furniture	176	2,883	1.2	13,640	0.7	7,327	1.0
Bags, other than paper, not including bags made in textile mills	6	487	0.2	13,415	0.7	2,314	0.3
Engines, steam, gas and water	22	2,231	0.9	12,687	0.6	7,041	0.9
Condensed milk	11	544	0.2	11,968	0.6	1,897	0.2
Pickles, preserves and sauces	84	1,719	0.7	11,840	0.6	4,534	0.6
Paints	41	716	0.3	11,434	0.6	4,044	0.5
Liquors, malt	20	935	0.4	11,419	0.6	8,195	1.1
Clothing, men's	62	2,411	1.0	11,405	0.6	4,022	0.5
Electrical machinery, apparatus and supplies	73	2,008	0.8	11,368	0.6	6,338	0.8
Soap	27	608	0.2	11,295	0.6	2,983	0.4
Cement	8	1,316	0.5	11,258	0.6	7,144	0.9
Tobacco, cigars and cigarettes	243	1,677	0.7	10,767	0.5	5,969	0.8
Chemicals	49	1,466	0.6	10,539	0.5	4,409	0.6
Photographic materials	31	824	0.3	9,672	0.5	5,518	0.7
Agricultural implements	34	1,578	0.6	9,490	0.5	5,773	0.8
Liquors, vinous	287	1,600	0.2	9,142	0.5	5,227	0.7
Boxes, wooden packing, except cigar boxes	46	1,657	0.7	8,909	0.4	3,152	0.4
Automobile bodies and parts	253	1,681	0.7	7,735	0.4	4,443	0.6

Principal Industries, Ranked by Value of Products, 1919—Concluded.

Industry	Number of establishments	Wage earners		Value of products		Value added by manufacture	
		Average number	Per cent distribution	Amount (expressed in thousands)	Per cent distribution	Amount (expressed in thousands)	Per cent distribution
Copper, tin, and sheet-iron work	322	1,462	0.6	\$7,160	0.4	\$3,919	0.5
Ice, manufactured	117	1,535	0.6	7,112	0.4	4,911	0.6
Shipbuilding, wooden, including boat building	49	1,478	0.6	6,731	0.3	4,563	0.6
Explosives	3	611	0.3	6,408	0.3	3,555	0.5
Paper and wood pulp	7	806	0.3	5,805	0.3	2,398	0.3
Chocolate and cocoa products	4	252	0.1	5,663	0.3	1,857	0.2
Sulphuric, nitric and mixed acids	4	576	0.2	5,440	0.3	3,381	0.4
Brick and tile, terra-cotta, and fire-clay products	60	1,747	0.7	5,211	0.3	3,387	0.4
Iron and steel, wrought pipe	16	687	0.3	5,024	0.3	3,011	0.4
Boxes, paper and other, not elsewhere specified	31	1,253	0.5	4,988	0.3	2,317	0.3
Rubber tires, tubes and rubber goods, not elsewhere specified	20	513	0.2	4,941	0.2	2,942	0.4
Wirework, including wire rope and cable, not elsewhere specified	26	320	0.1	4,860	0.2	1,893	0.2
Structural ironwork, not made in steel works or rolling mills	58	742	0.3	4,834	0.2	2,208	0.3
Lithographing	11	696	0.3	4,583	0.2	2,716	0.4
Roofing materials	9	506	0.2	4,568	0.2	1,860	0.2
Cooperage, hogsheds and barrels	15	390	0.2	4,191	0.2	1,534	0.2
Mattresses and spring beds, not elsewhere specified	49	609	0.3	4,157	0.2	1,671	0.2
Cars and general shop construction and repairs by electric railroad companies	22	1,731	0.7	4,058	0.2	2,254	0.3
Liquors, distilled	3	234	0.1	3,968	0.2	1,526	0.2
Millinery and lace goods, not elsewhere specified	67	1,041	0.4	3,902	0.2	1,785	0.2
Cheese	48	210	0.1	3,792	0.2	538	0.1
Glass	7	1,333	0.5	3,761	0.2	2,435	0.3
Fertilizers	17	284	0.1	3,610	0.2	1,077	0.1
Mineral and soda waters	195	468	0.2	3,518	0.2	1,805	0.2
Pumps, steam and other power	11	406	0.2	3,419	0.2	1,907	0.3
Babbitt metal and solder	7	111	0.1	3,349	0.2	570	0.1
Brass, bronze and copper products	45	492	0.2	3,316	0.2	1,498	0.2
Boots and shoes	14	616	0.3	3,247	0.2	1,278	0.2
Knit goods	21	695	0.3	2,878	0.1	1,361	0.2
Awnings, tents and sails	47	327	0.1	2,866	0.1	1,117	0.2
Marble and stone work	128	530	0.2	2,830	0.1	1,769	0.2
Jewelry	88	650	0.3	2,555	0.1	1,699	0.2
Smelting, copper	3	289	0.1	2,532	0.1	794	0.1
Fur goods	33	325	0.1	2,515	0.1	1,143	0.2
Bookbinding and blank book making	40	623	0.3	2,463	0.1	1,576	0.2
Grease and tallow, not including lubricating greases	19	163	0.1	2,427	0.1	735	0.1
Patent medicines and compounds	90	276	0.1	2,383	0.1	1,382	0.2
Salt	24	446	0.2	2,286	0.1	1,201	0.2
Artificial stone products	114	608	0.3	2,254	0.1	1,399	0.2
Furnishing goods, men's	8	263	0.1	2,205	0.1	907	0.1
Shirts	18	530	0.2	2,172	0.1	846	0.1
Gloves and mittens, leather	27	665	0.3	2,019	0.1	1,193	0.2
All other industries ¹	1,592	18,539	7.6	239,880	12.1	55,369	7.3

¹Among the industries for which statistics can not be shown separately without the possibility of disclosing the operations of individual establishments are 5 having products in excess of some for which figures are shown in the table. These industries are as follows: "Cars, steam-railroad, not including operations of railroad companies;" "cotton goods;" "oil and cake, cottonseed;" "smelting and refining, lead;" and "sugar refining, not including beet sugar."

Manufactures—California.

Principal Industries in Cities of 50,000 Inhabitants or More, with Per Cent of Total for State, 1919.

City and industry	Value of products			
	Amount 1919	Per cent of total for the state	Increase ¹ over 1914	
			Amount	Per cent
BERKELEY				
Bread and other bakery products.....	\$1,212,840	2.5	\$739,951	156.5
Chemicals.....	1,168,263	11.1	(²)	(²)
Foundry and machine shop products.....	1,029,280	2.0	--72,445	--6.6
Printing and publishing, book and job.....	257,036	1.3	189,664	281.5
Printing and publishing, newspapers and periodicals.....	214,987	0.6	29,905	16.2
Canning and preserving fruits.....				
Druggists' preparations.....				
Engines, steam, gas and water.....				
Fertilizers.....				
Ink, printing.....				
Knit goods.....				
Leather, tanned, curried, and finished.....	(²)	(²)	(²)	(²)
Lumber, planing mill products, not including planing mills connected with sawmills.....				
Oil, vegetable and composite.....				
Paints.....				
Pumps, steam.....				
Soap.....				
LONG BEACH				
Canning and preserving, fish.....	1,183,597	6.8	(²)	(²)
Bread and other bakery products.....	555,065	1.1	310,588	127.0
Lumber, planing mill products, not including planing mills connected with sawmills.....	487,521	1.1	15,676	3.3
Automobile repairing.....	479,069	1.9	416,269	662.8
Automobile bodies and parts.....	259,009	3.3	(²)	(²)
Pickles and sauces.....				
Printing and publishing, newspapers and periodicals.....				
Shipbuilding, steel, new vessels.....	(²)	(²)	(²)	(²)
Woolen goods.....				
LOS ANGELES				
Slaughtering and meat packing.....	24,799,330	26.8	10,873,380	78.1
Flour mill and gristmill products.....	13,791,854	21.1	8,615,777	166.5
Foundry and machine shop products ³	11,815,564	22.7	6,975,319	144.1
Cars and general shop construction and repairs by steam railroad com- panies.....	10,513,840	25.1	6,572,196	166.7
Bread and other bakery products.....	10,492,324	21.4	5,677,233	117.9
Confectionery and ice cream.....	9,799,350	42.2	7,072,120	259.3
Printing and publishing, newspapers and periodicals.....	9,728,450	28.3	3,887,645	66.6
Lumber and planing mill products, not including planing mills connected with sawmills.....	9,251,981	21.6	773,195	9.1
Clothing, women's.....	8,386,445	58.9	7,458,005	803.3
Printing and publishing, book and job.....	6,566,063	33.0	3,699,824	129.0
Furniture.....	5,896,548	43.2	4,835,310	455.6
Automobile repairing.....	5,783,026	23.2	4,793,321	484.3
Canning and preserving, fruits and vegetables.....	5,710,296	3.0	4,340,738	316.9
Petroleum, refining.....	5,613,897	2.6	4,468,085	389.9
Canning and preserving, fish.....	5,613,331	32.1	4,542,102	424.0
Engines, steam, gas and water.....				
Gas, illuminating and heating.....	(²)	(²)	(²)	(²)
Shipbuilding, steel.....				
OAKLAND				
Shipbuilding, steel.....	45,271,236	25.3	(²)	(²)
Canning and preserving, fruits.....	11,285,387	5.9	8,151,497	260.1
Lumber, planing mill products, not including planing mills connected with sawmills.....	9,790,197	22.9	(²)	(²)
Electrical machinery, apparatus and supplies.....	2,999,849	26.4	(²)	(²)
Bread and other bakery products.....	2,775,396	5.7	1,281,007	85.7
Engines, steam, gas and water.....	2,645,208	20.8	1,126,654	74.2
Foundry and machine shop products ⁴	2,460,509	4.7	1,734,921	239.1

¹A minus sign (-) denotes decrease.²Figures can not be shown without disclosing individual operations.³Includes "iron and steel, tempering and welding."⁴Includes "iron and steel, welding."

Principal Industries in Cities of 50,000 Inhabitants or More, with Per Cent of Total for State, 1919—Concluded.

City and industry	Value of products			
	Amount 1919	Per cent of total for the state	Increase ¹ over 1914	
			Amount	Per cent
OAKLAND—Continued				
Printing and publishing, newspapers and periodicals.....	\$2,161,111	6.3	\$1,128,244	109.2
Automobiles.....				
Cars and general shop construction and repairs by steam railroad companies.....				
Cotton goods.....	(²)	(²)	(²)	(²)
Flour mill and gristmill products.....				
Gas, illuminating and heating.....				
Iron and steel, steel works and rolling mills.....				
Tinware, not elsewhere specified.....				
SACRAMENTO				
Canning and preserving, fruits and vegetables.....	8,061,266	4.2	6,053,205	301.4
Bread and other bakery products.....	1,426,170	2.9	838,823	142.8
Printing and publishing, newspapers and periodicals.....	1,143,913	3.3	332,443	41.0
Automobile repairing.....	767,415	3.1	651,404	561.5
Confectionery and ice cream.....	703,357	3.0	(²)	(²)
Butter.....				
Cars and general shop construction and repairs by steam-railroad companies.....				
Flour-mill and gristmill products.....	(²)	(²)	(²)	(²)
Iron and steel, steel works and rolling mills.....				
Liquors, malt.....				
Rice, cleaning and polishing.....				
SAN DIEGO				
Canning and preserving, fish.....	1,995,752	11.4	1,813,594	995.6
Bread and other bakery products.....	1,522,135	3.1	823,678	117.9
Printing and publishing, newspapers and periodicals.....	844,911	2.5	171,489	25.5
Automobile repairing.....	627,431	2.5	519,715	482.5
Confectionery and ice cream.....	539,703	2.3	162,353	43.0
Flour-mill and gristmill products.....				
Gas, illuminating and heating.....				
Rubber tires, tubes and rubber goods, not elsewhere specified.....				
Shipbuilding, concrete.....	(²)	(²)	(²)	(²)
Slaughtering and meat packing.....				
Soap.....				
SAN FRANCISCO				
Shipbuilding, including boat building.....	46,075,119	24.8	41,124,999	830.8
Slaughtering and meat packing.....	22,088,940	23.9	7,764,287	54.2
Coffee and spice, roasting and grinding.....	21,784,677	82.8	14,514,303	199.6
Automobiles.....	20,261,186	55.3	(²)	(²)
Bread and other bakery products.....	14,748,495	30.1	8,065,136	120.7
Bags, other than paper, not including bags made in textile mills.....	13,414,851	100.0	(²)	(²)
Foundry and machine-shop products ³	13,358,050	25.7	8,488,961	174.3
Printing and publishing, newspapers and periodicals.....	12,201,123	35.5	4,682,294	62.3
Canning and preserving, fruits and vegetables.....	11,899,240	6.3	5,509,533	86.2
Tinware, not elsewhere specified.....	10,558,932	39.4	(²)	(²)
Printing and publishing, book and job.....	9,500,458	47.8	4,172,137	78.3
Rice, cleaning and polishing.....	8,355,082	41.2	(²)	(²)
Clothing, men's.....	8,287,615	72.7	4,739,569	133.6
Tobacco, cigars and cigarettes.....	8,157,365	75.8	5,718,838	234.5
Confectionery and ice cream.....	7,229,611	31.1	4,604,902	175.4
Furniture.....	6,467,810	47.4	3,727,993	136.1
Leather, tanned, curried, and finished.....	6,431,576	30.0	2,994,600	87.1
Flour mill and gristmill products.....	5,735,767	8.8	2,620,011	84.1
Chocolate and cocoa products.....	5,662,682	100.0	(²)	(²)
Clothing, women's.....	5,589,618	39.2	3,864,416	224.0
Liquors, malt.....	5,577,145	48.8	1,625,683	41.1
Gas, illuminating and heating.....				
Oil, not elsewhere specified.....	(²)	(²)	(²)	(²)
Sugar, refining, not including beet sugar.....				

¹A minus sign (—) denotes decrease.²Figures can not be shown without disclosing individual operations.³Includes "iron and steel, welding."

Canning and Preserving in California—5 year Periods, 1909-1914-1919.

United States Census figures.

Large increases are shown in the value of the several products in 1919, as compared with 1914, canned salmon being the only instance of a decrease in this particular. With the exception of canned berries and salmon, and dried prunes and apricots, increases are shown in all instances for quantities.

Of the total value of all products of the industry in the state in 1919, canned fruits valued at \$84,676,590 represented 38.6 per cent, and dried fruits valued at \$77,078,878 represented 35.2 per cent. The corresponding percentages in 1914 were 25.9 per cent and 49.9 per cent, respectively. Large percentages of increase are shown for the several branches of the industry from 1914 to 1919, due largely to the increased prices prevailing in 1919. The total value of all products of the industry increased during this five-year period \$157,632,751 or 255.7 per cent.

Canned and Preserved Foods, Quantity and Value.

	1919	1914	1909
Total value	\$219,278,576	\$61,645,825	\$32,914,829
Canning and preserving, fruits and vegetables	\$189,955,631	\$54,551,091	\$28,931,279
Canning and preserving, fish	17,482,795	3,035,384	1,156,881
Pickles, preserves and sauces	11,840,150	4,059,350	2,826,669
Canned vegetables	\$23,055,338	\$6,855,055	\$3,470,621
Tomatoes—			
Cases	3,598,599	1,730,487	536,837
Value	\$10,378,611	\$3,122,532	\$1,120,632
Asparagus—			
Cases	994,669	620,859	296,388
Value	\$6,482,299	\$2,733,950	\$1,794,316
Beans—			
Cases	692,823	154,882	47,505
Value	\$1,477,460	\$275,807	\$87,099
Spinach—			
Cases	368,718	(*)	(*)
Value	\$1,306,312	(*)	(*)
Tomato paste—			
Cases	120,702	(*)	(*)
Value	\$659,040	(*)	(*)
Tomato pulp—			
Cases	158,972	(*)	(*)
Value	\$634,949	(*)	(*)
Peas—			
Cases	211,989	165,540	123,349
Value	\$559,300	\$317,676	\$250,624
Beets—			
Cases	80,533	(*)	(*)
Value	\$344,352	(*)	(*)
Sweet potatoes—			
Cases	52,077	(*)	(*)
Value	\$249,180	(*)	(*)
Pumpkin—			
Cases	38,465	9,944	10,941
Value	\$118,932	\$11,348	\$15,165
All other—			
Cases	409,683	119,621	64,480
Value	\$824,903	\$393,742	\$202,795
Dried vegetables:			
Pounds	4,516,008	(*)	(*)
Value	\$1,266,360	(*)	(*)

*In addition, canned fruits and vegetables to the value of \$1,017,358 and canned and cured fish to the value of \$698,086 were reported by establishments engaged primarily in other industries.

†Includes \$482,976 reported by establishments engaged primarily in other industries.

‡Included in "All other," to avoid disclosure of individual operations.

§Figures not available.

Canned and Preserved Foods, Quantity and Value—Concluded.

	1919	1914	1909
Canned fruits.....	\$84,676,590	\$15,994,119	\$7,248,342
Peaches—			
Cases.....	6,851,771	2,922,637	1,149,590
Value.....	\$42,272,876	\$8,685,831	\$3,013,203
Apricots—			
Cases.....	3,835,027	1,005,234	627,701
Value.....	\$24,602,707	\$2,963,672	\$1,819,553
Pears—			
Cases.....	1,033,375	692,782	433,796
Value.....	\$8,132,485	\$2,796,356	\$1,316,022
Cherries—			
Cases.....	610,314	131,252	224,084
Value.....	\$3,713,210	\$459,005	\$491,575
Plums—			
Cases.....	356,548	150,216	138,995
Value.....	\$1,526,262	\$247,505	\$230,384
Berries—			
Cases.....	153,492	165,198	95,092
Value.....	\$1,077,257	\$345,322	\$171,995
Prunes—			
Cases.....	87,653	(³)	(³)
Value.....	\$558,757	(³)	(³)
Apples—			
Cases.....	138,743	110,672	67,710
Value.....	\$487,847	\$214,021	\$136,855
All other—			
Cases.....	419,468	117,608	20,913
Value.....	\$2,305,189	\$282,407	\$68,750
Dried fruits.....	\$77,078,878	\$30,735,350	\$18,212,316
Raisins—			
Pounds.....	293,276,581	223,712,822	195,774,767
Value.....	\$35,541,862	\$13,681,048	\$6,912,533
Prunes—			
Pounds.....	114,235,605	123,586,570	118,917,876
Value.....	\$15,200,343	\$7,956,549	\$4,394,922
Peaches—			
Pounds.....	73,244,010	61,376,251	46,827,391
Value.....	\$12,069,926	\$2,888,962	\$2,422,043
Apricots—			
Pounds.....	23,944,612	39,266,294	29,205,569
Value.....	\$5,994,309	\$3,602,690	\$2,277,177
Figs—			
Pounds.....	15,923,116		
Value.....	\$2,785,281	(³)	(³)
Apples—			
Pounds.....	15,477,039	10,786,714	6,860,170
Value.....	\$2,630,300	\$663,673	\$481,173
All other—			
Pounds.....	17,152,427		
Value.....	\$2,856,857	\$1,942,428	\$1,724,468
Fish.....	\$16,111,686	\$3,015,347	\$1,156,881
Canned fish.....	\$13,473,211	\$2,455,851	\$626,208
Sardines—			
Cases.....	2,100,532	302,736	1,980,364
Value.....	\$7,541,285	\$368,420	\$238,607
Tuna—			
Cases.....	825,476	437,090	(¹)
Value.....	\$5,353,369	\$1,638,675	(¹)
Salmon—			
Cases.....	10,049	40,430	(¹)
Value.....	\$127,659	\$241,335	(¹)
All other—			
Cases.....	61,205	29,110	2,286,610
Value.....	\$450,898	\$207,421	\$387,601
Smoked and dried fish—			
Pounds.....	250,116	130,500	100,900
Value.....	\$52,616	\$16,312	\$14,680
Salted and pickled fish—			
Pounds.....	14,218,442	10,362,061	8,289,359
Value.....	\$2,585,859	\$543,184	\$515,993
Pickles, preserves and sauces, value.....	\$11,840,150	\$4,059,350	
All other by-products of fruits and vegetables, value.....	\$3,878,465	\$966,567	\$2,826,669
All other by-products of fish and oysters, value.....	\$1,371,109	\$20,037	

¹In addition, canned fruits and vegetables to the value of \$1,017,358 and canned and cured fish to the value of \$698,086 were reported by establishments engaged primarily in other industries.

²Includes \$452,976 reported by establishments engaged primarily in other industries.

³Included in "All other," to avoid disclosure of individual operations.

⁴Figures not available.

⁵Canned fish reported in pounds in 1909.

Encouragement of California Industries.

That the possibilities of the natural resources of the state were recognized by our legislature at an early date is evidenced by an act of 1863 by which premiums were offered for the encouragement of agriculture and manufactures in California aggregating \$116,400, which no doubt acted as an incentive to the individual producers and manufacturers of that period who were the pioneers of the industries that today are of such importance that California now ranks fourth in agriculture and holds an enviable position as a manufacturing state.

Very few people have any remembrance of this act, and its introduction at this time is to bring to their notice that from the very beginning our legislature worked for the growth and prosperity of California, and their farsightedness is evidenced by the preceding table of principal industries.

AN ACT

For the Encouragement of Agriculture and Manufactures in California.

(Approved April 25, 1863.)

The People of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. There shall be paid from any money in the treasury not otherwise appropriated, to the producer claiming a premium by virtue of the provisions of this act, the following sums for each of the articles herein enumerated, grown and manufactured in California:

For the first one hundred bags of sugar, containing one hundred pounds each, produced from sorghum, five hundred dollars. For the same quantity produced the next succeeding year, two hundred and fifty dollars. For the same quantity produced the second succeeding year, one hundred and fifty dollars. For the same quantity produced the third succeeding year, one hundred dollars.

For the same quantity of sugar produced from sugar cane, the same premiums, and upon the same conditions, shall be paid; and also for the same quantity produced from beet root, the same premium, upon the same conditions.

For the first two hundred barrels molasses manufactured from sorghum, two hundred dollars. For the first two hundred barrels manufactured from sugar cane, five hundred dollars.

For the first two hundred bales of flax of two hundred pounds each, one thousand dollars. For the same quantity produced in the first, second, and third succeeding years, three hundred dollars, two hundred dollars, and one hundred dollars, respectively. For the first one thousand bales of flax, of two hundred pounds each, two thousand dollars.

For the production of hemp, the same premiums as are awarded on flax.

For the first one hundred bales of cotton, of three hundred pounds each, three thousand dollars. For the same quantity produced in the first, second and third succeeding years, two thousand, one thousand, and five hundred dollars, respectively.

For the first two hundred bales of tobacco, one hundred pounds each, three hundred dollars. For the same quantity produced the first, second, and third succeeding years, two hundred and fifty dollars, two hundred

dollars, and one hundred and fifty dollars, respectively. For the first one thousand bales, of one hundred pounds each, one thousand dollars. For the first one hundred cases, of fifty pounds each, of manufactured tobacco, two hundred and fifty dollars. For the same quantity in the first, second, and third succeeding years, two hundred dollars, one hundred and fifty dollars, and one hundred dollars, respectively. For the first one thousand cases of manufactured tobacco, of fifty pounds each, one thousand dollars.

For the first one thousand bales of hops, of two hundred pounds each, one thousand dollars. For the same quantity, produced in the first, second, and third succeeding years, six hundred dollars, four hundred dollars and two hundred dollars, respectively.

For the first ten bales of raw silk, of one hundred pounds each, two thousand dollars. For the first one hundred bales of raw silk, of one hundred pounds each, five thousand dollars.

For the first one thousand pieces of cotton drilling, of forty yards each, two thousand dollars. For the first one thousand bales of cotton drilling, of sixteen hundred yards each, four thousand dollars.

For the first one thousand pieces of burlap, of forty yards each, suitable for grain sacks, two thousand dollars. For the first one thousand bales of the same quality and description, of sixteen hundred yards each, three thousand dollars. For the first one thousand pieces of burlap, of forty yards each, suitable for wool sacks, two thousand dollars. For the first one thousand bales, of sixteen hundred yards each, of same quality and description, two thousand dollars.

For the first one hundred pieces of hemp carpeting, colored, of forty yards each, two hundred dollars. For the first thousand pieces, of forty yards each, one thousand dollars.

For the first one hundred pieces of linen, of forty yards each, suitable for shirts, or miners' frocks, one thousand dollars. For the first one thousand pieces of same description, one thousand dollars.

For the first one hundred pieces of calico, of thirty yards each, five hundred dollars. For the first one thousand pieces of calico, of thirty yards each, one thousand dollars.

For the first one hundred pieces of cotton shirting, of forty yards each, one thousand dollars. For the first one thousand pieces of cotton shirting, of forty yards each, one thousand dollars.

For the first hundred pieces of cotton sheeting, of forty yards each, one thousand dollars. For the first one thousand pieces of cotton sheeting, of forty yards each, one thousand dollars.

For the first one thousand pieces, of forty yards each, of pilot cloths, broadcloths, tweeds, or cassimeres, exported from the state, on such specification, two thousand dollars. On the first, second, and third succeeding shipment, of the same quantity, fifteen hundred dollars, one thousand dollars, and five hundred dollars, respectively, on each specification.

For the first one hundred bales of blankets, of forty pairs each, exported from the state, one thousand dollars. For the first one thousand bales of blankets, of forty pairs each, exported from the state, two thousand dollars.

For the first one hundred pieces of ingrain carpet, of sixty yards each, two hundred dollars. For the first thousand pieces of ingrain carpet of sixty yards each, one thousand dollars. For the first one hundred pieces

of Brussels carpet, of sixty yards each, two hundred dollars. For the first one thousand pieces of Brussels carpet, of sixty yards each, one thousand dollars.

For the first one thousand pairs of wool socks, two hundred and fifty dollars. For the first one thousand dozen wool socks, five hundred dollars.

For the first one thousand pairs woolen drawers, three hundred dollars. For the first one thousand dozen pairs of woolen drawers, five hundred dollars.

For the first one thousand woolen undershirts, three hundred dollars. For the first one thousand dozen woolen undershirts, five hundred dollars.

For the first twenty-five bales cottonized flax, of one hundred pounds each, one thousand dollars. For the first one thousand bales of cottonized flax, of one hundred pounds each, one thousand dollars.

For the first one hundred cases of men's boots, of twelve pairs each, five hundred dollars. For the first one thousand cases of men's boots, of twelve pairs each, one thousand dollars.

For the first one hundred cases men's shoes, of twenty-four pairs each, five hundred dollars. For the first one thousand cases men's shoes, of twenty-four pairs each, one thousand dollars.

For the first one hundred cases women's shoes, of thirty-six pairs each, five hundred dollars. For the first one thousand cases of women's shoes, of thirty-six pairs each, one thousand dollars.

For the first one hundred cases children's shoes, of forty-eight pairs each, two hundred and fifty dollars. For the first three hundred cases children's shoes, of forty-eight pairs each, five hundred dollars.

For the first ten chests of tea, of twenty-five pounds each, one thousand dollars. For the first one hundred chests of tea, of fifty pounds each, two thousand dollars. And for the same quantity of the same article produced the first, second, and third succeeding years, fifteen hundred dollars, one thousand dollars, and five hundred dollars, respectively.

For the production of coffee, the same premium shall be awarded as on the production of tea.

For the first one hundred coils of assorted cordage, of sizes not less than one inch, and length not less than sixty fathoms, two hundred and fifty dollars. For the same tarred, five hundred dollars.

For the first ten barrels of tar, two hundred dollars. For the first one hundred barrels of tar, five hundred dollars.

For the first ten barrels of rosin, one hundred and fifty dollars. For the first one hundred barrels of rosin, three hundred dollars.

For the first ten barrels of pitch, one hundred and fifty dollars. For the first one hundred barrels of pitch, three hundred dollars.

For the first one hundred gallons of spirits of turpentine, two hundred and fifty dollars. For the first one thousand gallons of spirits of turpentine, five hundred dollars.

For the first one hundred reams of printing paper, manufactured from cotton, five hundred dollars. Manufactured from any other fibre or material, the same premium; and for the first one thousand reams of each manufactured, one thousand dollars.

For the first book, of not less than three hundred pages, on the mining and industrial resources of California, printed on California paper,

stitched with California thread, and bound in California skins and boards, five hundred dollars. For the second, of the same character and description, two hundred and fifty dollars. For the third, one hundred and fifty dollars.

For one thousand dozen of glass wine bottles, fifteen hundred dollars.

For the first one thousand cases of bottled beer, of two dozen each, exported and proved to withstand sea voyages and changes of climate, fifteen hundred dollars. And for the first, second and third succeeding shipment, one thousand dollars, seven hundred dollars and five hundred dollars, respectively.

For the first one hundred packages of linseed oil, of twenty gallons each, one thousand dollars.

For the first one hundred packages of cotton seed oil, of twenty gallons each, one thousand dollars.

For the first plantation of cotton, of not less than ten acres, in bearing of good staple, one thousand dollars. For the first fifty acres of cotton in bearing of good staple, two thousand dollars. For the first one hundred acres of cotton, in bearing of good staple, three thousand dollars. For the first plantation of tree cotton, of not less than ten acres in bearing of good staple, three thousand dollars.

For the first ten cases of indigo, of one hundred pounds each, one thousand dollars.

For the first one thousand pounds of rice, two hundred and fifty dollars; for the first five thousand pounds of rice, five hundred dollars; for the first ten thousand pounds of rice, one thousand dollars; and for the same quantity produced the first, second, and third succeeding years, the same premium shall be paid.

Sec. 2. The President of the State Agricultural Society; the President of the Agricultural, Horticultural and Mechanical Society of the Northern District; the President of the San Joaquin Valley Agricultural Society; the President of the Mechanical Institute in San Francisco, and the Governor of the State, who shall be President of the Board, shall constitute a Board of Judges, a majority of whom shall constitute a quorum for the transaction of all business, whose duty it shall be to examine and judge of the products herein mentioned, and award the premiums named to the parties entitled to them, according to the provisions of this act.

Sec. 3. No person exhibiting any article or articles named in this Act shall be entitled to a premium therefor unless the articles so exhibited be good and merchantable, and the best of the kind so exhibited. And no article produced or manufactured within any one year shall be exhibited for premium herein offered more than once, and such exhibition shall be accompanied by a statement, in detail, of the culture or manufacture, and cost, together with satisfactory proof that the article or articles exhibited have not been before exhibited for any such premium, and that the same was produced or raised, and manufactured within the State of California.

Sec. 4. The Judges shall fix upon the time and place of such exhibition of articles for premiums, but samples of all articles exhibited, or intended to be exhibited, within any given year, shall be exhibited by sample at the annual fair of each of the societies named in this Act within such year, or within the next succeeding year, and may receive such premiums from other societies as they may deem proper to offer, in accordance with the rules of such society.

Sec. 5. Upon the award of a premium to any person, the Judges shall certify the same to the Controller of the State; and upon the presentation of such certificate to the Controller, he shall draw his warrant for the amount named therein upon the State Treasurer, according to law.

AN ACT

Supplemental to an Act entitled an Act for the encouragement of Agriculture and Manufactures in California.

(Approved April 27, 1863.)

The People of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. Any person producing or manufacturing any one of the articles or things named in the Act to which this Act is supplemental in one-fourth or one-half the quantity named therein, and exhibiting the same in like manner and form, as specified in said Act, shall be entitled to one-fourth, or one-half the premium (as the case may be) offered in said Act for the production or manufacture of said article or thing, to be awarded by the Board of Judges therein named, and in accordance with the provisions of said Act; *provided, however,* that no person shall receive a premium, under this Act, for any article or thing, in any given year, when a premium has been claimed and awarded for the same kind of article or thing in the same year under the Act to which this Act is supplemental; and claims for premiums under said Act shall not be prejudiced by claims under this.

Sec. 2. This Act shall be in effect from and after its passage.

Premiums Awarded Under the Foregoing Law.

To Nash and Fogg, Stockton:	
For men's shoes	\$125 00
For men's boots	125 00
To Pioneer Paper Mills, San Francisco:	
For first 1,000 reams printing paper, manufactured from cotton	1,000 00
For first 100 reams printing paper, manufactured from cotton	500 00
To Pacific Glass Company, San Francisco:	
For 1,000 dozen wine bottles	1,500 00
To Jackson and Johnson, Sacramento County:	
For first ten acres of cotton	1,000 00
To J. W. Jacobson, Marysville:	
For first 1,000 gallons spirits of turpentine	500 00
For first 100 barrels rosin	370 00
For first ten barrels resin	150 00
To Thomas Edwards, Sacramento County:	
For first 100 bales tobacco	300 00
To Isaac Chase, Sacramento:	
For first two and one-half barrels tar	50 00
To Mission Woolen Mills, San Francisco:	
For first 100 bales blankets, 40 pairs each, exported	1,000 00
For first 1,000 pieces woolen cloth, exported	1,000 00
For first 250 pairs woolen drawers, exported	75 00
For first 250 pairs woolen undershirts, exported	75 00
George K. Porter:	
Premium on boots and shoes, April 22, 1865	1,000 00
Premium on boots, October 21, 1865	1,000 00
Daniel Flint:	
Premium on hops, December 22, 1865	250 00
Mathew Keller:	
Premium on cotton plantation, December 22, 1865	3,000 00
Total premiums	\$12,950 00

Fishcultural Operations in California.

The California Fish Commission was created by an act of the legislature entitled "An act to provide for the restoration and preservation of fish in the waters of the state," approved April 2, 1870.

The United States Commission of Fish and Fisheries was established by joint resolutions of Congress, approved February 9, 1871. California therefore, had an organized fish commission nearly a year before the Federal government took up the work of multiplying the food fishes and thereby increasing the food resources of the United States.

The object of the first endeavors of the California Fish Commission was the introduction and acclimatization of new species of food and game fishes. As eggs could be obtained more easily than adult fish, suitable hatcheries for the hatching of eggs became a necessity.

From small beginnings fishcultural operations have grown until California is a leader among the states in its output of trout and salmon. At the present time the state owns and operates 30 hatcheries and egg-collecting stations. Of this number, seven have been built within the last seven years. Each of the hatcheries is fully equipped and the largest one has a capacity of about 40,000,000 trout and salmon per year. Two railroad cars specially fitted for the transportation of eggs and fry are maintained and operated to distribute the output. At several of the hatcheries auto trucks are utilized for short hauls to and from the railroad station, and in some cases for planting. In the maintenance of these hatcheries and egg-collecting stations, it is necessary to employ during the summer season nearly 60 men.

Had it not been for the stocking of barren streams, almost all of the rivers and creeks now furnishing good trout fishing would be devoid of fish. Not only have barren streams been stocked so that a new source of sport and food is available, but the supply has been maintained by constant planting. Depletion is to be noted wherever anglers are abundant, and were it not for restocking, the supply in many places would have failed long ere this.

Sections of the state in the most remote recesses of the high Sierra, which but a few years ago could be reached only by pack train with the assistance of hardy mountain guides and days and often weeks of travel, are now reached in but a few hours from the main centers of population by automobiles, over some of the finest highways in the world. There can be but one result from such a condition of affairs, and that is the practical destruction of fishing in the majority of the waters of the state, unless the most stupendous efforts are put forth, and at once, to conserve our game fishery resources and to increase the extent of the operations of the fishcultural department. Every effort has been made to keep pace with the demands of the situation, but there is a limit set by the proportion of the financial income of the commission which can be devoted to fishculture.

CALIFORNIA FRESH FISHERY

Compiled from the reports of the Fish and Game

Species of fish	Del Norte, Humboldt	Mendocino, Sonoma, Lake	Marin	Solano, Yolo	Sacramento, San Joaquin	Chico, Tehama, Colusa, Butte	Contra Costa, Alameda
Albacore							
Anchovies							
Barracuda							
Bluefish							
Buccaccio		125					
Bonito							
Carp			67	18,274		42,172	34,970
Catfish		85,277		9,585		18,757	17,178
Chillipepper						18,018	
Cultus cod	7,293	14,524	785				
Flounders	12,150		531	2,005			9,148
Grayfish							1,743
Hake							
Halibut	30,740	48,667	2,041				
Hardhead				356		40,760	34,695
Herring	7,186		12,789				26,057
Kingfish							
Mackerel							
Mullet							
Perch	22,401	62	36,489				338
Pike				1,357	27	2,593	5,111
Pompano							
Rock bass							
Rockfish	21,304	9,243	190				
Sablefish							
Salmon	1,194,335	2,086,053	1,434	716,895	110,822	537,076	1,080,453
Sandabs							
Sardines			236				
Sculpin							
Sea bass, black							
Sea bass, white			8,785				280
Sea trout							
Shad				6,456		8,050	61,216
Shad-buck				37,845		24,155	156,897
Shad-roe				73,065		26,849	450,484
Sheepshead							
Skates						43,146	
Skipjack							
Smelt	57,914		14,493				9,377
Sole	86	53					
Splittail							
Striped bass			1,901	58,865	89	25,069	368,225
Stingaree							
Suckers						4,073	85
Surf fish							
Swordfish							
Tomcod							20
Trout, farm							
Trout, steelhead	3,605						
Tuna							
Tuna, bluefish							
Tuna, yellowfin							
Turbot			219				
Whitebait			1,743				
Whitefish							
Yellowtail							516
Miscellaneous	29	1,390		49			1,796
Croakers							
Total fish	1,357,103	2,245,394	81,703	924,963	110,938	803,327	2,258,937
Crustaceans:							
Crabs (dozen)	3,258	183	412				13
Shrimps			111,064				117,661
Spiny lobsters							
Mollusks:							
Abalones	3,578		405				
Clams, cockle	7,066	431	6,171				
Clams, mixed	14,167		42,806				2,125
Clams, Pismo							
Clams, softshell	656	7,436	37,131				81,189
Cuttlefish			63				
Mussels							749
Oysters, eastern (No.)			2,703,258				
Oysters, native			6,760				
Squid							
Miscellaneous:							
Terrapins (dozen)		5					
Turtles							
Scallops							

All amounts shown in pounds unless otherwise specified. Albacore and skipjack cleaned. All other fish in round.

PRODUCTS FOR 1921.

Commission, Department of Commercial Fisheries.

San Francisco, San Mateo.....	Santa Cruz.....	Monterey.....	San Luis Obispo, Santa Barbara, Ventura.....	Los Angeles.....	Orange.....	San Diego.....	Total.....	Mexican proright into California.....
175,255		1,482,869		11,499,958	6,753	3,767,817	15,274,528	2,199
71				10,438		278,319	1,946,881	
86	11,526	62,253	204,046	3,189,179	16,609	1,178,995	4,588,900	3,036,262
71,316	176,418	812,630	4,697				73,865	
	287	23	13,488	173,340	430	50,291	1,065,186	82,878
5,944							237,859	
							101,427	
							130,797	
25,288	110,402	82,928					236,636	
249,809	27,669	123,723		297	26	1,417	425,543	
218,108	39,331	2,971	2,951	5,048		640	292,883	773
83,807	774	585	800	18,106	5,235	428,283	539,333	
81,143	9,075						90,218	
67,164	2,745	11,115	265,828	1,222,114	118,241	713,669	2,482,324	1,313,433
							75,811	
494,513		1,300	279				542,124	
10,813	61,562	44,090	2,052	266,238	534	4,101	389,390	1,695
	1,394	280,198	73,627	2,331,006	32,686	295,702	2,914,613	60,646
				301		16,551	16,852	11,815
53,682	3,657	28,227	45	90,654	1,547	5,672	242,774	10,425
							9,088	
2,307	55	354	144	13,291	52	139	16,333	370
			396	221,415	31,088	102,803	355,702	8,156
686,564	225,824	686,661	71,318	1,053,753	42,323	560,172	3,357,352	46,723
388,055	624,623	9,878					1,022,556	
934,211	383,558	860,502					7,905,399	
683,828	82,128	5,824		12,213	18		784,011	
153,742	3,985,196	28,941,654	6,500	23,261,376	823,382	2,160,219	59,332,305	312
				45,433			58,068	
				27,092			87,196	40,235
30,823	15,213	705	3,496	1,659,218	5,569	285,320	2,060,619	490,107
30			54,706	1,300	6,210	1,222	8,925	9,968
17,870	10						93,602	
							218,897	
							550,358	
			501	3,554	67	19,803	23,925	
53,753	1,625	1,930		2,241	615		103,310	
	4,000			413,820	159	720,874	1,138,853	140
117,076	65,340	95,985	80,765	153,981	129,996	29,811	755,738	9,335
4,179,425	538,384	46,130	18,612	76,525	1,391	9,552	4,870,158	712
							13,168	
104,125		15		203		9,565	558,289	
							9,768	
							4,158	
				14,353		450	14,803	
39,434	2,325						41,779	
							3,605	
			26	520,853	5,935	857,925	1,384,739	168,106
				1,971,813			1,971,813	59,835
				1,200,600			1,200,600	37,014
							219	
3,486				540			5,229	
				22,585		5,514	28,639	800
				1,443,469	5,742	682,358	2,140,142	351,170
62,500	20,568	1,071,387	22,317	50,839	2,184	5,258	1,238,326	2,467
				69,626	8		69,634	295
8,994,237	6,394,689	34,653,937	836,491	50,945,095	1,237,353	12,261,123	123,105,290	5,745,871
							33,373	
29,364	137	6		1,335	26		909,844	30
678,752		1,006		155,310	6,325	126,106	334,271	943,547
			46,530					
		1,446,871	30,316				1,481,170	8,094
			276	83		235	14,262	
			579	155			59,832	
	1,362		201,354				202,716	
50,646							177,058	
7,361	9,213	39,281		348			56,266	
415	600	6,245	137	65			8,211	
783,670		985					3,487,913	
		262,086		44,027		126,446	6,760	
							432,559	
							5	
		75		160	61		296	2,275
			1,371				1,371	

Hatcheries and Egg-collecting Stations, 1870-1921.

Name	Location	Years of operation
Acclimatization Society Hatchery	City Hall, San Francisco	1870-1871
State Hatching House	University of California, Berkeley	1870-1877
Baird Fish Hatchery (U. S. Bureau of Fisheries)	McCloud River, Shasta County (Rebuilt)	1872 1881-1883 1888-1920
Clear Creek Experimental Hatchery	Clear Creek, Lake County	1873-1874
Frazier Hatchery	Squaw Creek, Nevada County	1875-1880
San Leandro Hatchery	San Leandro, Alameda County	1878-1883
Hurley Hatchery	Tahoe City, Placer County	1880-1888
Woodson Egg Collecting Station	Fort Bidwell	1881-1884
Shebley Hatchery	Shebley's Station, Nevada County	1883-1888
Phipps Hatchery	Lake Tahoe, El Dorado County	1884-1888
Hat Creek Hatchery	Carbon, Shasta County	1885-1888
Mount Shasta Hatchery	Sisson, Siskiyou County	1888
Tahoe Hatchery	Tahoe City, Placer County	1888-1891 1894-1920
Fort Gaston Fish Hatchery (U. S. Bureau of Fisheries)	Trinity River, Hoopa Indian Reservation, Humboldt County	1889-1898
Shovel Creek Egg Collecting Station	Klamath River, near Beswick, Siskiyou County	1889-1912
Glen Ellen Fish Hatchery (private hatchery controlled by state)	Glen Ellen, Sonoma County	1890-1891
Del Monte Fish Hatchery (private hatchery controlled by state)	Del Monte, Monterey County	1890-1891
Bear Valley Hatchery	Olma, Marin County	1891-1894
Alma Fish Hatchery (private hatchery controlled by state)	Alma, Santa Clara County	1892-1893
Korbel Fish Hatchery (U. S. Bureau of Fisheries)	Redwood Creek, Mad River, Humboldt County	1893-1897
Independence Lake Fish Hatchery and Egg Collecting Station	Independence Lake, Nevada County	1893-1894
Redwood Creek Egg Collecting Station (U. S. Bureau of Fisheries)	Redwood Creek, Humboldt County	1893-1897
Battle Creek Fish Hatchery	Battle Creek, Shasta County	1895
Wawona Hatchery	Wawona, Mariposa County	1895
Mount Tallac Hatchery	Taylor Creek, El Dorado County	1895-1899
Price Creek Hatchery	Price Creek, Grizzly Bluff, Humboldt County	1897-1916
Ukiah Hatchery	Ukiah, Mendocino County	1897
Mears Creek Egg Collecting Station	Near Sims, Shasta County	1898-1899
Hazel Creek Egg Collecting Station	Near Sims, Shasta County	1898-1899
Hornbrook Egg Collecting Station	Cottonwood Creek, Siskiyou County	1900
Campbell Creek	McCloud River, Shasta County	1901
Squaw Creek	McCloud River, Shasta County	1901
Howe Creek Egg Collecting Station	Eel River, Humboldt County	1902
Mill Creek Hatchery (U. S. Bureau of Fisheries operated by state)	Los Molinos, Tehama County	1902
California State Verdi Fish Hatchery	Verdi, Nevada State	1902-1905
Edgewood Experimental Station	Upper Shasta River, Siskiyou County	1906-1907
Snow Mountain Egg Collecting Station	Eel River, Mendocino County	1907
Shasta River Egg Collecting Station	Yreka, Siskiyou County	1907-1908
Bouldin Island Bass Hatchery (striped bass)	Bouldin Island, San Joaquin County	1907-1909
Glen Alpine Hatchery	Glen Alpine Springs, El Dorado County	1908-1913
Bogus Creek Egg Collecting Station	Klamath River, near Hornbrook, Siskiyou County	1910
Klamathon Egg Collecting Station	Hornbrook, Siskiyou County	1910
Sacramento Experimental Salmon Hatchery	Sacramento	1911-1913
Brookdale Hatchery (operated by county, 1905 to 1912)	Brookdale, Santa Cruz County (operated by state)	1912
Scott Creek Egg Collecting Station (operated by county, 1905 to 1912)	Scott Creek, Santa Cruz County	1912
Willow Creek Egg Collecting Station	Thrall, Siskiyou County	1912
Camp Creek Egg Collecting Station	Siskiyou County	1912
Bear Lake Fish Hatchery	Big Bear Lake, San Bernardino County	1914
Gottville Egg Collecting Station	Siskiyou County	1914
North Creek Egg Collecting Station	Big Bear Lake, San Bernardino County	1915
Burney Creek Egg Collecting Station	Near Burney, Shasta County, on Pit River	1915
Ward Canyon Egg Collecting Station	Copco, Siskiyou County	1915
Fort Seward Hatchery	Alderpoint, Humboldt County	1916
Marlette-Carson Hatchery	Carson City, Nevada (operated by California Fish and Game Commission)	1916-1917
Almanor Fish Hatchery	Almanor Dam, Plumas County	1916-1919
Yuba City Experimental Shad Hatchery	Yuba City, Sutter County	1916
Domingo Springs Hatchery	Chester, Plumas County	1916
Rae Lakes Egg Collecting Station	Rae Lakes, Fresno County	1917
Bryan's Rest Egg Collecting Station	Bryan's Rest, Humboldt County	1917
Mount Whitney Hatchery	Independence, Inyo County	1917
Yosemite Experimental Hatchery	Yosemite, Mariposa County	1918-1920
Cottonwood Lakes Egg Collecting Station	Cottonwood Lakes, Inyo County	1918
Clear Creek Hatchery	Westwood, Lassen County	1918
Feather River Experimental Hatchery	Grey Eagle Creek, Plumas County	1918

Hatcheries and Egg-collecting Stations, 1870-1921—Concluded.

Name	Location	Years of operation
North Creek Hatchery.....	Big Bear Lake, San Bernardino County.....	1919
Fall Creek Hatchery.....	Copco, Siskiyou County.....	1919
Kaweah Hatchery.....	Hammond on Kaweah River, Tulare County.....	1919
Metcalf Creek Egg Collecting Station.....	Big Bear Lake, San Bernardino County.....	1919
Bull Creek Egg Collecting Station.....	Dyerville, Humboldt County.....	1916
Grout Creek Egg Collecting Station.....	Big Bear Lake, San Bernardino County.....	1919
Warner Creek Egg Collecting Station.....	Plumas County.....	1920
Eel River Egg Collecting Station.....	Branscomb, Mendocino County.....	1920
New Tahoe Hatchery.....	Tahoe City, Placer County.....	1920
Feather River Hatchery.....	Johnsville, Plumas County.....	1921
San Joaquin Experimental Station.....	Auberry.....	1921

Fishing Industry.

California in 1921 leads the nation in quantity and value of sardine and tuna pack. Including the salmon brought to San Francisco from Alaskan waters for canning, the industry is valued at \$18,202,318. This does not include an immense amount of fish marketed fresh. The salmon pack for 1921 totaled 863,922 cases and 9820½ barrels. Codfish received from Alaska at San Francisco during the past few seasons: 1918, 1,863,000 fish; 1919, 1,766,000; 1920, 2,192,000; 1921, 1,062,000.

Six years ago, the sardine industry was in its infancy. In 1919, the pack in Maine exceeded that of California by 1,274,616 cases, and an increased value of \$1,733,554. The following year California packed 1,062,996 cases, with a canners' value of \$7,943,846, compared to Maine's pack of 1,877,757 cases, valued at \$7,435,056. The past year 118,517,992 pounds of sardines were taken from California waters, worth \$771,621 to the fisherman, to fill this immense cannery production.

The tuna canning industry, while only about half the size and value of the sardine industry, represents a value of over \$5,000,000 annually. The 1921 pack on the basis of halves ran: Standard white meat, 320,000 cases; blue-fin and yellow-fin, 45,000 cases; striped tuna, 24,000; tonno, 4000; a total of 393,000 cases, less than half the 1920 pack.

California's Game Refuges.

Sentiment favoring this means of conservation became crystalized in 1907, when an act providing for the establishment of state game preserves became law. The law provides that

"Any person, firm or corporation, owning and in possession of patented lands in the State of California, embracing an area of not less than one hundred and sixty acres, may transfer, by an instrument in writing, duly acknowledged before an officer authorized under the laws of this state to take acknowledgments, to the State of California, the right to preserve and protect all wild game on the land described therein for a period of not less than five years."

In 1913 a change was made in this law, which made it more effective, the time limit being extended to cover a period of ten years instead of five. Advantage has been taken of this law in only a few instances. At present there are but three state game preserves. One is situated on the land of Mr. Bryan in Monterey and San Benito counties, and the other two are located near each other in Santa Barbara County. Too often applicants attempting to make use of the law show a desire to preserve areas for selfish gain, and not for the benefit of the game itself.

Unfortunately no additional refuges were created until 1909, when the Pinnacles National Monument, situated in San Benito and Monterey counties, was made a game refuge.

A large area within the Cleveland National Forest in Southern California was made a refuge in 1913. In 1915 there was added an area in the California Redwood Park, in Santa Cruz County, commonly known as the Big Basin, a portion of the Trinity National Forest, in Trinity County, and a large part of the Angeles National Forest, in Los Angeles and San Bernardino counties, the Trinity refuge comprising 64,000 acres and the Angeles 600,740 acres. Both refuges have been increased in size since their creation. In the same year the areas covered by the Trinity and Los Angeles forests were included in the Districting Act, so that legally these refuges are known as fish and game districts. A special law prohibits hunting within the fish and game districts specified as game refuges.

In 1917 the legislature set aside 16 large areas within the national forests as game refuges. These refuges are scattered from Siskiyou to San Diego County.

The selection of the refuges was made possible through the cooperation of the United States Forest Service.

The situations were chosen with reference to the kinds of game to be found; whether both summer and winter range was furnished; the food supply, and the ease of administration. Particular attention was given the boundaries, the attempt being made to use natural boundaries such as ridges and creeks rather than artificial section and township lines recognized with difficulty by the hunter. The legislators were unanimous in carrying out the recommendations.

Three additional areas were created by the 1919 legislature, and one by the 1921 legislature.

Up to the present time, therefore, the state has set aside 28 game refuges and three game preserves, comprising nearly 2,000,000 acres. These are so situated that they form a chain of refuges, properly spaced, extending from the Oregon line to the Mexican border.

It has been surprising to see how quickly sentiment has come to favor the refuges established. One would have thought that a great deal of complaint would have emanated from hunters when such large areas were selected in some of the best hunting grounds of the state in 1917. The fact is that many who did not favor the refuges when first created now are enthusiastic supporters of the policy. The value of the refuge has been demonstrated to the most skeptical.

Federal Bird Reservations.

Beginning with the presidency of Theodore Roosevelt, considerable interest was taken in the setting aside of notable breeding areas of waterfowl. The Klamath Lake Reservation was created in 1908; East Park and the Farallon Island Reservation in 1911, and the Goat Island Reservation in 1916.

Unfortunately, conditions in the best of these reservations, the Klamath Lake Reservation, are far from satisfactory. As a result of continued endeavor on the part of land promoters, Lower Klamath Lake is being drained, leaving large areas of alkali and mud flats which neither benefit the settlers adjoining the lake nor furnish additional land suitable for agriculture. Drainage has allowed the starting of large tule fires which, in addition to the lack of water, has rendered large areas unfit for occupation by birds. Unless a change in policy is made in the near future, this valuable reservation for wildfowl is seriously jeopardized. The Farallon Island Reservation forms a splendid sanctuary for murrees and other sea birds.

In several cases wardens have been located near refuges in order that they might be well patrolled and in other instances part-time men have been stationed within refuges during the open season to prevent poaching. Augmented patrol in the refuges is planned.

The control of predatory animals within a refuge is largely accomplished by issuing special permits to hunters and trappers making application. In addition, a state mountain lion hunter is retained whose duty it is to go from one refuge to another with his well trained dogs and reduce the numbers of wildcats and mountain lions. In 1920 Mr. Bruce secured 30 lions, a large percentage of which were killed within the boundaries of refuges. Five refuges and two national parks have thus far received a visit from Mr. Bruce and his lion dogs.

The greatest need now is the careful patrol of the present refuges and an effort to gain maximum efficiency; also the setting aside of refuges for the small herds of elk and antelope still found in the state. The herd of elk in Kern County will continue to be a problem because of their depredations until given a fenced refuge. The area to the south of Lower Klamath Lake, where the largest band of prong-horned antelope is found, should constitute a game refuge.

Another important consideration is whether or not increased opportunity should be afforded the recreationist within game refuges. At first thought it would appear that the game would benefit most by the lack of intrusion on the part of the vacationist, but there is another side. The efficiency of the game refuge is largely dependent upon the public sentiment of neighboring communities, and this is dependent in turn upon the knowledge and interest of the individuals. Public interest is a necessity and for this reason the legitimate use of the refuge for recreation purposes will in the end benefit game conservation.

California's Game Sanctuaries.

California is assuring a perpetual supply of game by setting aside areas where no hunting is allowed and where game is allowed to breed unmolested. The state is responsible for the creation of most of them, the Federal government for others. Certain areas known as game refuges have been set aside by legislative enactment. Others known as state game preserves have been created by the Fish and Game Commission after the owner of the property has ceded all hunting privileges to the state for a period of not less than ten years. The Federal government has set aside three bird reservations and protects all of the wild life within the national parks and national monuments. As a consequence game is now absolutely protected on nearly 3,000,000 acres within the State of California, an area roughly equivalent to 3 per cent of the total area of the state.

Game Refuges.

Name	County	Area, acres	Established
1A.....	Siskiyou.....	22,540	1917
1B.....	Modoc.....	83,060	1917
1C.....	Modoc.....	21,760	1917
1D.....	Trinity.....	82,560	1915
1E.....	Shasta.....	37,760	1917
1F.....	Lassen.....	46,720	1917
1G.....	Tehama.....	33,920	1917
1H.....	Plumas.....	37,760	1917
1I.....	El Dorado, Calaveras	67,840	1917
1J.....	Amador.....	58,320	1917
1K.....	Fresno.....	34,240	1917
1L.....	Tulare and Kern.....	35,520	1917
1M.....	Kern.....	81,920	1919
2A.....	Merced, Lake and Butte	35,200	1917
3A.....	Santa Cruz.....	4,480	1915
3B.....	San Benito and Monterey	14,080	1909
3C.....	Santa Barbara.....	41,600	1917
3D.....	Ventura.....	125,760	1917
3E.....	Santa Clara.....	3,600	1919
3F.....	Contra Costa.....	10,240	1921
4A.....	Los Angeles.....	293,120	1915
4B.....	Los Angeles.....	325,120	1915
4C.....	Orange.....	99,840	1913
4D.....	Riverside.....	69,120	1917
4E.....	San Diego.....	51,840	1917
4F.....	Los Angeles and Kern	46,080	1919
Mount Tamalpais	Marin.....	28,000	1917
Lake Merritt.....	Alameda County (Oakland)		1869
		1,792,000	-----

State Game Preserves.

No. 5.....	Monterey and San Benito.....	8,570	1916
No. 6.....	Santa Barbara.....	42,000	1918
No. 7.....	Santa Barbara.....		
		50,570	-----

Federal Bird Reservations.

Klamath Lake.....	Siskiyou.....	*22,400	1908
Clear Lake.....	Modoc.....	*1,600	1911
Farallon Islands.....	Pacific Ocean, near San Francisco		1909
		24,000	-----

*Approximate.

PART VIII.

MINERALS, HIGHWAYS, MOTOR VEHICLES.

California Mineral Production in 1921.*

The total value of the mineral production of California for the year 1921 is conservatively estimated to have been approximately \$244,856,910. This is, in part, detailed in the tabulation below; but, as there are more than 50 mineral substances on California's commercial list, it is impractical to obtain definite figures on other than the more important items.

This estimated total of \$244,856,910 is an increase of \$2,757,243 over the value of the 1920 production, and is due mainly to increases by petroleum, gold and silver. Preliminary reports indicate a record yield by petroleum for the year 1921. The total would have been even greater than here shown but for the strike of employees in the San Joaquin Valley fields during September and October. For the first eight months of 1921 the yield averaged 10,100,000 barrels per month. The increase in total value for the year was not in the same proportion as the increase in quantity, because the price was somewhat lower (\$1.60 per barrel against \$1.73) than that for 1920. The figure here used is the average of quotations for 24 degrees gravity oil in the San Joaquin fields during 1921.

Gold mining in California has apparently passed the low point in its career, due to the war-time and post-war economic situation, and is now on the up-grade again. Reports indicate a revival in many gold districts, and the output for the year, based on 11 months' shipments, is estimated at \$15,800,000, or an increase of approximately \$1,500,000. Silver is estimated at \$3,500,000 (at \$1 per ounce), the greatest of any year (except one, 1884) in California. This is due to the persistence of high-grade ore shipments from the California Rand mine and adjacent leases near Randsburg. Copper, though decreasing about one-sixth in quantity, shows only a little over one-half the value of the previous year, due to the drop in price from an average of 18.4 cents to 12.6 cents per pound. Lead, zinc and quicksilver all show material decreases, both in quantity and in value per unit. The output of quicksilver was the lowest in the history of that metal in California, and is due directly to the competition of cheaper foreign metal imported from Spain and Italy, against which we have only a negligible tariff protection. Magnesite shows a decrease of about 25 per cent in quantity. The conditions at present confronting the domestic producers of quicksilver, magnesite, tungsten, chromite, manganese and tale (to mention only those minerals in which California

*From report of state mineralogist.

is especially interested), make it necessary that a tariff should be placed on foreign importations if our domestic output of these ores is to continue.

The structural group (brick, cement, building stone, crushed rock, etc.) had some "ups and downs" during the past year, but the prospects are for increased activity during 1922. Building work was tied up for some weeks in 1921 in the San Francisco district owing to strikes, but other parts of the state were not affected in the same degree. Active interest has been shown in the demand for many of the "industrial" minerals and salines.

The estimated quantities and values for 1921 are tabulated as follows:

\$15,800,000	gold.
3,500,000 (3,500,000 fine ounces)	silver.
1,477,710 (11,700,000 pounds)	copper.
36,880 (800,000 pounds)	lead.
43,520 (850,000 pounds)	zinc.
113,800 (2400 flasks)	quicksilver.
45,000 (500 fine ounces)	platinum.
182,400,000 (114,000,000 barrels)	petroleum.
3,900,000 (60,000,000 M. cubic feet)	natural gas.
540,000 (54,000 tons, crude)	magnesite.
27,000,000	brick, cement, building stone, crushed rock, etc.
3,500,000	miscellaneous "industrial" minerals.
6,500,000	salines (including borax, potash, salt, soda).
<hr/>	
\$244,856,910	total.

Coal.

Coal has been produced in California since as early as 1860, and until the development of crude oil was an important factor in the mineral industry of the state. As most of it is lignite, the quality is generally poor as compared with other coals on the Pacific Coast markets. However, in competition with fuel oil, coal of all grades has had to take second place. Besides the counties noted below as showing a commercial production, workable bodies of coal are also known in several others, including Alameda, Amador, Contra Costa, Mendocino, Shasta and Siskiyou. Some coal has also been produced, in the past, in Fresno and Orange counties.

During 1921, production was reported from Monterey and Riverside counties totaling 12,467 tons, valued at \$63,578. The increase over the 1920 figures is due to the reopening of the Stone Canyon Mine in Monterey County, a portion of the tonnage there having been utilized in the reopening before commercial shipments were resumed in the latter part of the year. The Riverside County output was utilized only for camp purposes at the mine.

Tests have been made by the U. S. Geological Survey on some of the Ione, Amador County, lignite (because of its resemblance to some oil shales), to determine if it will yield oil on destructive distillation. Up to 62 gallons of oil per ton was obtained and also 18 pounds of ammonium sulphate as a by-product. The latter is valuable as a fertilizer. Analyses showed: 16% fixed carbon, 31% volatile matter, 46% moisture, 7% ash; and the heating value is 6060 British thermal units.

The very considerable output of coal in the years previous to 1883 was almost entirely from the Mount Diablo district, Contra Costa County. Later, the Tesla Mine in Corral Hollow, Alameda County, was an important producer for a few years. The following tabulation gives the annual tonnages and values, according to available records:

Coal Output and Value by Years.

Year	Tons	Value	Year	Tons	Value
1861	6,620	\$38,065	1893	72,603	\$167,555
1862	23,400	134,550	1894	59,887	139,862
1863	43,200	248,400	1895	79,858	193,790
1864	50,700	291,525	1896	70,649	161,331
1865	60,530	348,048	1897	87,449	196,255
1866	84,020	483,115	1898	143,045	337,475
1867	124,690	716,968	1899	160,941	420,109
1868	143,676	826,137	1900	176,956	535,531
1869	157,234	904,096	1901	150,724	401,772
1870	141,890	815,868	1902	88,460	248,622
1871	152,493	876,835	1903	93,026	265,383
1872	190,859	1,097,439	1904	79,062	376,494
1873	186,611	1,073,013	1905	46,500	144,500
1874	215,352	1,238,274	1906	24,850	61,600
1875	166,638	958,169	1907	23,734	55,849
1876	128,049	736,282	1908	18,496	55,503
1877	107,789	619,787	1909	49,389	216,913
1878	134,237	771,863	1910	11,033	23,484
1879	147,879	850,304	1911	11,047	18,297
1880	236,950	1,362,463	1912	14,484	39,092
1881	140,000	805,000	1913	25,198	85,809
1882	112,592	647,404	1914	11,859	28,806
1883	76,162	380,810	1915	10,299	26,662
1884	77,485	309,950	1916	4,037	7,030
1885	71,615	286,460	1917	3,527	7,691
1886	100,000	300,000	1918	6,343	16,149
1887	50,000	150,000	1919	2,983	8,203
1888	95,000	380,000	1920	2,078	5,450
1889	121,280	288,232	1921	12,467	63,578
1890	110,711	283,019			
1891	93,301	204,902			
1892	85,178	209,711			
			Totals	5,177,125	\$22,945,488

The tonnages in the above table for the years 1861-1886 (incl.) are taken from the U. S. Geological Survey, "Mineral Resources of the U. S., 1910," page 107. The values assigned for the years previous to 1883 are those given by W. A. Good-year (Mineral Res., 1882, pp. 93-94), being an average of \$5.75 per ton. From 1887 to date the figures are those of the California State Mining Bureau.

Petroleum.

As an illustration of the enormous difficulties and expense sometimes entailed by companies in their explorations for oil and to dissolve any illusion that may be in the minds of laymen that wealth is easily acquired by investments in oil stock, the following history of a "Hole Deep and Dry" is copied from a Standard Oil Bulletin.

A HOLE DEEP AND DRY.

Twenty miles north of the Standard Oil Company's Main Camp, Lost Hills—McKittrick Division, Kern County, California, the company recently ceased drilling what it had hoped would prove to be an oil-well. This hole stands as the deepest to date in California.

There is a great deal more to this business of finding oil than the simple matter of drilling a hole in the earth and then standing by to see the oil rush upward with a gratifying roar. To the company this great venture only proved the unlikelihood of oil being obtained in the immediate neighborhood of the hole. To the general public, were it in possession of the facts, it would show to what remarkable ends the seeker of petroleum sometimes goes in effort to increase production, and to extend the limits of what is known as "proven territory." This well was drilled to a depth of 6602 feet; then the company decided to quit. Follows a history of the "well," as narrated by E. M. Delaney, Superintendent of our Lost Hills Division.

Before we could start drilling (the well was spudded in during May, 1919) it was necessary to establish a camp large enough to accommodate about 20 men. The next problem was the water supply and fuel oil; we drilled a water well 550 feet deep near the camp-site which furnished an ample supply of water for the boilers and drilling, but before the water could be used in the boilers it had to be treated. Water for domestic purposes was hauled by truck from Lost Hills throughout the entire period of drilling operations. To secure fuel oil for the boilers we laid four and a half miles of 4-inch pipe-line. An average of 40 barrels of 18° gravity crude oil was used daily.

On account of hard rock overlying this territory cable tools were used to drill an 18-inch hole to a depth of 210 feet, 75 feet of which was solid rock. At this depth a rotary was installed and drilled an 18-inch hole to a depth of 1691 feet, where the 12½-inch casing was landed and cemented. We used 11¼ tons of oil-well cement and 1500 pounds of hydraulic lime. After standing cemented 14 days, tested 12½-inch casing for water shut-off. This tested O. K. Drilled ahead with rotary, using 6-inch drill pipe and 12-inch fishtail bit to 1875 feet. At this depth the 8¼-inch casing, with 100 feet of perforated casing, was set in hole to test formations below 12½-inch casing. In tests made found only a very small showing of 15.5 gravity oil. After satisfactory tests were made at this depth and formation proved non-productive, pulled 8¼-inch casing out, drilled ahead, using 6-inch drill-pipe and 12-inch fishtail bit, to a depth of 3500 feet, where the ten-inch casing was landed without being cemented. At this depth cable tools were used again; put in 3500 feet of 8¼-inch casing and carried to a depth of 3695 feet, where 8¼-inch casing was cemented, using four tons of oil-well cement. After standing cemented 14 days, cleaned out cement below 8¼-inch casing and tested for water shut-off. Water was not shut off. Shot 8¼-inch casing off and pulled it out. Put 8¼-inch casing back in and sidetracked casing left in hole, and carried 8¼-inch casing this time to 3694 feet and cemented, using four tons of oil-well cement. After standing cemented 14 days, to allow the cement to harden, tested 8¼-inch casing for water shut-off. Water was shut off. Put 3694 feet of 6¼-inch casing in hole and carried it to a depth of 4031 feet. While making a test of formation at this depth for oil, after perforating and bailing hole, froze 6¼-inch casing. After bailing water down 3000 feet hole showed a very little oil. Cut off 6¼-inch casing at 3650 feet and pulled it out. Ripped 8¼-inch casing off at 3535 feet and pulled it out. After sidetracking top of 8¼-inch casing with cable tools, installed rotary using 6-inch drill-pipe and 10-inch fishtail bit. Drilled ahead to a depth of 4080 feet and set in an 8¼-inch liner at 4080 feet to hold junk back. Drilling ahead through 8¼-inch liner, using 4-inch drill-pipe and 8-inch fishtail bit to a depth of 5327 feet, where the 6¼-inch casing was landed with a Texas boot on top and 5 feet of perforations at 4180 feet, where 3½ tons of oil-well cement was pumped through and back of 6¼-inch casing. After this done, drilled ahead, using rotary with 3-inch drill-pipe and 5 5-8-inch fishtail bit, drilling through 6¼-inch casing to a depth of 6602 feet. The formation of this well was blue shale with a great number of hard shells to a depth of 5327 feet; from this depth to 6602 feet was hard brown shale, except hard shells at different intervals

This is the drilling history of this well, except the many long and expensive jobs which usually occur while drilling in hard formation. After drilling to this great depth and not encountering any oil showings below where the 6 $\frac{1}{4}$ -inch casing was landed at 5327 feet, it was decided to abandon the lower portion of hole and test out formation back of 6 $\frac{1}{4}$ -inch casing, which was done by pumping 15 tons of oil-well cement through 3-inch drill-pipe and filling hole up to 4773 feet. After this was done, the 6 $\frac{1}{4}$ -inch casing was perforated and the brown shale showings were tested out, which again proved to be non-productive.

In abandoning this well all necessary shots have been placed, hole bridged and cement plugs put in and casing pulled out up to the present depth of 2100 feet in the 10-inch hole. After abandonment of this well is completed, we will take down derrick, boilers and camp buildings, and take up pipe-lines, and move the material to Lost Hills yard.

TOTAL PRODUCTION OF CRUDE OIL IN CALIFORNIA.

From the Beginning of the Industry to December 31, 1921, by Fields—in Barrels (42 U. S. Gallons)

Note.—The production figures in the tabulation below give the crude oil production of each field for each year since the beginning of the industry in the State. It is a history in figures of California's crude oil production and field-development. "Whittier-Fullerton" includes all southern California fields except as shown under separate headings.

Year	Kern River	McKittrick	Midway	Sunset	Coalinga	Santa Maria-Lompoc	Summerland	Newhall and Ventura Co.	Los Angeles and Salt Lake	Whittier-Fullerton	East Hills-Balridge	Miscellaneous	Total
Prior								175,000					175,000
1876								12,000					12,000
1877								12,000					12,000
1878								13,227					13,227
1879								13,354					13,354
1880								40,352					40,352
1881								128,690					128,690
1882								142,857					142,857
1883								292,000					292,000
1884								325,000					325,000
1885								377,145					377,145
1886								690,353		Early production included under Newhall			690,353
1887								303,250		and Ventura County			303,250
1888								307,360					307,360
1889								323,600					323,600
1890								385,049					385,049
1891								470,170					470,170
1892								570,469	196,094				766,563
1893								749,695	902,898				1,652,593
1894					14,119		16,904	374,624	902,898				1,245,339
1895					70,140		39,792	298,896	1,064,138				1,257,780
1896					154,000		130,136	691,135	1,126,000	12,000			1,911,560
1897		10,000			763,871		132,217	763,871	1,126,000	60,000			2,219,088
1898		15,000			439,372		208,370	743,998	1,032,036	217,359			2,277,875
1899		80,000			547,960		183,486	628,774	1,830,000	511,598			4,171,979
1900		430,450			525,433		203,616	496,946	1,830,000	753,198			7,103,315
1901	826,775	80,000		4,235	571,233		136,252	696,493	2,027,000	1,103,793		3,670	14,396,910
1902	3,278,840	430,450		3,048	571,233	94,188	131,125	682,185	783,765	2,305,613		3,670	24,334,431
1903	8,988,046	619,296		3,048	2,138,658	204,890	131,125	682,185	783,765	2,305,613		3,670	21,348,694
1904	16,342,099	1,353,206		27,305	5,097,853	700,450	120,300	650,779	1,241,304	2,224,350		39,392	31,298,041
1905	17,236,240	1,856,225		910	8,882,125	3,402,800	96,871	476,898	2,675,768	2,118,312		29,650	32,653,229
1906	12,855,166	1,373,050	18,530	419,212	8,401,105	4,799,411	72,810	404,379	2,484,512	2,484,512		69,000	40,102,512
1907	12,346,014	2,415,840	11,800	704,895	8,996,268	8,240,236	69,060	498,015	3,372,465	3,294,206		125,475	45,396,737
1908	13,803,579	3,076,300	434,578	1,463,510	10,725,795	8,690,350	67,862	498,015	5,138,959	4,273,314			45,396,737

1909	14,508,242	5,807,360	2,234,455	1,999,701	15,406,619	8,017,455	66,338	516,628	4,350,898	5,157,252	*	126,775	58,191,723
1910	14,776,435	5,471,613	11,174,207	9,218,904	18,646,570	7,607,830	74,725	652,575	3,729,618	6,281,221	4,900	58,970	77,697,568
1911	14,078,890	5,477,532	21,584,602	5,559,069	18,311,251	7,465,074	71,255	661,785	3,223,661	7,081,165	168,410	61,350	83,744,044
1912	12,446,445	5,094,465	25,948,980	5,590,824	19,546,122	6,801,966	65,715	859,885	3,073,427	7,919,779	2,680,961	45,870	90,074,439
1913	9,980,940	4,496,842	33,040,129	5,984,651	18,604,626	5,817,711	62,406	1,022,052	2,898,846	10,657,053	5,274,553	27,375	97,867,184
1914	7,030,545	3,820,857	37,479,228	12,546,615	15,925,887	4,303,080	55,743	968,421	2,504,475	14,130,548	4,830,921	27,375	103,623,695
1915	8,034,974	3,552,801	33,311,486	6,006,607	13,548,159	4,536,840	53,000	1,036,305	2,110,133	13,030,549	4,318,550	27,375	89,566,779
1916	8,402,525	3,250,644	32,156,818	6,768,658	14,381,493	4,422,410	56,775	1,122,033	1,721,453	14,679,672	4,852,431	27,450	91,822,362
1917	8,495,610	3,252,544	29,487,812	7,072,233	15,938,543	5,798,070	56,570	1,186,407	1,501,799	18,155,440	6,295,329	27,375	97,267,832
1918	7,921,515	3,050,627	27,439,993	6,608,940	16,283,066	7,143,750	54,613	1,386,518	1,397,781	24,903,613	5,420,079	27,375	101,637,870
1919	7,563,025	2,810,848	26,414,067	5,589,885	16,385,610	6,030,910	53,680	1,792,465	1,341,415	28,657,683	4,554,821	27,375	101,221,784
1920	7,456,515	2,607,240	32,463,259	5,423,781	15,464,198	5,928,060	54,910	2,122,449	1,311,264	28,694,163	4,139,767	25,610	105,721,186
1921	6,715,680	2,056,101	42,257,775	4,613,965	12,340,637	5,563,324	54,155	2,375,479	1,344,926	34,242,566	3,261,281	24,035	114,849,924
Total	228,301,945	62,639,577	355,673,131	86,990,658	257,346,242	105,586,805	2,390,692	28,874,428	56,186,438	232,899,351	45,802,003	1,090,088	1,463,781,378

*Indicates first well.

Proven Territory in California.

In the accompanying tabulation the proven area of the California oil-fields is shown as 97,255 acres, equivalent to 151.91 square miles. In determining the figures, the boundary lines of the proven area are drawn approximately 250 feet outside producing wells. In case of outlying single wells the field is credited with about 15 acres.

The figures therefore represent the actual proven area, and give no consideration to territory that is generally regarded as proven, but is not fully drilled. For instance, large areas of undrilled territory in the Buena Vista Hills, although regarded as proven, are not included in the following tabulation.

The proven acreage as shown is therefore low as compared with figures made by others.

Total Production, Area and Production Per Acre of California Oil Fields to December 31, 1921.

Field	Proven Acreage Dec. 31, 1921	Total production to Dec. 31, 1921 (Barrels)	Total barrels per acre to Dec. 31, 1921
Kern River	8,045	228,301,945	28,378
McKittrick	1,685	62,639,577	37,175
Midway-Sunset	42,709	442,663,789	10,365
Lost Hills-Belridge	5,077	45,802,003	9,021
Coalinga	15,297	257,346,242	16,823
Lompoc and Santa Maria	8,409	105,586,805	12,556
Ventura County and Newhall	5,068	28,874,428	5,697
Los Angeles and Salt Lake	2,700	56,186,458	20,810
Whittier-Fullerton	7,835	232,899,351	29,726
Summerland	230	2,390,692	10,394
Miscellaneous	*200	1,050,088	5,450
Total	97,255	1,463,781,378	15,051

*Estimated.

CRUDE OIL PRICES AT THE WELL.

SAN FRANCISCO, CAL., February 16, 1922.

Effective August 3, 1921, the following are the current prices offered by Standard Oil Company for crude oil at the well:

San Joaquin Valley and Whittier-Fullerton Fields.

	Per Barrel
14° to and including 17.9° gravity	\$1 10
18° to and including 18.9° gravity	1 11
19° to and including 19.9° gravity	1 13
20° to and including 20.9° gravity	1 16
21° to and including 21.9° gravity	1 20
22° to and including 22.9° gravity	1 25
23° to and including 23.9° gravity	1 31
24° to and including 24.9° gravity	1 38
25° to and including 25.9° gravity	1 46
26° to and including 26.9° gravity	1 55
(And for each increase in gravity of one (1) full degree above 26.0° gravity, up to and inclusive of 34.9° gravity, ten (10) cents per barrel additional.)	
35° gravity and above	2 45

World's Production of Petroleum in 1920.

(In Barrels of 42 U. S. Gallons—U. S. Geological Survey Figures.)

State or Country	Quantity	Percentage of United States	Percentage of World
California	105,668,000	23.83	15.21
Colorado	110,000	.03	.02
Illinois	10,772,000	2.43	1.55
Indiana	932,000	.21	.13
Kansas	38,501,000	8.68	5.54
Kentucky and Tennessee	8,692,600	1.96	1.25
Louisiana	35,649,000	8.01	5.13
Montana	336,000	.08	.05
Ohio	7,412,000	1.67	1.07
Oklahoma	105,725,000	23.84	15.21
Pennsylvania and New York	8,360,400	1.89	1.20
Texas	96,000,000	21.65	13.81
West Virginia	8,173,000	1.84	1.18
Wyoming	17,071,000	3.85	2.46
Total United States	443,402,000	100.00	63.81
Mexico	163,540,000		23.53
Russia	25,429,600		3.66
Dutch East Indies	17,529,210		2.52
Persia	12,352,655		1.78
India	7,500,000		1.08
Rumania	7,435,344		1.07
Poland (Galicia)	5,606,116		.81
Peru	2,816,642		.40
Japan and Formosa	2,139,777		.31
Trinidad	2,083,027		.30
Argentina	1,665,989		.24
Egypt	1,042,000		.15
British Borneo (Sarawak)	1,015,949		.14
Venezuela	456,996		.07
France (Alsace)	388,700		.06
Germany	212,046		.03
Canada	196,937		.03
Italy	34,180		
Algeria	3,916		.01
England	2,909		
Total of the world	694,854,000		100.00

GASOLINE.

Amount of Gasoline Produced Each Month and Stocks on Hand at End of Each Month in California and the United States, 1920-1921.

(Statistics by U. S. Bureau of Mines.)

	California		United States	
	Output (Gallons)	Stocks (Gallons)	Output (Gallons)	Stocks (Gallons)
1921:				
January	44,267,974	36,230,706	460,432,439	571,983,793
February	36,606,049	43,867,915	388,188,252	680,540,351
March	41,389,833	51,573,945	419,795,390	713,043,480
April	50,244,199	58,739,904	426,215,200	747,222,900
May	47,622,739	69,491,181	448,567,879	800,495,787
June	48,069,973	75,237,759	430,344,393	750,644,450
July	49,129,827	75,002,032	419,641,815	684,236,695
August	45,379,209	63,370,959	431,577,195	567,645,548
September	41,089,966	59,622,914	416,913,000	515,325,998
October	36,977,879	50,126,706	440,955,518	456,269,659
November	36,307,810	47,691,855	431,886,845	495,590,059
December	38,150,723	49,658,026	439,031,398	586,087,132
Total	515,236,181		5,153,549,318	
1920:				
January	32,988,021	15,628,565	336,719,157	515,934,364
February	34,356,943	18,185,074	322,588,697	562,996,489
March	38,452,796	19,628,752	367,137,678	626,393,046
April	38,283,725	24,580,390	355,597,451	643,522,644
May	38,893,657	21,069,268	381,079,291	577,671,795
June	42,283,607	22,290,910	415,158,911	504,055,601
July	45,453,865	17,374,428	423,419,770	413,279,319
August	46,699,054	18,730,057	444,141,422	323,239,991
September	46,037,559	18,569,554	453,881,096	288,195,394
October	43,145,554	22,669,327	465,787,745	301,283,731
November	44,730,572	25,550,282	452,642,125	354,835,764
December	45,100,556	28,002,920	464,393,356	462,381,837
Total	496,425,909		4,882,546,699	

Highways.

California leads all states in mileage of paved roads. In addition to state bond issues for \$73,000,000, counties have voted bonds for road-building to the amount of \$24,635,000, and the United States Bureau of Public Roads, under the Federal Highway Act, will appropriate \$2,462,098 toward the completion of highways, exclusive of \$15,000,000 more to be divided among various states for the building or improvement of roads throughout national forests.

The State Highway Commission contracted for 242 miles of concrete highway at the beginning of 1921, the major part of which has been completed. During the year past some 610 miles of concrete pavement 18 feet wide was completed by state, cities or counties. Counties north of the Tehachapi laid 584,049 square yards of concrete paving, equivalent to 55 miles of 18-foot highway. Cities in these counties laid 380,913 square yards, or 21 miles of 30-foot pavement. Southern California's most notable achievement during the past year has been the completion of the Appian Way from Los Angeles city to its harbor. This highway is designed expressly to withstand the heavy truck haulage over its 20 odd miles of 8-inch reinforced concrete on a 6-inch disintegrated granite base.

The California State Highway Commission estimates an expenditure of \$18,000,000 during 1922. Part of this will be devoted to the completion of the scenic Skyline Boulevard, which winds through the redwoods of the Coast Range with glimpses of the ocean, connecting Santa Cruz with San Francisco. Nearly half is already in use.

State Highway System—Mileage.

Type	1912 to June 30, 1917	1917 to June 30, 1922	Completed	Under Construction	Total Mileage
Graded.....	289.70	311.30	601.00	415	1016.00
Bituminous macadam.....	187.73	18.37	206.10	96	302.10
Asphalt on macadam.....	14.42	2.58	17.00	.....	17.00
Concrete base.....	888.31	483.69	1372.00	154	1526.00
Asphalt on concrete.....	43.66	61.34	105.00	123	228.00
Bituminous pavement.....	15.54	2.91	16.45	32	48.45
Special legislative act roads.....	.....	946.00	946.00	.....	946.00
Totals.....	1437.36	1826.19	3263.55	820	4083.55

Expenditures—Including Maintenance and Administration.

	1912 to June 30, 1917	1917 to June 30, 1922	Total
Expenditure.....	\$20,785,749.51	\$47,584,659.72	\$68,370,409.23
Per mile.....	\$14,461.06	\$26,056.79	\$16,742.88

Motor Vehicles in California.

California ranks fifth in the United States in the number of automobiles owned by its citizens, exceeded only by New York, Ohio, Pennsylvania and Illinois, in the order of their prominence.

The State Motor Vehicle Department gives the following registrations for 1920 and 1921, respectively:

	1920	1921
Automobiles.....	\$582,623	\$680,614
Motorcycles.....	20,564	17,729
Chauffeurs.....	66,658	71,425
Auto dealers.....	3,353	2,719
Motorcycle dealers.....	179	138
Trailers.....	2,644	3,828
Total receipts for registration.....	\$6,834,089 62	\$6,847,359 85

PART IX.

SUMMARY OF THE AGRICULTURAL
RESOURCES

OF THE

STATE OF CALIFORNIA

BY COUNTIES

The brief description of each county which follows has been greatly condensed in order to keep it within the space available.

County statistics were first obtained under an act passed in 1905, under which county statisticians were appointed, but the result was a failure, as many counties omitted to supply the figures required, and therefore no complete statistics for the state as a whole could be published. In 1910 eleven counties failed to make any report, and in other years the number was even greater.

In 1911 county statisticians were abolished, and the present system established by Chapter 584, which appropriates \$5,000 per annum for that purpose, a sum, however, which is quite inadequate to give entirely satisfactory results.

The size of farms, and the figures relating to crops, fruit trees, by counties are those given in the last census.

The source of the statistics contained in this report is the most trustworthy that can be obtained, and when estimated, the figures are strictly conservative.

Alameda County.

Date of creation, March 25, 1853.

Land area, 732 square miles.	Population	130,197	246,131	344,127
County seat, Oakland.	Population	66,960	150,174	216,361
Population per square mile, 470. 2.				
		Highest	Lowest	
Elevation, 36 feet.	1917: Temperature	95	30	Rainfall.....11.16 Snow..... 0
	1918: Temperature	87	34	Rainfall.....23.39 Snow..... 0
	1920: Temperature	91	31	Rainfall.....20.65 Snow..... 0
	1921: Temperature	94	34	Rainfall.....19.52 Snow..... 0

Alameda County fronts on the bay of San Francisco for a distance of 38 miles, with an average width of 25 miles, extending to and beyond the summit of the Contra Costa hills, comprising numerous beautiful valleys, besides the broad Alameda Valley, which last is bounded by the waters of the bay on the one side and the Contra Costa hills on the other, and is one of the richest and most fertile valleys in the state. The principal stream is Alameda Creek. There are other creeks crossing the county and emptying into the bay, two of which furnish water for the city of Oakland. The country around Hayward is one of the great fruit-raising regions, many millions of pounds being shipped annually.

The soils immediately along the bay in Alameda County and the marshes formed by the overflow are heavy, but very fertile when reclaimed. Then comes a broad belt of rich, clay loams that is crossed by deposits of alluvium made by shifting channels of streams running down from the Coast Range. In the Niles region are lighter loams. About Livermore are uplands, bench, and valley lands. The Pleasanton section consists of agricultural and grazing lands. The soil is a very rich sediment, producing hay, grain, potatoes, alfalfa, of which there is 5000 acres, and beets in abundance. At Alvarado the surrounding country is a fine farming and fruit region, and gardening and dairying are largely carried on.

Alameda County was among the first to begin the planting of orchards and vineyards. It is divisible into three sections—the cherry district, containing about 757 acres, the apricot district of about 5000 acres, and the vineyard district.

Alameda is par excellence a vegetable-producing county, since the profit in peas, potatoes, rhubarb, asparagus, and several other vegetables is large. About 5000 acres in this county are planted in tomatoes, which prove to be a most profitable crop.

The growing of peas for canning has assumed importance. The output of the San Leandro cannery, located in this county, has reached as high as 1200 cases per day, and 3½ tons of peas have been grown upon a single acre.

The average annual output of salt recovered from San Francisco Bay, in Alameda County, is very large, including both coarse and fine salt.

From information furnished by Alameda County Development Association, pigeon raising is quite an extensive industry, and it is claimed that Alameda County ships more pigeons than any other in the state, having a total of 500,000 birds, of value of \$587,000.

ALAMEDA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	2,422		
Total in 1920.....	2,778		
Land and Farm Areas.			
Approximate land, acres.....	468,480		
Land in farms in 1910.....	311,327		
Land in farms in 1920.....	359,742		
Improved land in farms in 1910.....	177,314		
Improved land in farms in 1920.....	185,324		
Woodland in farms in 1920.....	21,200		
Other unimproved land in farms.....	153,218		
Value of All Farm Property.			
Total value in 1910.....	\$36,840,669		
Total value in 1920.....	57,341,179		
Land in 1910.....	29,537,208		
Land in 1920.....	43,864,634		
Buildings in 1910.....	4,463,555		
Buildings in 1920.....	7,133,683		
Implements and machinery in 1910.....	817,861		
Implements and machinery in 1920.....	2,004,942		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	19,347		
Dairy.....	17,434		
Total.....	36,781		
Value.....	\$2,548,776		
Horses—			
Number.....	8,841		
Value.....	\$868,301		
Mules—			
Number.....	131		
Value.....	\$13,205		
Asses and burrows—			
Number.....	5		
Value.....	\$75		
Swine—			
Number.....	9,171		
Value.....	\$155,672		
Sheep—			
Number.....	25,812		
Value.....	\$291,231		
Goats—			
Number.....	467		
Value.....	\$6,152		
Total value of all domestic animals.....	\$3,883,412		
Total value of dairy products.....	\$1,473,896		
Poultry and bees—			
Poultry of all kinds.....	324,903		
Value.....	\$450,329		
Colonies of bees.....	586		
Value.....	\$4,179		
Poultry products—			
Poultry raised, number.....	284,902		
Eggs produced, dozen.....	2,392,395		
Value poultry and eggs produced.....	\$1,260,047		
		Honey and wax—	
		Honey produced, pounds.....	7,260
		Wax produced, pounds.....	90
		Value of honey and wax produced.....	\$1,489
		Wool—	
		Wool, fleeces shorn.....	25,117
		Value of wool produced.....	\$62,119
		Principal Crops.	
		Acres	Bushels
		Corn.....	1,322 33,162
		Oats.....	2,719 72,524
		Wheat.....	11,825 201,153
		Barley.....	19,045 569,352
		Dry edible beans.....	145 2,797
		Potatoes.....	899 109,752
		Hay and forage—	
		Acres	Tons
		Timothy and clover mixed.....	2,206 434
		Clover alone.....	3,003 4,448
		Alfalfa.....	5,227 24,337
		Other tame and cultivated grasses.....	515 728
		Wild, salt or prairie grasses.....	454 476
		Grains cut green.....	48,268 68,826
		Totals.....	60,061 103,680
		Special crops—	
		Potatoes, acres.....	899
		All other vegetables, acres.....	9,628
		Sugar beets, acres.....	2,604
		Orchard fruits—	
		Number bearing trees	
		Apples.....	27,061
		Apricots.....	292,345
		Peaches.....	11,257
		Pears.....	66,949
		Prunes and plums.....	145,114
		Total.....	599,231
		Subtropical fruits—	
		Number bearing trees	
		Lemons.....	67
		Oranges.....	1,100
		Grapevines—	
		Number in bearing.....	2,214,595
		Small fruits—	
		Total acres.....	493
		Nuts—	
		Number bearing trees	
		Walnuts.....	7,635
		Total.....	28,140
		Irrigation.	
		Acres irrigated in 1919.....	9,351
		Acreege enterprises were capable of irrigating in 1920.....	13,050
		Acreege included in projects.....	16,527

Alpine County.

Land area, 776 square miles.	Date of creation, March 16, 1864; reorganized in 1900.		1910	1920	
County seat, Markleeville. Township No. 1.	Population.....		309	243	
Population per square mile, 0.3.					
Tamarack (Station):		Highest	Lowest	Inches	Inches
Elevation, 8,000 feet.	1916: Temperature.....	81	22	Rainfall..... 60.27	Snow..... 538.0
	1917: Temperature.....	82	16	Rainfall..... 27.32	Snow..... 259.0
	1918: Station discontinued.				

Alpine County is a small county on the eastern border, but by no means out of the way, as far as her means of communication with the other counties of the state is concerned, as the county is well traversed by the State Highway system, one branch of which comes from Lake Tahoe by Meyers Station through the Hope Valley Canyon, one of the most picturesque in the state, to Woodfords, thence to Minden, Nevada, the nearest shipping point. Another branch of the State Highway comes from Jackson over the Carson Spur by Silver Lake, and by Twin Lakes, where the Western States Gas and Electric Company is now constructing a large dam for power purposes. Still another road comes from the Big Trees, through Hermit and Pacific Valleys. This branch of the Highway is known as the Big Tree or Ebbetts Pass Road, through the once famous Silver Mountain City and on to Markleeville, Woodfords and Minden, Nevada. All of these roads are in shape for automobile travel, and hundreds of tourists come over them every summer.

The resources of Alpine County are great, especially in cattle and sheep raising, timber and water power, the latter offering a field of immediate development to enterprising capital.

ALPINE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	42	Poultry and bees—	
Total in 1920	21	Poultry of all kinds	791
		Value	\$861
		Colonies of bees	2
		Value	\$18
Land and Farm Areas.			
Approximate land acres	496,640	Poultry products—	
Land in farms in 1910	32,001	Poultry raised, number	373
Land in farms in 1920	10,042	Eggs produced, dozen	6,302
Improved land in farms in 1910	7,579	Value poultry and eggs produced	\$3,335
Improved land in farms in 1920	4,306	Wool—	
Woodland in farms	1,030	Wool, fleeces shorn	338
Other unimproved land in farms	4,706	Value wool produced	\$1,081
Value of All Farm Property.			
Total value in 1910	\$811,442		
Total value in 1920	584,524		
Land in 1910	530,968	Principal Crops.	
Land in 1920	416,525		
Buildings in 1910	88,475		
Buildings in 1920	52,275	Oats	Acres 21 Bushels 460
Implements and machinery in 1910	30,405	Wheat	184 4,970
Implements and machinery in 1920	19,685	Barley	10 420
Domestic animals, poultry and bees in 1910	161,594		
Domestic animals, poultry and bees in 1920	96,039	Hay and forage—	Acres Ton ^s
		Timothy alone	146 240
		Timothy and clover mixed	400 739
		Clover alone	184 288
		Alfalfa	414 911
		Wild, salt, or prairie grasses	665 1,194
		Totals	1,809 3,372
		Special crops—	
		Potatoes, acres	9
		All other vegetables, acres	1
		Orchard fruits—	Number bearing trees
		Apples	793
		Peaches and nectarines	5
		Pears	75
		Prunes and plums	140
		Total	1,058
		Irrigation.	
		Acres irrigated in 1919	4,459
		Acraege enterprises were capable of irrigating in 1920	4,819
		Acraege included in projects	7,027

Amador County.

		Date of creation, May 11, 1854.			
		1900	1910	1920	
Land area, 601 square miles.	Population.....	11,116	9,086	7,793	
County seat, Jackson City.	Population.....		2,035	1,601	
Population per square mile, 13.0.					
Electra (Station):	Highest	Lowest	Inches	Inches	
Elevation, 725 feet.	1916: Temperature.....	103	28	Rainfall.....38.63	Snow.....2
	1917: Temperature.....	106	20	Rainfall.....18.75	Snow.....0
	1918: Station discontinued.				

Amador County occupies a position in the east central portion of the state. It has no navigable rivers. The Cosumnes forms a part of its northern boundary and the Mokelumne forms its entire southern boundary. Both of the rivers are tributaries of the Sacramento. Varying, in main, in altitude from 30 feet to 1500 feet, and having a most productive soil, and the great portion of the county being a rolling, or foothill region, it is adapted to the cultivation of any kind of a farm, of horticultural, or of viticultural product.

Grain and hay are cultivated to a considerable extent. In many parts of the western portion of the county a great variety of vegetables is grown throughout the year. Yielding, as the county does, an abundance of the best natural grasses, it offers inducements to stockmen.

Distinctively, the county is a region of mineral deposits. The one resource, however, that is paramount, is gold, which makes up over 96 per cent of the entire total of minerals.

That the gold quartz vein or ledge does not deteriorate in either quality or quantity with the increasing depth to which the vein has been explored, has long since passed the theoretical state. So that this fact affords greater stability to the mining industry and thus quartz mining on the "mother lode" makes a vastly stronger appeal to capital lying idle, awaiting greater and safer inducements to enter this fascinating and legitimate industrial field.

Mountain lakes and valleys and river canyons furnish abundant opportunity for those needing recreation, or for those that enjoy hunting and fishing. Mineral springs, having medicinal properties that are prescribed in certain cases, are found in different parts of the county.

Butte County.

Date of creation, February 18, 1850.

Land area, 1,722 square miles.	Population.....	1890	1900	1910	1920
County seat, Oroville.	Population.....	17,939	17,117	27,301	30,030
Population per square mile, 17.7.	Population.....			3,859	3,340

Elevation, 250 feet.		Highest	Lowest		Inches	Inches
	1917: Temperature	109	21	Rainfall	17.31	Snow..... 0
	1918: Temperature.....	110	21	Rainfall.....	22.84	Snow..... 0

Butte County is situated in the northern and eastern Sacramento Valley, and embodies within its confines both mountain, foothill, and valley land. Its climate is most diverse, and in its confines are grown all the products to be found in the temperate and semi-tropical zones. In the higher altitudes, apples thrive, while in the lowest stretches of the rolling foothills, oranges and olives reach perfection. On the broad plains great rice fields are now being planted, and the industry promises to rival that of alfalfa and dairy farming and the more extensive grain farming that has hitherto prevailed. Deciduous fruits of every kind are grown. Large olive pickling works are located in Oroville. The county ranks first in the state in the production of olives. There are also a number of orange packing houses in the county.

The county is exceptionally well watered. Through it runs the Feather River, with a large number of tributary streams. At one boundary is the great Sacramento River. As a result of the abundance of water, increased attention is being given to irrigation. The Butte County canal covers thousands of acres around Gridley, where the utmost prosperity prevails. The U. S. Department of Agriculture maintains an experiment station of 210 acres at Chico, where large numbers of many varieties of fruit trees are tested, and the best selections distributed. The Bidwell National Park contains 2300 acres. A small acreage of tobacco was grown in 1917, but was destroyed by fire. None was grown in 1918, but about 40 acres has been planted recently. In 1918 about 1400 acres of cotton were planted near Durham, and 800 to 1000 bales were expected, but rains rotted the cotton and only 75 bales were ginned at the Durham gin. The first land settlement was established in this county in 1918.

Butte County is also the third largest gold-producing county of the state. The chief gold-dredging field lies around Oroville.

The county was the first to grow rice on a commercial scale, at Biggs and Gridley, and is now the largest rice-growing county in the state.

BUTTE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	1,500	Honey and wax—	
Total in 1920.....	2,219	Honey produced, pounds.....	146,167
		Wax produced, pounds.....	2,214
		Value of honey and wax produced.....	\$30,096
Land and Farm Areas.		Wool—	
Approximate land, acres.....	1,102,080	Wool, fleeces shorn.....	42,194
Land in farms in 1910.....	490,777	Value of wool produced.....	\$101,492
Land in farms in 1920.....	464,652		
Improved land in farms in 1910.....	247,097	Principal Crops.	
Improved land in farms in 1920.....	253,745		
Woodland in farms.....	70,815	Corn.....	Acres 656 Bushels 18,158
Other unimproved land.....	140,065	Oats.....	3,987 86,970
		Wheat.....	44,177 750,679
		Barley.....	17,546 465,219
		Kafir corn and milo maize.....	1,093 19,209
		Dry edible beans.....	2,177 31,928
		Potatoes.....	81 4,294
		Rice.....	24,007 468,786
Value of All Farm Property.		Hay and forage—	
Total value in 1910.....	\$24,086,440	Timothy alone.....	Acres 52 Tons 45
Total value in 1920.....	53,399,133	Timothy and clover mixed.....	47 82
Land in 1910.....	19,404,863	Clover alone.....	274 505
Land in 1920.....	42,421,970	Alfalfa.....	9,994 31,449
Buildings in 1910.....	2,281,132	Other tame and cultivated	
Buildings in 1920.....	4,900,352	grasses.....	550 739
Implements and machinery in 1910.....	532,320	Wild, salt, or prairie grasses.....	1,468 1,411
Implements and machinery in 1920.....	2,668,795	Grains cut green.....	20,880 22,840
		Totals.....	34,294 60,184
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	81
Beef.....	21,879	All other vegetables, acres.....	553
Dairy.....	9,530		
Total.....	31,409	Orchard fruits—	Number
Value.....	\$1,657,456	Apples.....	bearing trees 44,451
Horses—		Apricots.....	3,108
Number.....	6,253	Peaches.....	196,716
Value.....	\$550,792	Pears.....	31,563
Mules—		Prunes and plums.....	268,270
Number.....	1,220	Total bearing trees.....	548,762
Value.....	\$149,776	Subtropical fruits—	Number
Asses and burros—		Lemons.....	bearing trees 2,157
Number.....	49	Oranges.....	77,721
Value.....	\$3,201	Total.....	79,878
Swine—		Grapevines—	
Number.....	21,040	Number in bearing.....	74,081
Value.....	\$311,879	Small fruits—	
Sheep—		Total acres.....	46
Number.....	46,686	Nuts—	Number
Value.....	\$464,062	Almonds, etc.....	bearing trees 265,258
Goats—		Walnuts.....	4,114
Number.....	875	Total.....	269,372
Value.....	\$8,627		
Total value all domestic animals.....	\$3,143,825	Irrigation.	
Poultry and bees—		Acres, irrigated in 1919.....	93,581
Poultry of all kinds.....	116,718	Acreage enterprises were capable of irrigating	
Value.....	\$146,886	in 1920.....	114,774
Colonies of bees.....	2,789	Acreage included in projects.....	123,544
Value.....	\$25,305		
Poultry products—			
Poultry raised, number.....	118,718		
Eggs produced, dozen.....	523,764		
Value poultry and eggs produced.....	\$322,445		

Calaveras County.

Date of creation, February 18, 1850.

Land area, 1,027 square miles.	Population.....	1890	1900	1910	1920
County seat, San Andreas.	Population.....	8,882	11,200	9,171	6,183
Population per square mile, 6.0.	Population.....	1,640	1,683	1,120	941
Mokelumne Hill (Station):	Highest	Lowest	Inches	Inches	
Elevation, 1550 feet.	1917: Temperature.....	104	19	Rainfall.....15.22	Snow.....7.0
Ranger Station, 3,400 feet.	1918: Temperature.....	96	17	Rainfall.....45.87	Snow.....36.0

Calaveras is located on the long, gradual western slope of the Sierra Nevada, a little above the center of the state north and south. The Sierra on the east is an abrupt wall plunging down 10,000 feet in ten miles, while the westward side is a long, grand sweep, full 70 miles from foothill to summit. On the east is the great desert basin of Nevada and Utah; on the west the exuberance of California valleys, rich in meadows, grain fields and orchards. Above the level plain rise the foothills in waves or ripples, hardly distinguishable from the plains at first, but more rolling as you go upward, with long swells of hill and little dales and scattering growth of oak and pine and patches of chaparral.

The elevation rises gradually from about 150 feet to table lands lying 4000 feet and peaks 7500 feet.

In several parts of the county Angora goats are kept. They are profitable, are hardy, and increase rapidly. The young make excellent "chevon," the name adopted for goat meat.

Alfalfa is a staple crop wherever it can be irrigated.

CALAVERAS COUNTY SUMMARY.

(Census Figures).

Number of Farms.		Asses and burros—	
Total in 1910.....	632	Number.....	37
Total in 1920.....	606	Value.....	\$510
Land and Farm Areas.		Swine—	
Approximate land, acres.....	657,280	Number.....	4,711
Land in farms in 1910.....	271,401	Value.....	\$68,328
Land in farms in 1920.....	366,195		
Improved land in farms in 1910.....	59,104	Sheep—	
Improve 1 land in farms in 1920.....	58,957	Number.....	24,792
Woodland in farms.....	170,685	Value.....	\$258,309
Other unimproved land.....	136,553		
Value of All Farm Property.		Goats—	
Total in 1910.....	\$3,973,409	Number.....	5,788
Total in 1920.....	8,964,798	Value.....	\$43,040
Land in 1910.....	2,376,303		
Land in 1920.....	6,124,432	Total value of all domestic animals.....	\$1,560,700
Buildings in 1910.....	664,000		
Buildings in 1920.....	936,210	Poultry and bees—	
Implements and machinery in 1910.....	138,905	Poultry of all kinds.....	25,708
Implements and machinery in 1920.....	311,975	Value.....	\$29,660
		Colonies of bees.....	418
		Value.....	\$1,821
Domestic Animals on Farms and Ranges.			
Cattle—		Poultry products—	
Beef.....	21,214	Poultry raised, number.....	25,798
Dairy.....	1,327	Eggs produced, dozen.....	77,766
Total.....	22,541	Value poultry and eggs produced.....	\$49,558
Value.....	\$1,052,703		
Horses—		Honey and wax—	
Number.....	2,458	Honey produced, pounds.....	3,630
Value.....	\$133,365	Wax produced, pounds.....	90
Mules—		Value of wax and honey produced.....	\$761
Number.....	91		
Value.....	\$4,445		

CALAVERAS COUNTY SUMMARY—Continued.

Wool—					
Wool, fleeces shorn		17,303		Orchard fruits—	Number
Goat, fleeces shorn		4,408		Apples	bearing trees
Value wool and mohair produced		\$40,338		Apricots	12,596
				Peaches	655
				Pears	8,286
				Prunes and plums	2,065
					7,785
				Total	31,407
Principal Crops.					Number
	Acres	Bushels		Subtropical fruits—	bearing trees
Corn	153	2,902		Lemons	32
Oats	773	14,403		Oranges	274
Wheat	1,257	14,198		Total	306
Barley	700	13,864			
Kafir corn and milo maize	27	513		Grapevines—	
Dry edible beans	33	464		Number in bearing	153,097
Potatoes	170	14,146			
				Small fruits—	
Hay and forage—	Acres	Tons		Total acres	23
Timothy and clover mixed	101	191			Number
Clover alone	91	163		Nuts—	bearing trees
Alfalfa	1,159	2,917		Almonds	7,571
Other tame and cultivated				Walnuts	1,329
grasses	572	1,067		Total	8,900
Wild, salt, or prairie grasses	4,614	3,700			
Grains cut green	5,544	5,723			
Totals	12,266	14,020		irrigation.	
				Acres irrigated in 1919	2,859
Special crops—				Acres enterprises were capable of irrigating	
Potatoes, acres		170		in 1920	33,828
All other vegetables, acres		87		Acres included in projects	42,093

Colusa County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 1,140 square miles.	Population	14,640	7,364	7,732	9,290
County seat, Colusa (town).	Population	1,336	1,441	1,582	1,846
Population per square mile, 8.1.					
East Park (Station):	Highest	Lowest	Inches	Inches	
Elevation, — feet.	1916: Temperature	109	10	Rainfall	18.69
Colusa, 60 feet.	1917: Temperature	109	24	Rainfall	7.53
	1918: Station discontinued.			Snow	26.5
				Snow	0

Colusa County is situated in the heart of the great Sacramento Valley. The fertile soil, the temperate climate, the extreme dryness of the atmosphere during two-thirds of the year, and, lastly, a sufficient rainfall, make possible the production of great wealth from the fertile acres of this county.

The western portion of the county is principally mountainous, with some very productive valleys intervening. Cattle and live stock interests prevail. Several mineral springs are located in this portion of the county, and thousands of bottles of mineral water are shipped annually. At Sites two quarries take out stone, known as the famous Colusa sandstone, from which many prominent buildings in San Francisco are built.

Colusa County was one of the first to grow rice, and now has a considerable acreage.

Almonds now form an important crop in this county, and in the Arbuckle district about 7000 acres are planted, which average about 60 trees to the acre, but many are still non-bearing. The crop of 1916 amounted to 100 tons, of first-grade quality, and the prices were about 25 per cent higher than the previous year.

COLUSA COUNTY SUMMARY.

(Census Figures)

Number of Farms.			
Total in 1910	667	Horses—	
Total in 1920	816	Number	3,812
		Value	293,773
Land and Farm Areas.			
Approximate land, acres	729,660	Mules—	
Land in farms in 1910	522,376	Number	2,378
Land in farms in 1920	438,417	Value	\$288,413
Improved land in farms in 1910	336,000	Asses and burros—	
Improved land in farms in 1920	302,429	Number	9
Woodland in farms	30,132	Value	\$450
Other unimproved land	105,856	Swine—	
		Number	23,511
		Value	\$296,491
Value of All Farm Property.			
Total in 1910	\$19,602,208	Sheep—	
Total in 1920	41,101,229	Number	51,948
Land in 1910	16,066,035	Value	\$557,889
Land in 1920	33,903,750	Goats—	
Buildings in 1910	1,204,780	Number	133
Buildings in 1920	2,834,503	Value	\$4,482
Implements and machinery in 1910	419,557		
Implements and machinery in 1920	2,039,783		
		Total value all domestic animals	\$2,218,252
Domestic Animals on Farms and Ranges.			
Cattle—		Poultry and bees—	
Beef	10,484	Poultry of all kinds	68,520
Dairy	4,521	Value	\$93,228
		Colonies of bees	1,324
Total	15,005	Value	\$1,711
Value	\$776,754		

COLUSA COUNTY SUMMARY—Continued.

Poultry products—			Special crops—	
Poultry raised, number		27,508	Potatoes, acres	51
Eggs produced, dozen		77,766	All other vegetables, acres	82
Value poultry and eggs produced		\$49,558	Sugar beets, acres	2
Honey and wax—			Orchard fruits—	
Honey produced, pounds		59,501	Apples	1,175
Wax produced, pounds		1,401	Apricots	3,210
Value of honey and wax produced		\$12,446	Peaches	7,401
Wool—			Pears	4,386
Wool, fleeces shorn		38,692	Prunes and plums	101,709
Value of wool produced		\$158,683	Total	117,977
Principal Crops.			Subtropical fruits—	
	Acres	Bushels	Lemons	44,233
Corn	2,245	57,483	Oranges	4,982
Oats	229	5,146	Grapevines—	
Wheat	29,787	586,747	Number in bearing	752,779
Barley	74,490	1,803,879	Small fruits—	
Kafir corn and milo maize	883	35,160	Total acres	11
Dry edible beans	529	8,975	Nuts—	Number bearing trees
Potatoes	51	4,017	Almonds, etc.	82,098
Rice	44,842	2,258,267	Walnuts	4,117
Hay and forage—			Total	86,215
	Acres	Tons	Irrigation.	
Timothy alone	43	72	Acres irrigated in 1919	46,022
Timothy and clover mixed	369	375	Acres enterprises were capable of irrigating in 1920	71,274
Clover alone	79	88	Acres included in projects	91,073
Alfalfa	8,924	22,360		
Other tame and cultivated grasses	101	167		
Wild, salt, or prairie grasses	83	70		
Grains cut green	7,065	9,198		
All other hay and forage	387	630		
Total	17,051	32,960		

Contra Costa County.

Date of creation, February 18, 1850.

Land area, 714 square miles.	Population	1890	1900	1910	1920
County seat, Martinez (town).	Population	13,515	18,046	31,674	53,889
Population per square mile, 75.5.	Population	1,600	1,380	2,115	3,858
Antioch (Station):	Highest	Lowest	Inches	Inches	
Elevation, 46 feet.	1917: Temperature	107	30	Rainfall	5.46
	1918: Temperature	104	27	Rainfall	16.46
				Snow	0
				Snow	0

Contra Costa is one of the central counties, its shore line being within 14 miles of San Francisco. It possesses unusually good traveling facilities both by rail and by steamer. The county has 70 miles of water front, nearly all of which is upon deep water, navigable by all vessels engaged in commerce. Over three-fourths of its area is cultivated, the balance being used for grazing. The only mountain of any size is Mount Diablo, which is 3849 feet in height, and almost in the geographical center of the county.

The farming lands in the eastern section are between the foothills and the San Joaquin River. The soil is of a rich, alluvial nature, and produces wheat, barley, alfalfa, fruit and vines. To the northward and between the uplands and the San Joaquin River is a body of tule lands, a large portion of which has been reclaimed, and is some of the most productive land in the state, being a rich deposit of sediment and decomposed vegetation. Alfalfa, asparagus, potatoes, beans, etc., are produced on the largest scale on such lands.

Grain raising is very important in this county. A large acreage is planted to barley and hay. The raising of sugar beets is a growing industry. Vegetables of all kinds are raised profitably.

Stock raising is a leading industry, and the reclaimed lowlands for summer grazing and the rolling hills for winter, close together, create conditions whereby failure is impossible. The stock farms have produced some of the most famous trotting and pacing horses. Port Costa, the shipping point for the bulk of the grain raised in California, has extensive warehouses. Near Vallejo Junction is the largest smelting works in the state; at Bay Point and Pittsburgh are extensive lumber yards, where ships from Oregon and Puget Sound discharge; at Crockett are flouring mills, also the refinery of the California and Hawaiian Sugar Company. At Richmond one of the largest oil refining plants in the state is situated and during the last two years very extensive oil plants have been established at Martinez.

CONTRA COSTA COUNTY SUMMARY.

(Census Figures.)

Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	456,960	Honey produced, pounds.....	13,509
Land in farms in 1910.....	406,433	Wax produced, pounds.....	229
Land in farms in 1920.....	375,065	Value of honey and wax produced.....	\$2,791
Improved land in farms in 1910.....	262,152	Wool—	
Improved land in farms in 1920.....	238,369	Wool, fleeces shorn.....	27,205
Woodland in farms.....	31,265	Value wool and mohair produced.....	\$71,389
Other unimproved land.....	105,431		
Value of All Farm Property		Principal Crops.	
Total in 1910.....	\$31,812,192	Corn.....	Acres 8,513 Bushels 287,222
Total in 1920.....	47,930,387	Oats.....	3,100 84,730
Land in 1910.....	26,586,160	Wheat.....	17,259 357,728
Land in 1920.....	38,373,973	Barley.....	20,181 611,139
Buildings in 1910.....	2,493,375	Dry edible beans.....	5,426 82,907
Buildings in 1920.....	4,406,950	Potatoes.....	6,671 1,144,914
Implements and machinery in 1910.....	650,520		
Implements and machinery in 1920.....	1,783,859		
Domestic Animals on Farms and Ranges.		Hay and forage—	
Cattle—		Clover alone.....	Acres 330 Tons 478
Beef.....	12,772	Alfalfa.....	6,040 20,711
Dairy.....	15,792	Other tame and cultivated grasses.....	4,472 6,562
Total.....	28,564	Wild, salt, or prairie grasses.....	5,229 6,362
Value.....	\$1,815,094	Grains, cut green.....	44,347 70,693
Horses—		All other hay and forage.....	232 759
Number.....	8,418	Totals.....	60,904 105,970
Value.....	\$781,574	Special crops—	
Mules—		Potatoes, acres.....	6,671
Number.....	423	All other vegetables, acres.....	4,336
Value.....	\$43,948	Orchard fruits—	Number bearing trees
Asses and burros—		Apples.....	21,489
Number.....	3	Apricots.....	21,814
Value.....	\$910	Peaches.....	43,364
Swine—		Pears.....	87,138
Number.....	14,415	Prunes and plums.....	61,497
Value.....	\$233,514	Total.....	255,396
Sheep—		Subtropical fruits—	Number bearing trees
Number.....	27,068	Lemons.....	110
Value.....	\$303,728	Oranges.....	453
Goats—		Grapovines—	Total acres.....
Number.....	210	Total.....	5
Value.....	\$3,023	Nuts—	Number bearing trees
Total value all domestic animals.....	\$3,181,791	Almonds, etc.....	232,413
Poultry and bees—		Walnuts.....	39,493
Poultry of all kinds.....	134,528	Total.....	271,906
Value.....	\$178,615		
Colonies of bees.....	725		
Value.....	\$5,201		
Poultry products—			
Poultry raised, number.....	134,528	Irrigation.	
Eggs produced, dozen.....	808,819	Acres irrigated in 1919.....	44,833
Value poultry and eggs produced.....	\$396,517	Acreage enterprises were capable of irrigating in 1920.....	46,472
		Acreage included in projects.....	49,125

Del Norte County.

Date of creation, March 2, 1857.

Land area, 1,024 square miles.	Population	1890	1900	1910	1920
County seat, Crescent City.	Population	2,592	2,408	2,417	2,759
Population per square mile, 2 7.	Population	907	699	1,114	955

Elevation, 125 feet.	Highest	Lowest	Inches	Inches	
	1917: Temperature	93	26	Rainfall . . . 69.60	Snow T
	1918: Temperature	102	27	Rainfall 59.58	Snow 01

Del Norte is the extreme northwestern county of California and has a coast line of about 35 miles. Crescent City, the county seat and principal harbor, is 280 miles from San Francisco.

Smith and Klamath are the principal streams, the former in the northern and the latter in the southern part of the county. Both are navigable near their mouths to the small ocean-going steamers. Dairying and lumbering are the principal industries. The mountains of the county prospect well in copper and gold-bearing formations.

Crescent City is the chief shipping point. Products usually are sent to the San Francisco market. The county is rich in undeveloped mineral resources.

Del Norte rivals Alpine County in regard to inaccessibility, transportation being by wagon and mule back, with one or two stage lines to Crescent City. Its chief mineral resources, largely untouched, are chromite, copper, gems, gold, graphite, iron, platinum and silver.

DEL NORTE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910	114	Number	435
Total in 1920	130	Value	\$41,880
Land and Farm Areas.		Mules—	
Approximate land, acres	655,360	Number	7
Land in farms in 1910	35,947	Value	\$750
Land in farms in 1920	43,830	Swine—	
Improved land in farms in 1910	12,439	Number	805
Improved land in farms in 1920	13,232	Value	\$9,059
Woodland in farms	10,207	Sheep—	
Other unimproved land	11,371	Number	655
		Value	\$4,221
Value of All Farm Property.		Total value of domestic animals	
Total in 1910	\$1,770,222	\$412,540	
Total in 1920	3,452,392	Poultry and bees—	
Land in 1910	1,358,300	Poultry of all kinds	4,794
Land in 1920	2,592,503	Value	\$3,788
Buildings in 1910	171,380	Colonies of bees	147
Buildings in 1920	314,647	Value	\$531
Implements and machinery in 1910	48,265	Poultry products—	
Implements and machinery in 1920	128,383	Poultry raised, number	3,178
Domestic animals, poultry and bees in 1910	102,277	Eggs produced, dozen	16,050
Domestic animals, poultry and bees in 1920	416,859	Value poultry and eggs produced	\$8,040
Domestic Animals on Farms and Ranges.		Honey—	
Cattle—		Honey produced, pounds	787
Beef	785	Value	\$161
Dairy cows	6,302	Wool—	
Total	7,087	Wool, fleeces shorn	636
Value	\$356,125	Value wool produced	\$1,850

DEL NORTE COUNTY SUMMARY—Continued.

Principal Crops.			Special crops—	
Corn.....	Acres	Bushels	Potatoes, acres.....	85
Oats.....	3	110	All other vegetables, acres.....	11
Barley.....	222	8,253		
Dry edible beans.....	89	3,451		
Potatoes.....	3	33		
	85	8,944		
Hay and forage—	Acres	Tons	Orchard fruits—	Number
Timothy and clover mixed...	3	7	Apples.....	bearing trees
Clover alone.....	72	231	Peaches.....	3,246
Alfalfa.....	42	113	Pears.....	19
Other tame and cultivated			Prunes and plums.....	138
grasses.....	1,150	2,178	Total.....	170
Wild, salt, or prairie grasses	142	183		
Grains cut green.....	1,747	4,547		
All other hay and forage.....	894	10,548		
Totals.....	4,030	17,807	Small fruits—	
			Strawberries, acre.....	1

El Dorado County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 1,737 square miles.	Population	9,232	8,986	7,492	6,426
County seat, Placerville.	Population	1,690	1,748	1,914	1,650
Population per square mile, 4.3.	Highest	Lowest	Inches		Inches
Elevation, 1,875 feet.	1917: Temperature	105	18	Rainfall	20.58
	1918: Temperature	103	17	Snow	15.0
				Rainfall	37.62
				Snow	1.8

El Dorado County is situated on the western slope of the Sierra Nevada Mountains, in the eastern portion of the state. The county is about 75 miles long and about 30 miles in width. The western portion of the county borders the Sacramento Valley, and is used principally for grazing, stock raising, also grape and fruit growing. The central portion of the county includes the great mineral belt, known as the "mother lode," from which millions of dollars have been extracted on and near the surface in its infancy. It was in this county that gold was first discovered in California. There is also a large quantity of limestone in the county which is shipped for use in the manufacture of cement. In the foothills can be found some of the best fruit lands in the state.

The eastern portion, being at an altitude of from 3000 to 7000 feet, supplies summer pasturage for a number of cattle, sheep, and horses. In this region water is abundant, awaiting capital and labor to harness the everflowing streams. Most of this area is covered by a virgin growth of sugar and white pine, fir, and cedar timber.

While fruit growing has been found to be more profitable here than in most parts of the state, potatoes are now attracting much attention. There will probably be 20,000 sacks or over raised in the vicinity of Placerville during this season. They are beautiful, smooth skinned, perfectly shaped, and, on account of the high dry altitude, are extremely mealy.

Several hundred acres of young pear trees have been planted in the last five or six years and in another year or two the output of Bartlett pears will have been doubled. In 1918, 295 cars of deciduous fruits were shipped east.

EL DORADO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910	750	Cattle—	
Total in 1920	729	Beef	12,097
		Dairy	3,880
		Total	15,977
		Value	\$770,535
Land and Farm Areas.		Horses—	
Approximate land, acres	1,111,680	Number	2,103
Land in farms in 1910	210,881	Value	\$150,290
Land in farms in 1920	240,265		
Improved land in farms in 1910	41,682	Mules—	
Improved land in farms in 1920	43,413	Number	106
Woodland in farms	72,023	Value	\$9,265
Other unimproved land	124,829	Asses and burros—	
		Number	21
		Value	\$295
Value of All Farm Property.		Swine—	
Total in 1910	\$3,775,358	Number	3,163
Total in 1920	8,028,401	Value	\$55,438
Land in 1910	2,343,931		
Land in 1920	5,230,220		
Buildings in 1910	749,745		
Buildings in 1920	1,241,931		
Implements and machinery in 1910	162,185		
Implements and machinery in 1920	387,090		
Domestic animals, poultry, and bees in 1910	519,497		
Domestic animals, poultry, and bees in 1920	1,169,160		

Fresno County.

Date of creation, April 19, 1856.						
Land area, 5,950 square miles	Population.....			1900	1910	1920
County seat, Fresno (city).	Population.....			37,862	75,657	128,779
Population per square mile, 21 6.	Population.....			12,470	24,892	45,086
		Highest	Lowest			Inches
Elevation, 293 feet.	1918: Temperature.....	107	25	Rainfall.....		13.68
	1920: Temperature.....	110	26	Rainfall.....		10.04
	1921: Temperature.....	110	23	Rainfall.....		9.08

Including vineyards, Fresno County is the greatest fruit producer. It is situated in the center of the state and in the middle of the fertile San Joaquin Valley. There are only five counties which exceed Fresno in size—San Bernardino, Inyo, Kern, Riverside and Siskiyou, in the order named. When Fresno was first formed it was considerably larger, but on the eleventh of March, 1893, a large slice, consisting of 2121 square miles, was carved out of the northern part of the county and formed into Madera County; and still more recently Fresno County was again reduced in size by 202 square miles of the southeast portion being transferred to Kings County by an act of the Legislature approved April 12, 1909. Before being partitioned, Fresno County comprised 8214 square miles, but although the land area has been thus reduced to 5950 square miles, the county ranks sixth of the 58 in the state, and is one of the most productive. It is also the fourth largest in population, being only exceeded by San Francisco, Los Angeles and Alameda. The word "Fresno" in Spanish signifies ash tree, and it was because of the abundance of mountain ash in the mountains of this county that it received its name.

Fresno County is naturally subdivided into two portions—plains and mountains. The plains are the bottom of the San Joaquin Valley, extending from the foot of the Coast Range on the west to the foothills of the Sierra Nevadas on the east. From the first foothills the rise is rapid, the mountains culminating in peaks rising 10,000 to 12,000 feet, Mount Lyell being 13,218 feet high. The country about Fresno is a vast plain intersected by the San Joaquin and Kings rivers and their tributaries. Four natural soil divisions have been recognized—the foothill region, whose agriculture was formerly confined to grazing; the plains of the valley, with red soils lying near the hills; the "white ash" soil found farther out in the plain, and the bottoms, or alluvial lands, along the Kings River.

There is a dry and a wet season, the former from about May to September, and the latter from the middle of October or early part of November. The rains, which are at irregular intervals during the winter, seldom last more than two or three days at a time. There are about 242 days of sunshine in the year. The atmosphere during the summer months is dry, and the heat not nearly so oppressive as in the East and other places where the humidity is great. Sunstroke is unknown.

The county has passed through four stages of development. First, came mining in the early days before it was organized as a county, and this period extended to about 1860-1864. Secondly, came the stock-raising period, which arose from the gradual disappearance of placer mining, and lasted until 1874, although sheep raising still continued on a large scale. Thirdly, about 1868, the farming interests sprang up, although prior to the advent of a railroad in 1870, agriculture amounted

to very little. The fourth, and most important, may be called the viticultural and fruit area, which began to come into prominence early in the '80s, and has now become the leading feature of the county.

As California holds the first place among all the states in the Union in irrigation, so Fresno is the leading county in the state, both in number and extent of its canals and ditches, having more than double the acreage under irrigation than has any other county.

During the last decade the dairy industry has made great progress, except in the manufacture of cheese, which, however, was never produced on a very large scale.

Including grapes, Fresno produces more fruit than any other county in the state. Fresno County holds the first place in the production of grapes, raisins, peaches, and figs, and is one of the leading counties of the state in the production of apricots and olives, and the acreage in figs and citrus fruits is rapidly increasing.

Fresno County is noted for the extent of development of farmers' marketing associations. The California Associated Raisin Company is one of the largest growers' organizations in the United States, as well as one of the oldest in California. The California Peach and Fig Growers' Association comprises a membership of more than 8000 growers, and is patterned along the same lines as the raisin company.

Estimates for the 1921 production have been made by the Fresno County Chamber of Commerce as follows:

Raisins.....	\$42,000,000	Wool and mohair.....	\$800,000
Peaches.....	10,000,000	Olives and olive oil.....	200,000
Grapes.....	14,000,000	Honey.....	600,000
Oil.....	24,000,000	Apples.....	40,000
Manufacturing.....	9,000,000	Berries.....	76,000
Dairying.....	6,000,000	Beef.....	4,000,000
Horses.....	2,500,000	Canning.....	6,000,000
Hay.....	4,000,000	Mining.....	500,000
Nursery stock.....	3,500,000	Grain Hay.....	700,000
Citrus.....	2,000,000	Grain.....	6,000,000
Figs.....	1,800,000		

In Fresno County the canning and preserving industry has increased very rapidly. There are six large canning establishments and many preserving and processing plants. It is estimated that one-fifth of the total value of this industry in California is produced in Fresno.

Fresno stands fourth in the production of minerals in the State of California. The California State Mining Bureau in its report for 1921 places the total value of all minerals for the state at \$244,856,910.

The mineral resources of this county are many, and, aside from crude oil, are in the main not yet fully developed. They include asbestos, barytes, brick, chromite, copper, gems, gold, graphite, gypsum, magnesite, natural gas, petroleum, quicksilver, and miscellaneous stone.

Commercial production for 1921 was as follows:

Substance	Value	Substance	Value
Gold.....	\$7,793	Silver.....	\$227
Granite.....	201,865	Stone, miscellaneous.....	535,587
Magnesite (506 tons).....	8,725	Other minerals.....	17,000
Natural gas (3,721,313 M cu. ft.).....	201,865		
Petroleum (15,375,454).....	22,801,798	Total value.....	\$23,622,595

Fresno County ranks second in the number of farms having a total of 8917 in 1920, as compared with 6245 in 1910. The total value of farm products in Fresno County is greater than in any other county in the state, except Los Angeles.*

FRESNO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Wool—	
Total in 1910	6,245	Wool, fleeces, shorn	190,128
Total in 1920	8,917	Value of wool produced	\$357,961
Land and Farm Areas.		Principal Crops.	
Approximate land, acres	3,808,000	Acres	Bushels
Land in farms in 1910	1,106,616	Corn	3,965 76,279
Land in farms in 1920	1,319,531	Oats	1,282 26,628
Improved land in farms in 1910	590,205	Wheat	27,476 406,619
Improved land in farms in 1920	672,591	Barley	36,252 592,486
Woodland in farms	107,456	Kafir corn and milo maize	5,255 152,252
Other unimproved land	539,484	Dry edible beans	161 2,356
		Potatoes	185 9,705
Value of All Farm Property.		Hay and forage—	Acres Tons
Total value in 1910	\$92,583,058	Timothy and clover mixed	59 73
Total value in 1920	303,094,622	Clover alone	14 22
Land in 1910	75,136,654	Alfalfa	64,056 255,322
Land in 1920	260,496,470	Other tame and cultivated	
Buildings in 1910	6,861,289	grasses	641 663
Buildings in 1920	19,364,721	Wild, salt, or prairie grasses	431 553
Implements and machinery in 1910	3,228,706	Grains cut green	23,619 31,643
Implements and machinery in 1920	12,116,265	All other hay and forage	4,141 12,849
Domestic animals, poultry and bees in 1910	7,356,409	Totals	94,921 303,790
Domestic animals, poultry and bees in 1920	11,117,166		
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres	185
Beef	44,103	All other vegetables, acres	450
Dairy	37,073	Cotton, acres	5,551
Total	81,176		
Value	\$4,382,957	Subtropical fruits—	Number bearing trees
Horses—		Figs	162,320
Number	24,829	Lemons	25,285
Value	\$2,255,144	Oranges	140,280
Mules—		Olives	50,140
Number	5,139	Total	378,025
Value	\$664,549		
Asses and burros—		Orchard fruits—	Number bearing trees
Number	112	Apples	77,364
Value	\$10,216	Apricots	176,838
Swine—		Peaches and nectarines	2,515,288
Number	46,451	Pears	17,112
Value	\$686,440	Prunes and plums	120,963
Sheep—		Total	2,914,642
Number	232,612		
Value	\$2,644,262	Grapevines—	
Goats—		Number in bearing	59,868,677
Number	1,333		
Value	\$14,967	Small fruits—	
Total value all domestic animals	\$10,658,535	Strawberries, acres	720
		All others, acres	240
Poultry and bees—		Total acres	960
Poultry of all kinds	318,786		
Value	\$380,780	Nuts—	Number bearing trees
Colonies of bees	11,064	Walnuts	3,837
Value	\$77,851	Total	10,712
Poultry products—			
Poultry raised, number	273,398	Irrigation.	
Eggs produced, dozen	1,388,220	Acres irrigated in 1919	517,876
Value poultry and eggs produced	\$796,516	Acreege enterprises were capable of irrigating in 1920	798,943
Honey and wax—		Acreege included in projects	957,780
Honey produced, pounds	271,379		
Wax produced, pounds	4,070		
Value of honey and wax produced	\$55,865		

*Information furnished by the Fresno Chamber of Commerce.

Glenn County.

Date of creation, March 11, 1891.

Land area, 1,337 square miles.			1890	1900	1910	1920
County seat, Willows (town).	Population	-----		5,150	7,172	11,853
Population per square mile, 8.9.	Population	-----	1,176	893	1,139	2,190
			Highest	Lowest	Inches	Inches
Elevation, 136 feet.	1917: Temperature	-----	112	25	Rainfall..... 8.82	Snow..... 0
	1918: Temperature	-----	112	20	Rainfall..... 14.85	Snow..... 0

Glenn County occupies a central position in the Sacramento Valley, extending from the summit of the Coast Range across the Sacramento eastward, one-third being mountainous, but affording good summer pasturage for stock. About the same area is in the foothills, with many fertile ranches, and the remaining third practically a level valley floor of wonderfully fertile soil, which has for the past 40 years been continuously cropped to grain and still continues to produce good crops.

The United States Reclamation Service has installed a system to irrigate 25,000 acres of the fertile lands about the town of Orland. This project is designed as a model irrigation system, and was undertaken by the reclamation service to demonstrate the benefits of irrigation under perfect conditions of soil and climate. The works consist of an impounding dam, situated at East Park in Colusa County, a diversion dam at the Buttes in Tehama County, and 99 miles of canals and main laterals, about 100 miles of small field ditches.

"The average sized farm under the Orland Project is about 19 acres. A very wide range of crops are grown under irrigation, including besides the common crops of alfalfa and grains, special crops such as citrus, almonds, prunes, olives, figs and the more common deciduous fruits. The county has 15,000 acres of young orchards.

Another extensive irrigation system in the county comprises 150,000 acres along the Sacramento River, extending westward to the town of Willows. Much of the land under this project is as yet not in intensive crops. In the Ord, Hamilton, and Monroeville sections of this project, orchard industry is rapidly advancing. About 30,000 acres under this project is in rice production.

Extensive areas in the county are cropped to dry land grain. About 80,000 acres of barley and 20,000 acres of wheat are grown annually. The grain area is being decreased annually by irrigation development with wells and pumping plants, there being about 12,000 acres under pumps in the county at the present time.

The county has come forward rapidly in the production of pure bred live stock. The Orland district is the largest Jersey cattle section in the state. The county is in the first rank in the production of pure bred Berkshire and Duroc hogs."*

The county roads are excellent. They are graded, graveled, and kept in splendid condition, the gravel in all parts of the county being particularly adapted to road making.

Glenn County is the hunter's paradise. Black bass, striped bass, salmon, perch, catfish, trout, and many other varieties abound in the Sacramento River, and the mountain streams are full of speckled trout, while the heavy growth of brush along the river banks and in the foothills is full of quail, deer, squirrels, and other game, whereas from the

*W. H. Heileman, County Agent.

middle of November to the first of March, when the wild geese and ducks come into winter quarters, good sport is enjoyed, the hunters killing them by the hundreds.

GLENN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910	663	Honey produced, pounds	39,131
Total in 1920	1,320	Wax produced, pounds	379
		Value of honey and wax produced	\$7,974
Land and Farm Areas.		Wool—	
Approximate land, acres	855,680	Wool, fleeces shorn	103,892
Land in farms in 1910	491,168	Mohair and goat, fleeces shorn	1,842
Land in farms in 1920	524,407	Value wool and mohair produced	\$311,919
Improved land in farms in 1910	309,705		
Improved land in farms in 1920	336,482		
Woodland in farms	36,401		
Other unimproved land	151,464		
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$16,581,419	Corn	Acres 415 Bushels 8,609
Total value in 1920	45,474,611	Oats	528 9,516
Land in 1910	13,425,220	Wheat	30,851 529,751
Land in 1920	35,157,244	Barley	54,631 1,191,313
Buildings in 1910	1,110,215	Kafir corn and milo maize	3,600 117,909
Buildings in 1920	3,781,758	Potatoes	4 291
Implements and machinery in 1910	390,333	Hay and forage—	Acres Tons
Implements and machinery in 1920	2,534,632	Timothy alone	208 268
Domestic animals, poultry and bees in 1910	1,655,651	Timothy and clover mixed	59 73
Domestic animals, poultry and bees in 1920	4,000,977	Alfalfa	11,026 43,616
		Other tame and cultivated	
		grasses	1,841 1,921
		Wild, salt, or prairie grasses	813 736
		Grains cut green	12,139 14,643
		All other hay and forage	789 2,914
		Totals	29,875 64,201
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres	4
Beef	14,784	All other vegetables, acres	85
Dairy	8,628		
Total	23,412	Orchard fruits—	Number
Value	\$1,451,473	Apples	bearing trees 3,773
Horses—		Apricots	6,546
Number	4,776	Peaches and nectarines	37,355
Value	\$396,272	Pears	17,411
Mules—		Prunes and plums	34,342
Number	2,028	Total	83,131
Value	\$213,129	Subtropical fruits—	Number
Asses and burros—		Lemons	bearing trees 1,172
Number	15	Oranges	40,699
Value	\$4,155	Grapevines—	
Swine—		Number in bearing	22,547
Number	22,844	Small fruits—	
Value	\$361,036	Total acres	17
Sheep—		Nuts—	Number
Number	136,852	Almonds	bearing trees 99,355
Value	\$1,340,020	Walnuts	876
Goats—		Total	100,231
Number	2,076	Irrigation.	
Value	\$26,434	Acres irrigated in 1919	100,284
Total value all domestic animals	\$3,792,519	Acres enterprise were capable of irrigating	
Poultry and bees—		in 1920	120,577
Poultry of all kinds	132,988	Acres included in projects	135,889
Value	\$195,709		
Colonies of bees	1,397		
Value	\$12,749		
Poultry products—			
Poultry raised, number	100,141		
Eggs produced, dozen	377,844		
Value poultry and eggs produced	292,067		

The railway from San Francisco has been extended through the county to Eureka and on to Trinidad, which will greatly help its development.

Eureka, the county seat and principal city, has many shipping and lumber manufactures, and during 1917 and 1918 the ship building industry was largely extended.

Arcata is the town next in size, having a population of 1486. It depends chiefly upon the farming and dairying region surrounding it, and also has a barrel stave factory, a tannery, and minor manufactures. The Humboldt State Normal School is located here.

Ferndale, population 919, is in the heart of the Eel River dairying section. Farming and dairying are the leading industries.

Fortuna, population 488, also in the Eel River Valley, depends upon farming, dairying and lumber manufacturing.

Blue Lake, population 441, in the Mad River farming district, depends upon farming and dairying.

Loleta,* population 600, depends upon dairying and farming, and has a condensed milk plant.

Fields Landing,* population 400, depends upon shipping and has the workshops of the Northern Pacific Railroad Company.

Scotia,* 1300; Samoa,* 1000 and Korbek,* 700, are each sawmill towns, devoted almost wholly to lumber manufacturing.

HUMBOLDT COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Asses and burros—	
Total in 1910	1,534	Number	73
Total in 1920	1,756	Value	\$2,295
Land and Farm Areas.		Swine—	
Approximate land, acres	2,288,000	Number	13,524
Land in farms in 1910	642,536	Value	\$185,364
Land in farms in 1920	717,174		
Improved land in farms in 1910	105,248	Sheep—	
Improved land in farms in 1920	98,064	Number	56,153
Woodland in farms	225,857	Value	\$639,188
Other unimproved land	393,253		
Value of All Farm Property.		Goats—	
Total value in 1910	\$21,230,881	Number	6,479
Total value in 1920	40,672,483	Value	\$64,630
Land in 1910	16,378,032	Total value all domestic animals	\$6,305,820
Land in 1920	28,603,345		
Buildings in 1910	2,054,525	Poultry and bees—	
Buildings in 1920	4,079,399	Poultry of all kinds	71,802
Implements and machinery in 1910	444,280	Value	\$84,572
Implements and machinery in 1920	1,590,802	Colonies of bees	1,688
Domestic animals, poultry, and bees in 1910	2,354,044	Value	\$8,545
Domestic animals, poultry, and bees in 1920	6,398,937		
Domestic Animals on Farms and Ranges.		Poultry products—	
Cattle—		Poultry raised, number	44,224
Beef	29,818	Eggs produced, dozen	377,844
Dairy	34,495	Value poultry and eggs produced	\$227,397
Total	64,313		
Value	\$4,774,949	Dairy products—	
Horses—		Value	\$4,381,129
Number	5,928		
Value	\$614,105	Honey and wax—	
Mules—		Honey produced, pounds	94,980
Number	336	Wax produced, pounds	624
Value	\$25,289	Value of honey and wax produced	\$19,239
		Wool—	
		Wool, fleeces shorn	55,881
		Goat hair, fleeces shorn	4,634
		Value wool and mohair produced	\$200,713

*Estimated.

Imperial County.

Date of creation, August 15, 1907.

(Organized from part of San Diego County.)

Land area, 4,080 square miles.	Population	1890	1900	1910	1920		
County seat, El Centro (city).	Population .....	.....	.....	13,591	43,453
Population per square mile, 10.6.	Population .....	.....	.....	1,610	5,464
Station:	Highest	Lowest	Inches	Inches			
Brawley, 105 feet.	1917: Temperature	118	30	Rainfall	1.84	Snow	0
	1918: Temperature	115	25	Rainfall	1.94	Snow	0

Imperial is the youngest county in the state, having been formed in 1907, from the eastern part of San Diego County, formerly known as the "Colorado Desert, or Imperial Valley." The progress of the county is practically confined to the central part of the valley. The irrigable area all lies below sea level, from one foot below at the south end, to nearly 200 feet at the north end. Imperial County has nine growing towns, viz.: Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, Niland, Seeley, and Westmoreland. Imperial County is well known as the largest producer of cotton in California. There are 29 cotton gins, 4 cottonseed oil mills and 2 compressors—one in Imperial and one in Calexico.

The cultivation of cotton holds an important part in the industrial development of Imperial County.

Imperial Valley is 110 miles long by 40 miles wide, half in California, half in Mexico. The present irrigated area is 40 by 25 miles in California. Irrigated from the Colorado River, from which 50,000 miners' inches are available. The surface appears to be perfectly level, but slopes gradually northward, affording a sufficient fall for the waters of the irrigation system.

About 100,000 acres in the valley is in alfalfa, and is the basis of its livestock farming.

Imperial Valley is one of the best stock, hog and poultry producing counties.

Dairying is very profitable, owing to the fact that alfalfa grows throughout the winter, furnishing an abundant supply of green pasturage. Modern creameries, with latest appliances, are located in different sections. In the production of butter the county ranks third, the output being only exceeded by Stanislaus and Humboldt counties.

The irrigation system, which supplies the valley with water from the Colorado River, is the largest unit project in the United States, and is operated by the people of the valley themselves. Approximately 600,000 acres are in cultivation in the valley. The chief engineer of the system says the present supply of water is safe for 120,000 acres, and that with the construction of one or two reservoirs which will store 200,000 acre-feet of water, the supply will be adequate for every acre of land susceptible of irrigation, from the Colorado River.

At El Centro and Imperial plants have been established for the manufacture of cottonseed oil and cottonseed cake on which a large number of cattle are fattened.

There is 60 miles of paved road built and under construction in the valley. The state will build shortly a paved road from the north end to the south end, and the county is now building a paved road from

El Centro to Calexico, and one from Imperial to Holtville, and Calipatria to Brawley. When the roads under construction are completed it will give the valley a good system of paved highways.

The crops consist mostly of alfalfa, barley, corn, cotton, and all kinds of live stock and vegetables, grapes and grapefruit. At Imperial there is a packing house, one of the finest in the country, for the Barbara Worth grapefruit. The grapefruit industry is growing larger every year; more acres are being put in all the time. There are 450 acres planted to grapefruit in the valley. Owing to the particular kind of soil in this locality the fruit has a more delicious, sweet flavor than any that is grown anywhere in the country.

On account of the extremely long hot season fruit ripens very early, going on the market the first of the season with no competition, the producers thereby receive very attractive returns. Grapes are one of the best and leading fruits of the valley, the early varieties Persians, begin ripening the first of June, followed closely by the Thompson seedless, then the Malagas, which continue through the shipping season to about the last of July. Many other varieties do well here that have not been successfully grown in other sections of the state. Experiments are being made with many other varieties and there are now some very promising varieties that may take the place of the present commercial varieties. There are 4,000 acres of old bearing vines and several hundred acres of new plantings. About 247 cars of the fruit crop are shipped east each year.

Lemons do very well, growing a very juicy fruit, with thin skin and full of acid.

Many varieties of oranges have been tried out, the seedlings producing the best quality of fruit. However, the Washington navels ripen the first of November and should be picked as soon as ripe for best results.

There are many olive trees planted in different sections of the valley, the largest orchard consisting of 40 acres. Of the deciduous fruit, the apricot is in the lead. The early varieties ripen by April 20, and shipments continue until the last of May. Newcastle and Royal are the principal varieties. It is almost unbelievable how fast apricot trees grow in this valley. With good care a year-old tree is the size of a tree in other districts three years old.

Nearly all varieties of peaches have been tried, and the Chinese and Southern varieties have proven to be the most profitable. However, peaches are not considered commercially.

Pears are being tried out on quite a large scale, one orchard consisting of 60 acres and is reported as successful.

This is a natural country for the fig which produces large, firm, quality fruit.

This country produces more cantaloupes than any one state in the Union.

Asparagus is one of the products of this valley that brings the greatest returns to the owners of any of the present crops. The season opens about the fifth of February and continues for two months. Early in the season it is not uncommon to receive one dollar and twenty-five cents a pound in the East.

The commercial berry is the strawberry, and they do well, producing a fine fruit and netting the grower a handsome profit. In 1920 eight cars were shipped and fourteen carloads in 1921.

Imperial County is in the southeast corner of the state. In 16 years it has been reclaimed from a desert waste and developed until the population today is 45,000, and has an actual property valuation of \$90,000,000. It is sometimes referred to as "Barbara Worth's country," being the locale of a novel of similar name.

IMPERIAL COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,322	Poultry raised, number.....	154,179
Total in 1920.....	2,843	Eggs produced, dozen.....	766,949
		Value poultry and eggs produced.....	\$447,043
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	2,616,960	Honey produced, pounds.....	667,676
Land in farms in 1910.....	223,662	Wax produced, pounds.....	13,447
Land in farms in 1920.....	347,485	Value of honey and wax produced.....	\$138,779
Improved land in farms in 1910.....	176,069	Wool—	
Improved land in farms in 1920.....	310,708	Wool, fleeces shorn.....	38,176
Woodland in farms.....	1,365	Value of wool produced.....	\$93,322
Other unimproved farms.....	35,412	Principal Crops.	
Value of All Farm Property.			
Total value in 1910.....	\$23,646,067	Corn.....	Acres 1,682 Bushels 51,111
Total value in 1920.....	69,171,454	Oats.....	544 16,805
Land in 1910.....	19,832,660	Wheat.....	25,711 543,736
Land in 1920.....	54,999,817	Barley.....	18,225 478,051
Buildings in 1910.....	764,665	Kafir corn and milo maize.....	65,421 1,672,080
Buildings in 1920.....	3,118,447	Potatoes.....	8 228
Implements and machinery in 1910.....	459,535	Hay and forage—	Acres Tons
Implements and machinery in 1920.....	2,954,548	Alfalfa.....	48,508 96,430
Domestic animals, poultry and bees in 1910.....	2,589,207	Other tame and cultivated	
Domestic animals, poultry and bees in 1920.....	8,102,733	grasses.....	381 583
		Wild, salt, or prairie grasses.....	20 10
		Grains cut green.....	7,362 6,634
		All other hay and forage.....	5,191 18,773
		Totals.....	61,452 123,430
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	8
Beef.....	23,212	All other vegetables, acres.....	14,039
Dairy.....	43,165		
Total.....	66,377	Orchard fruits—	Number
Value.....	\$4,785,582	bearing trees.....	
Horses—		Apples.....	148
Number.....	11,627	Apricots.....	1,888
Value.....	\$1,106,512	Peaches and nectarines.....	688
Mules—		Prunes and plums.....	190
Number.....	3,941	Pears.....	779
Value.....	\$485,893	Subtropical fruits—	Number
Asses and burros—		bearing trees.....	
Number.....	22	Lemons.....	478
Value.....	\$2,121	Oranges.....	2,512
Swine—		Grapevines—	Number in bearing.....
Number.....	44,839	Total.....	246,684
Value.....	\$709,282	Small fruits—	
Sheep—		Total acres.....	8
Number.....	60,176	Nuts—	Number
Value.....	\$487,352	bearing trees.....	
Goats—		Almonds.....	90
Number.....	252	Walnuts.....	400
Value.....	\$2,969	Total.....	490
Total value all domestic animals.....	\$7,579,711	Cotton—	
Poultry and bees—		Acres.....	56,938
Poultry of all kinds.....	277,154	Bales.....	26,343
Value.....	\$365,927	Irrigation.	
Colonies of bees.....	14,988	Acres irrigated in 1919.....	402,671
Value.....	\$157,095	Acresage enterprises were capable of irrigating	
		in 1920.....	442,740
		Acresage included in projects.....	512,960

Inyo County.

Date of creation, March 22, 1866.

		1900	1910	1920
Land area, 9,991 square miles.	Population.....	4,377	6,974	7,031
County seat, Independence (township).	Population.....	820	701	400
Population per square mile, 0.7.				
		Highest Lowest		Inches
Elevation, 3,926 feet.	1917: Temperature.....	102	—1	Rainfall..... 2.11
	1918: Temperature.....	101	14	Snow..... 6.0
				Rainfall..... 4.02
				Snow..... 5.9

"Inyo County lies on the eastern side of the Sierras adjoining Nevada. The western boundary of the county is the saw-toothed range of the Sierras, rising to altitudes of nearly 15,000 feet and covered with eternal snows. Flowing out of these mountains down into Owens Valley are numerous streams. Many of them have been utilized by the power companies, and the energy derived from these power plants is used in many of the mining operations of western Nevada and even in Mexico power from Inyo County is used. These streams are abundantly stocked with trout and here is the real paradise of the angler. The golden trout is one of the species that does exceptionally well in this section. The Whitney state hatchery, near Independence, one of the finest propagation plants in the world, annually supplies the necessary plantings of trout fry.

In the central section of the county lies the fertile Owens Valley. It varies in width from 2 to 15 miles, and is over 100 miles in length. Cattle and sheep are raised in large numbers. Alfalfa is a staple crop, but fruit and berry raising is coming to the front, particularly in the Bishop, Fish Springs and Manzanar districts. Cattle raising and sheep raising are big enterprises in Owens Valley, as the forest reserves furnish splendid ranges in summer. The winter feeding season is short. The support that is being given the Inyo County Pear Growers Association, recently organized, will, within a few years, make Owens Valley one of the best developed, most progressive and most prosperous valleys in the state.

In borax, the Death Valley (290 feet below sea level) plant furnishes the major portion of that produced in California. Soda is produced in large quantities at various plants on Owens Lake. Salt is extensively produced in Saline Valley. Tungsten is mined at several large properties near Bishop. Large undeveloped holdings of potash are being prospected in the vicinity of Deep Springs and it is said they will supply the needs of the United States for that important mineral when developed. More lead and zinc are produced in Inyo County than in any other county in the state.

Inyo has a diversified topography, claiming Mt. Whitney, the highest mountain in the United States, and the lowest depression, Death Valley.

The city of Los Angeles has an aqueduct connecting that city with the Owens River, and all the surplus waters of that stream are taken by this means to Los Angeles. Immense storage plants are in contemplation for the storage of all flood waters of the valley for agricultural and power purposes.

The tourists have found the high altitudes, the mountain lakes and streams, the delightful climate and the fertile valley to their liking, and with the advent of better highways, their business promises to be increased. Thousands, as it is, motor to this country every summer for their recreation.

Inyo County is one of few that is free from indebtedness and in addition thereto has \$500,000 loaned out, the interest thereon being sufficient to pay the salaries of all of its county officers. A \$200,000 courthouse has just been completed and paid for out of funds in the treasury.

Sugar beets are a proved success, and attempts are being made this season to raise rice, with every prospect of making good.

Bishop is the largest town in the valley. Big Pine, Lone Pine, Keeler and Manzanar are thriving towns."

INYO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910	438	Poultry raised, number	7,250
Total in 1920	424	Eggs produced, dozen	95,514
		Value poultry and eggs produced	\$55,515
Land and Farm Areas.		Honey and wax—	
Approximate land, acres	6,394,240	Honey produced, pounds	197,451
Land in farms in 1910	116,142	Wax produced, pounds	2,455
Land in farms in 1920	140,029	Value honey and wax produced	\$10,291
Improved land in farms in 1910	38,698	Wool—	
Improved land in farms in 1920	39,904	Wool, fleeces shorn	24,755
Woodland in farms	20,158	Value wool produced	\$78,479
Other unimproved land	79,967	Principal Crops.	
Value of All Farm Property.			
Total value in 1910	\$7,112,903		
Total value in 1920	14,945,798		
Land in 1910	5,210,586		
Land in 1920	10,621,080		
Buildings in 1910	558,740	Corn	Acres 3,252 Bushels 92,694
Buildings in 1920	1,235,175	Oats	314 8,078
Implements and machinery in 1910	189,810	Wheat	2,161 57,667
Implements and machinery in 1920	492,558	Barley	270 5,595
Domestic animals, poultry and bees in 1910	1,153,767	Dry edible beans	20 183
Domestic animals, poultry and bees in 1920	2,596,985	Potatoes	182 19,101
Domestic Animals on Farms and Ranges.			
Cattle—		Hay and forage—	Acres Tons
Beef	21,709	Timothy alone	168 311
Dairy	3,693	Timothy and clover mixed	1,071 2,075
Total	25,403	Clover alone	168 318
Value	\$1,579,523	Alfalfa	13,169 40,703
Horses—		Other tame and cultivated grasses	358 334
Number	3,682	Wild, salt, or prairie grasses	1,510 1,824
Value	\$300,277	Grains cut green	305 181
Mules—		All other hay and forage	1,205 6,833
Number	448	Totals	17,885 52,579
Value	\$35,874	Special crops—	
Asses and burros—		Potatoes, acres	182
Number	41	All other vegetables, acres	33
Value	\$1,425	Orchard fruits—	Number bearing trees
Swine—		Apples	17,963
Number	4,357	Peaches and nectarines	6,283
Value	\$89,457	Pears	3,405
Sheep—		Prunes and plums	496
Number	43,542	Total	28,403
Value	\$515,521	Grapevines—	
Goats—		Number in bearing	15,809
Number	95	Small fruits—	
Value	\$1,069	Total acres	9
Total value all domestic animals	\$2,523,140	Irrigation.	
Poultry and bees—		Acres irrigated in 1919	74,958
Poultry of all kinds	22,344	Acres enterprises were capable of irrigating in 1920	79,771
Value	\$29,829	Acres included in projects	37,998
Colonies of bees	4,602		
Value	\$43,956		

Kern County.

Date of creation, April 2, 1866.

Land area, 8,003 square miles.	Population.....	1890	1900	1910	1920
County seat, Bakersfield (city).	Population.....	9,808	16,480	37,715	54,843
Population per square mile, 6.9.	Population.....	2,626	4,836	12,727	18,638
	Highest	Lowest	Inches		Inches
Elevation, 404 feet.	1917: Temperature.....	110	25	Rainfall.....	3.02
	1918: Temperature.....	107	25	Rainfall.....	6.62
				Snow.....	0
				Snow.....	0

Kern County, situated at the extreme southern end of the San Joaquin Valley, its eastern boundary extending on to the Mojave Desert over the extreme southerly end of the Sierra Nevada Mountains, is the third largest county in the state.

Along the southern border where the line crosses the San Emidio Mountains are large deposits of iron ore and antimony, which are yet undeveloped. Along the western side of the county are the Sunset, Midway, McKittrick and Lost Hills oil fields, lying along the eastern base of the Coast Range Mountains.

In the northeastern part is the mining town of Kernville, surrounded by mines, and near it on the south fork of the Kern River is the South Fork Valley, where numerous stockmen have their alfalfa fields that furnish feed to the stock that pasture in the high Sierra in the summer time.

In the center, and surrounding the town of Bakersfield, the county seat, lie thousands of acres of fertile land that are irrigated by Kern River, and which are mostly used to raise stock and alfalfa, but large quantities of fruit, including oranges, are also raised in the county. The acreage in apricots, peaches, prunes, pears, olives, grapes and oranges has increased very considerably in the last five years.

Kern County is a long way ahead of all others in the value of minerals produced, amounting in 1917 to \$49,743,422. The greater part of this sum is derived from the extensive oil fields which produced 53,065,066 barrels, valued at \$47,387,104, and in 1920 production value of \$100,000,000.

In the northern part of the county surrounding the towns of Delano and McFarland, is a large body of good land now being developed into a rich farming and fruit growing section. Rice has been successfully grown at Wasco and that vicinity for several years. In 1917, 1280 acres were planted, and a new modern mill was installed at Wasco.

Cotton has been grown on a commercial basis in the county since 1918. The acreage has fluctuated greatly from year to year on account of market conditions. Pima Egyptian has been the leading variety. There are cotton gins at Arvin, Magunden, Bakersfield, Shafter, and Wasco.

In the oil fields the development work is continuous. Lost Hills is being developed, and the discoveries there indicate that the petroleum-bearing territory is continuous from Sunset to the north line of the county.

Kings County.

Date of creation, March 22, 1893; organized from part of Tulare County; extended in 1909 by annexation of part of Fresno County.

		1890	1900	1910	1920
Land area, 1,159 square miles.	Population		9,871	16,230	22,031
County seat, Hanford (city).	Population	942	2,929	4,829	5,888
Population per square mile, 19. 0.					
	Highest	Lowest	Inches	Inches	
Elevation, 249 feet.	1917: Temperature	110	20	Rainfall	4. 43
	1918: Temperature	108	22	Rainfall	12. 51
	1920: Temperature	105	21	Rainfall	7. 56
				Snow	0

Kings County is in the center of one of the richest and most productive fruit, grain, dairy and livestock raising sections of the great San Joaquin Valley, California's "Garden of the Sun."

One of the smallest counties in the state, and one of the youngest, Kings is nevertheless one of the richest in diversity and value of crops.

This wealth of diversity, and quality of produce, was well illustrated at the annual State Fair in Sacramento in 1921, where 537 varieties of fruits and grains were shown, and Kings County's exhibit won sweepstake prizes on grapes and peaches, and second grand prize for best and most varied exhibit in competition with the best of all California's wonderful produce.

According to the Horticultural Commissioner's annual report, the leading fruit crops of the county gave the following returns in 1921: Raisin grapes, dried and fresh, \$2,100,218; peaches, dried and canned, \$985,150; apricots, dried and canned, \$915,815; prunes, dried, \$165,750; plums, canned and fresh, \$21,810; olives, \$15,750; total value \$4,303,493.

Large modern canneries and packing plants are conveniently located in Hanford, Armona and Lemoore to handle these products.

The largest single-unit muscat raisin vineyard in the world, the Lucerne vineyard of 1350 acres in full bearing, owned by Wylie M. Giffin, president of the California Associated Raisin Co., is located at Hanford.

Dairying is another industry which brings in between four and five million dollars annually. Kings County ranks fifth among the counties of California in butter production, and second in per-acre production. There are eight large creamery plants in operation, and one creamery alone in Hanford, ranking as the biggest producer in California, did a total gross business in 1921 of \$1,650,204.55. There are about 20,000 milking cows in the county, and ideal climatic and feed conditions warrant a vast increase in this number.

Hogs, sheep and cattle are raised in large numbers, and in pure-bred hog raising, in particular, the county is a recognized center. Poultry raising is also a big industry.

Alfalfa, grains, corn and general farm produce are at their best here, with a long growing season and ample water.

Tulare Lake, indicated on most maps as covering a large area, has been absolutely dry for several years, and farmed to its very bottom, ranking as the heaviest per acre producing land for wheat and barley in the world. In 1919 and 1920 the value of this wheat and barley crop exceeded \$7,000,000, and every indication points to a similar yield for 1922.

A vast network of irrigating canals furnish ample water to irrigated sections, supplied by the Kings River and the vast watershed of the Sierra Nevada mountains. Pumped water, made available by cheap hydro-electric power, is rapidly widening the present irrigated area.

One hundred miles of county paved highways connect all important centers of the county with the great system of state highways.

As an indication of the rapid development of Kings County, the total value of all farm property in 1900 was \$5,921,907, in 1910 was \$33,312,292; and in 1920 was \$67,900,505.

The county is only about 35 per cent developed, only 259,639 acres being listed in the 1920 census as "improved land in farms" out of a total acreage of 741,760. Large subdivision projects are under way which will add materially to the improved acreage and the total of the annual output of fruits, farm and dairy products.

Extensive oil and gas development work in progress in the lake section promise soon to make Kings County one of the big producing fields of the state.

KINGS COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	1,837	Poultry products—	
Total in 1920	2,171	Poultry raised, number	124,502
Land and Farm Areas.		Eggs produced, dozen	753,058
Approximate land, acres	741,760	Value poultry and eggs produced	\$425,968
Land in farms in 1910	373,823	Honey and wax—	
Land in farms in 1920	505,553	Honey produced, pounds	45,809
Improved land in farms in 1910	196,569	Wax produced, pounds	649
Improved land in farms in 1920	259,639	Value of honey and wax produced	\$9,415
Woodland in farms	5,870	Wool—	
Other unimproved land	240,044	Wool, fleeces shorn	44,477
Value of All Farm Property.		Value of wool produced	\$107,254
Total value in 1910	\$33,312,292	Principal Crops.	
Total value in 1920	67,900,505	Ares Bushels	
Land in 1910	26,007,591	Corn	4,442 193,811
Land in 1920	56,192,752	Oats	237 8,102
Buildings in 1910	2,145,975	Wheat	51,984 852,852
Buildings in 1920	4,143,236	Barley	21,289 647,284
Implements and machinery in 1910	654,971	Kafir corn and milo maize	7,751 219,332
Implements and machinery in 1920	2,945,635	Dry edible beans	8 78
Domestic animals, poultry and bees in 1910	4,503,755	Potatoes	30 3,159
Domestic animals, poultry and bees in 1920	4,618,882	Hay and forage—	
Domestic Animals on Farms and Ranges.		Ares Tons	
Cattle—		Clover alone	2,577 148
Beef	11,920	Alfalfa	30,316 71,581
Dairy	29,943	Other tame and cultivated	
Total	41,863	grasses	139 258
Value	\$2,542,043	Grains cut green	10,708 14,230
Horses—		All other hay and forage	1,700 7,606
Number	8,614	Totals	42,942 93,793
Value	\$730,103	Special crops—	
Mules—		Potatoes, acres	30
Number	1,628	All other vegetables, acres	282
Value	\$167,842	Sugar beets, acres	300
Asses and burros—		Orchard fruits—	
Number	18	Number bearing trees	
Value	\$1,140	Apples	6,503
Swine—		Apricots	164,112
Number	34,195	Peaches and nectarines	402,450
Value	\$516,949	Pears	6,382
Sheep—		Prunes and plums	49,829
Number	41,605	Total	629,875
Value	\$458,138	Grapevines—	
Goats—		Number in bearing	5,608,040
Number	562	Small fruits—	
Value	\$3,558	Total acres	20
Total value all domestic animals	\$4,419,773	Nuts—	
Poultry and bees—		Number bearing trees	
Poultry of all kinds	137,557	Total	1,997
Value	\$170,677	Irrigation.	
Colonies of bees	3,883	Aeres irrigated in 1919	175,971
Value	\$28,432	Acreage enterprises were capable of irrigating in 1920	359,121
		Acreage included in projects	472,940

Lake County.

Date of creation, May 20, 1861.

		1890	1900	1910	1920
Land area, 1,238 square miles.	Population	7,101	6,017	5,526	5,402
County seat, Lakeport (town).	Population	991	726	870	1,024
Population per square mile, 4.4.					

		Highest	Lowest	Inches	Inches
Elevation, 1,350 feet.	1916: Temperature	105	12	Rainfall 23.72	Snow 25.3
	1917: Temperature	108	23	Rainfall 11.83	Snow T
	1918: Station discontinued.				

The county is located in the heart of the Coast Range, about 100 miles north of San Francisco, and is about 75 miles long and 25 miles wide. Mount St. Helena guards the southern extremity. Clear Lake is a splendid sheet of fresh water 25 miles long and from 2 to 10 miles broad, with the lake surface at an elevation of 1350 feet above the sea level. It is stocked with a large quantity of fish. Clear Lake is the pride of Lake County, as well as the source of its name.

Although classed as mountainous, Lake County has a number of very fertile valleys, some of them being of large area. The acreage in farm crops is small compared with most other counties, but a considerable quantity of peas and beans are raised for canning purposes. Artesian water is obtainable in profuse quantities.

Lake County stands in a class by itself for dried Bartlett pears, and commands a preferential rate of 3 cents a pound over any other county, inasmuch as she dries entire crops of pears, whereas other counties dry only the culls.

In 1921 Lake County had 9140 acres planted to orchard, Bartlett pears being the favorite, there being 900 acres bearing and 4060 acres nonbearing of that fruit. Prunes coming next with 620 acres bearing and 1750 acres nonbearing. Some very fine walnuts are raised, over 700 acres being planted, mostly on the slopes of Mt. Konocti. In the last five years the total planting of orchard has practically doubled.

In 1919 Lake County produced 4800 tons of Bartlett pears, and 1540 tons of dried French prunes. The acreage of alfalfa has been greatly increased, and dairy cattle have been greatly increased and improved.

The rocky hillsides furnish pasturage for flocks of Angora goats. Large bodies of sugar and yellow pine, fir, cedar, and oak give employment to several sawmills and furnish the home market a good quality of lumber.

The minerals have heretofore been represented principally by quicksilver. Besides quicksilver, immense quantities of mineral water have been bottled at the many mineral springs and shipped to all parts of the country. Lake County has 56 mineral springs, or more than any other county in the state.

LAKE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	603	Poultry products—	
Total in 1920	771	Poultry raised, number	27,711
Land and Farm Areas.		Eggs produced, dozen	100,514
Approximate land, acres	792,320	Value poultry and eggs produced	\$65,178
Land in farms in 1910	217,464	Honey and wax—	
Land in farms in 1920	241,899	Honey produced, pounds	6,907
Improved land in farms in 1910	42,768	Wax produced, pounds	72
Improved land in farms in 1920	45,355	Value of honey and wax produced	\$1,427
Woodland in farms	54,781	Wool—	
Other unimproved land	141,763	Wool, fleeces shorn	8,495
Value of All Farm Property.		Goat hair, fleeces shorn	1,701
Total value in 1910	\$6,271,615	Value wool and mohair produced	\$30,378
Total value in 1920	12,764,520	Principal Crops.	
Land in 1910	4,792,480	Corn	Acres 1,015 Bushels 25,840
Land in 1920	9,912,320	Oats	434 8,091
Buildings in 1910	782,735	Wheat	5,323 96,952
Buildings in 1920	1,265,690	Barley	2,393 43,461
Implements and machinery in 1910	207,211	Potatoes	132 13,193
Implements and machinery in 1920	588,160	Hay and forage—	
Domestic animals, poultry and bees in 1910	489,189	Timothy alone	Acres 10 Tons 17
Domestic animals, poultry and bees in 1920	898,320	Timothy and clover mixed	156 233
Domestic Animals on Farms and Ranges.		Clover alone	140 213
Cattle—		Alfalfa	5,375 13,017
Beef	7,524	Other tame and cultivated	
Dairy	3,042	grasses	342 587
Total	10,566	Wild, salt, or prairie grasses	789 751
Value	\$454,153	Grains cut green	5,254 6,045
Horses—		All other hay and forage	417 1,009
Number	2,138	Totals	12,477 21,872
Value	\$158,847	Special crops—	
Asses and burros—		Potatoes, acres	132
Number	172	All other vegetables, acres	13,193
Value	\$15,250	Orchard fruits—	
Swine—		Apples	Number bearing trees 17,394
Number	8,168	Apricots	363
Value	\$85,293	Peaches and nectarines	10,988
Sheep—		Pears	85,776
Number	14,880	Prunes and plums	54,499
Value	\$125,573	Total	169,625
Goats—		Grapevines—	
Number	2,271	Number in bearing	243,278
Value	\$14,925	Small fruits—	
Total value all domestic animals	\$854,001	Total acres	19
Total value of dairy products	4,912,896	Nuts—	
Poultry and bees—		Almonds	Number bearing trees 29,898
Poultry of all kinds	33,250	Walnuts	3,463
Value	\$42,470	Total	33,361
Colonies of bees	424	Irrigation.	
Value	\$1,549	Acres irrigated in 1919	1,087
		Acres enterprises were capable of irrigating in 1920	1,497
		Acres included in projects	1,811

Lassen County.

Date of creation, April 1, 1864.

Land area, 4,531 square miles.	Population.....	1890	1900	1910	1920
Susanville, 4,175 feet.	Population.....	4,239	4,511	4,802	8,507
County seat, Susanville (town).	Population.....	-----	-----	688	918
Population per square mile, 1.9.					
Madeline (Station):	Highest	Lowest	Inches		Inches
Susanville, 4,175 feet.	1917: Temperature.....	102	-17	Rainfall..... 9.82	Snow..... T
Madeline, 5,270 feet.	1918: Temperature.....	93	-18	Rainfall..... 12.50	Snow..... 76.0

Lassen County lies in the northeastern part of California along the Nevada line. Transportation is afforded to the most populous sections of the county by the Nevada, California and Oregon Railroad connecting with the Western Pacific at Hackstaff and running through the lower end of Honey Lake Valley, Madeline Plains and out of the county, north to Alturas in Modoc County; by the Southern Pacific entering the county at Stacy from Reno and traversing a very fertile section of Honey Lake Valley to serve Susanville and the timber country around Westwood; and by the Western Pacific through the southern arm of the county in Long Valley with connections at Reno for East and West. Two state highways traverse the county through Honey Lake Valley in the south and Big Valley in the north.

Susanville, the county seat, is a growing modern town of 3000 population situated at the head of Honey Lake Valley with two big lumber mills, flour mill and creameries, paved streets and sidewalks, electric lights, sanitary facilities and all modern conveniences. The \$5,000,000 box factory of the Fruitgrowers Supply Company is located here.

Westwood, the big lumber town of the Red River Lumber Company lies 25 miles west of Susanville in the heart of the county's big timber belt. Westwood is a modern town in every way with the best of conveniences and fine homes.

Lassen County embraces large areas, comprising rich agricultural lands in the valleys suited to all types of agriculture, rolling hills and uplands affording splendid ranges for stock, and mountain table lands covered with timber.

The altitude of the largest, most fertile, and most productive valleys, such as Honey Lake Valley, Big Valley, and Long Valley, is a little over 4000 feet. Other large valleys, like Madeline Plains, Willow Creek Valley, and Secret Valley, are in the neighborhood of 5000 feet above sea level. While the high valleys are not as well adapted to general farming as the lower ones, they are quite productive, and well suited to the stock-raising business. The climate generally is similar to that of the Northeastern states, so far as range of temperature is concerned, but the summer season is quite dry, making irrigation necessary as a rule. Of farm products, alfalfa is probably the most important, though native grasses, timothy, and redtop are extensively raised.

Good hay and grass and pure cold water make the county an ideal one for dairying. There are a number of creameries in the county.

Los Angeles County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 4,115 square miles.	Population	101,454	170,298	504,131	936,455
County seat, Los Angeles.	Population	50,395	102,479	319,198	576,673
Population per square mile, 227.6.					

		Highest	Lowest	Inches	Inches
Elevation, 293 feet.	1920: Temperature	92	41	Rainfall	11.18
	1921: Temperature	81	46	Rainfall	19.85
				Snow	0
				Snow	0

In wealth, population, and resources Los Angeles is the most important county in southern California, and the value of its farm products is greater than any other county in the United States. There are two rivers in the county, the Los Angeles and the San Gabriel. During a large part of the year these are dry beds of sand, what little water they contain finding its way through the porous sand to the bedrock. In the winter they are liable to flood. The Los Angeles River rises in the western part of the San Fernando Valley, about 12 miles northwest of the city.

Los Angeles County embraces within its limits a great variety of scenery and climate. Within its territory may be found the climate and scenery of almost every part of the state, from the cool and breezy seashore to the warm inland plains and bracing mountain tops. Of the area of the county, about four-fifths is capable of cultivation, the remainder being mountainous. The shore line is 85 miles in length. Nineteenths of the population is within 30 miles of the ocean.

The chief industry is horticulture, the list of products including everything that can be grown in the state. The area of land devoted to horticultural purposes is being rapidly extended as the large tracts are subdivided and improved.

Adjoining San Gabriel Valley on the east is Pomona Valley. Irrigation is cheaply supplied to this section from the San Antonio River. The soil and climate are particularly adapted to the culture of citrus fruits. It contains a number of flourishing towns, the chief of which is Pomona, one of the most thriving cities of southern California.

The development of the horticultural industry during the past few years has been remarkable. The most important horticultural product is the orange. Besides the orange and lemon, the principal fruits raised are the almond, fig, olive, prune, apricot, walnut, peach, pear and berries. Deciduous fruits are shipped fresh, canned, dried and crystallized.

One of the most important enterprises for Los Angeles is the big breakwater built by the federal government at Los Angeles Harbor. Other shipping points of the county are Port Los Angeles, near Santa Monica, Redondo and Long Beach.

The San Gabriel Valley, a choice section of Los Angeles County, has the Sierra Madre Range on the north. The mountains are grand and precipitous, enclosing the valley like a wall. This valley is the best known of any portion of southern California.

The valley contains 100 square miles of territory. The San Gabriel contains some of the choicest fruit lands in southern California, and is largely devoted to the raising of oranges and lemons, as well as deciduous fruits.

Pasadena, a beautiful city of 45,354 population, is located at the foot of the Sierra Madre Range, about seven miles from Los Angeles.

Within 20 years Pasadena has grown from a sheep pasture to a city of beautiful homes.

Ostriches are raised for their plumes. There is a large ostrich farm at South Pasadena.

Los Angeles and Long Beach are the headquarters of the fish canneries and shipbuilding industries.

LOS ANGELES COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Dairy products--	
Total in 1910	7,919	Value	\$4,912,896
Total in 1920	12,444		
Land and Farm Areas.		Honey and wax--	
Approximate land, acres	2,633,600	Honey produced, pounds	519,019
Land in farms in 1910	757,985	Wax produced, pounds	10,954
Land in farms in 1920	881,333	Value of honey and wax produced	\$108,076
Improved land in farms in 1910	418,998	Wool--	
Improved land in farms in 1920	483,096	Wool, fleeces shorn	19,998
Woodland in farms	32,070	Goat hair, fleeces shorn	130
Other unimproved land	367,167	Value wool and mohair produced	\$60,659
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$199,998,200	Corn	Acres 6,222 Bushels 149,590
Total value in 1920	396,596,914	Oats	1,363 27,162
Land in 1910	180,354,798	Wheat	11,563 96,852
Land in 1920	340,682,213	Barley	9,023 162,142
Buildings in 1910	11,798,273	Kafir corn and milo maize	2,981 58,860
Buildings in 1920	33,995,450	Dry edible beans	50,505 546,050
Implements and machinery in 1910	2,462,387	Potatoes	9,973 1,020,456
Implements and machinery in 1920	10,782,774	Hay and forage--	
Domestic animals, poultry and bees in 1910	5,382,742	Timothy alone	Acres 161 Tons 172
Domestic animals, poultry and bees in 1920	11,136,477	Timothy and clover mixed	135 189
		Clover alone	149 231
Domestic Animals on Farms and Ranges.		Alfalfa	25,992 122,131
Cattle--		Other tame and cultivated grasses	463 977
Beef	19,205	Wild, salt or prairie grasses	249 231
Dairy	35,238	Grains cut green	90,257 98,985
Total	54,443	All other hay and forage	8,136 46,638
Value	\$4,690,852	Totals	125,432 269,554
Horses--		Special crops--	
Number	19,731	Potatoes, acres	9,973
Value	\$2,080,149	All other vegetables, acres	31,489
Mules--		Sugar beets, acres	21,702
Number	3,826	Orchard fruits--	
Value	\$514,117	Apples	Number bearing trees 81,531
Asses and burros--		Apricots	169,125
Number	174	Peaches and nectarines	421,680
Value	\$12,395	Pears	199,531
Swine--		Prunes and plums	60,577
Number	38,768	Total	1,037,553
Value	\$803,918	Subtropical fruits--	
Sheep--		Lemons	Number bearing trees 829,286
Number	26,200	Oranges	2,624,172
Value	\$278,406	Grapevines--	
Goats--		Number in bearing	2,042,556
Number	4,751	Small fruits--	
Value	\$260,107	Strawberries, etc., acres	1,230
Total value all domestic animals	\$8,639,944	Nuts--	
Poultry and bees--		Walnuts	Number bearing trees 410,478
Poultry of all kinds	1,350,572	Others	63,355
Value	\$2,351,386	Total	473,883
Colonies of bees	18,817	Irrigation.	
Value	\$145,147	Acres irrigated in 1919	247,223
Poultry products--		Acraege enterprises were capable of irrigating in 1920	329,925
Poultry raised, number	1,245,012	Acraege included in projects	362,116
Eggs produced, dozen	7,793,395		
Value poultry and eggs produced	\$4,624,789		

Madera County.

Date of creation, March 11, 1893.

		1890		1900	1910	1920	
Land area, 2,112 square miles.	Population.....			6,364	8,368	12,203	
County seat, Madera (city).	Population.....			2,404	3,444		
Population per square mile, 5.8.							
Storey (Station):	Highest	Lowest		Inches		Inches	
Elevation, 296 feet.	1916: Temperature.....	105	26	Rainfall.....	18.02	Snow.....	0
	1917: Temperature.....	107	24	Rainfall.....	4.99	Snow.....	0
	1918: Station discontinued.						

Madera County is in the center of the San Joaquin Valley, bounded on the north by Merced and Mariposa counties, on the southeast and west by Fresno County, from which it was formed in 1893. The eastern portion of the county extends far up in the Sierra Nevada Mountains. From the foothills to the San Joaquin River, a distance of about forty miles, the land is level and adapted to all kinds of agricultural pursuits. The higher mountains are heavily timbered with valuable wood, principally sugar and white pine. Lumbering, stock raising, quarrying, mining, fruit growing and farming are the principal industries. The power plant of the San Joaquin Light and Power Corporation is near North Fork, in this county. The granite quarries at Knowles furnish 90 per cent of the granite used in public buildings of California.

Irrigation water is now secured chiefly from wells, which at a shallow depth give good supply. About 10,000 acres is the extent supplied from sources other than well. However, a large irrigation district has been formed and a bond issue of \$28,000,000 was carried by a 99.2 per cent vote. This system will bring water from the San Joaquin and Fresno River to an area of approximately 350,000 fertile acres.

The immensity of the undertaking is shown by the following statistics: The dam will be the largest of its kind in the world, being 4200 feet long on top, 300 feet in height and wide enough to accommodate a highway sufficiently wide for the passage of three machines. It will be built across the San Joaquin River, some 20 miles east of Madera, the county seat, and will form a storage reservoir that will impound 600,000 acre-feet of water. There are in excess of 300,000 acres of land in the district, which means that it will be the largest irrigation district on United States soil. The dam, when completed, will contain over 1,500,000 cubic yards of concrete. To reduce the cost of constructing this dam, a gravel pit, located at the dam has been purchased by the district. It has been estimated that 15 cents per cubic yard of gravel has been saved by this purchase.

The distributing system when completed, will consist of over 1000 miles of main canals and laterals, by which water will be conveyed to every quarter section of land in the district.

An important part of the project is the installation of hydro-electric power plants at the dam. These will develop 200,000,000 kilowatt hours of electrical energy per year. It is estimated that from this power the district will receive an annual net income of over \$1,000,000.

This county, until recently was one of large individual land holdings. A single firm owned over 200,000 acres; another 108,000 acres; thousand acre ranches were considered small. Although the number of farms has increased over 245 per cent, the average number of acres in each

farm is still over 900. However, the large land holders are now subdividing and development is rapidly taking place.

Alfalfa fed to hogs and cows is one of the chief sources of gain. A large cooperative creamery in Madera monthly disburses thousands of dollars to dairymen. Fruits do excellently, particularly the raisin grape, table grape, fig, peach, plum and apricot. Dairying and poultry raising are also most profitable.

The mother lode of the Sierra Nevadas extends into this county and along it are located many gold mines, some of which have earned records as producers. There are also deposits of iron ore and some copper. These are difficult of access and development has been greatly retarded on this account. There are known deposits of lead, zinc, tungsten, cobalt, asbestos, etc., and the problem of their development is being solved by the construction of the Sugar Pine Lumber Company's new Minerals and Western Railroad, which reaches far up into this district. Listed among the largest granite quarries in the state, those near Raymond have supplied stone for San Francisco City Hall, Post Office and other large structures.

The Mariposa Big Tree Grove skirts Madera County and the mountain highway offers great scenic beauties to the tourists bound for Yosemite Valley, just below its borders.

Two main-line railroads pass through the county—the Santa Fe and the Southern Pacific. The state highway intersects Madera County, north and south.

MADERA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Asses and burros—	
Total in 1910.....	573	Number.....	33
Total in 1920.....	1,402	Value.....	\$2,360
Land and Farm Areas.		Swine—	
Approximate land, acres.....	1,351,680	Number.....	15,132
Land in farms in 1910.....	620,663	Value.....	\$243,303
Land in farms in 1920.....	536,726	Sheep—	
Improved land in farms in 1910.....	391,086	Number.....	14,185
Improved land in farms in 1920.....	262,971	Value.....	\$120,364
Woodland in farms.....	86,639	Goats—	
Other unimproved land.....	187,116	Number.....	1,098
Value of All Farm Property.		Value.....	7,489
Total value in 1910.....	\$14,984,395	Total value all domestic animals.....	\$2,909,861
Total value in 1920.....	39,485,188	Poultry and bees—	
Land in 1910.....	12,263,638	Poultry of all kinds.....	61,962
Land in 1920.....	32,464,406	Value.....	\$81,667
Buildings in 1910.....	771,595	Colonies of bees.....	919
Buildings in 1920.....	2,326,091	Value.....	\$7,713
Implements and machinery in 1910.....	441,455	Poultry products—	
Implements and machinery in 1920.....	1,695,450	Poultry raised, number.....	44,033
Domestic animals, poultry and bees in 1910.....	1,507,707	Eggs produced, dozen.....	173,330
Domestic animals, poultry and bees in 1920.....	2,999,241	Value poultry and eggs produced.....	\$131,550
Domestic Animals on Farms and Ranges.		Honey and wax—	
Cattle—		Honey produced, pounds.....	22,668
Beef.....	23,662	Wax produced, pounds.....	525
Dairy.....	8,078	Value of honey and wax produced.....	\$4,739
Total.....	31,740	Wool—	
Value.....	\$1,944,906	Wool, fleeces shorn.....	11,819
Horses—		Goat hair, fleeces shorn.....	130
Number.....	4,856	Value wool and mohair produced.....	\$26,712
Value.....	\$3,829,968		
Mules—			
Number.....	1,981		
Value.....	\$208,471		

MADERA COUNTY SUMMARY—Continued.

Principal Crops.				
Corn.....	Acres	Bushels	Subtropical fruits—	Number bearing trees
Oats.....	889	24,310	Lemons.....	57
Wheat.....	2,292	32,186	Oranges.....	422
Barley.....	56,384	614,788		
Kafir corn and milo maize.....	40,604	448,153	Grapevines—	
Dry edible beans.....	2,062	36,790	Number in bearing.....	2,568,056
Potatoes.....	237	2,583		
	80	3,136		
Hay and forage—	Acres	Tons	Small fruits—	
Alfalfa.....	12,407	41,542	Total acres.....	34
Other tame and cultivated grasses.....	164	246		
Grain cut green.....	9,480	8,917	Nuts—	Number bearing trees
All other hay and forage.....	443	1,602	Almonds, etc.....	6,866
Totals.....	22,497	52,311	Walnuts.....	1,056
Special crops—			Total.....	7,922
Potatoes, acres.....		80		
All other vegetables, acres.....		587		
Orchard fruits—		Number bearing trees		
Apples.....		8,889		
Apricots.....		15,185		
Peaches and nectarines.....		105,926		
Pears.....		1,548		
Prunes and plums.....		3,547		
Total.....		135,302		
			Irrigation.	
			Acres irrigated in 1919.....	100,128
			Acres enterprises were capable of irrigating in 1920.....	119,804
			Acres included in projects.....	162,199

Marin County.

Date of creation, February 18, 1850.

Land area, 529 square miles.	Population	1890	1900	1910	1920
County seat, San Rafael (city).	Population	13,072	15,702	25,114	27,342
Population per square mile, 51.7.	Population	3,290	3,879	5,934	5,512

Point Reyes (Station):		Highest	Lowest		Inches	Inches
Elevation, 490 feet.	1917: Temperature	90	32	Rainfall.....	8.34	Snow..... 0
	1918: Temperature	81	38	Rainfall.....	15.38	Snow..... 0

Marin County is decidedly one of water frontage, being bounded on the west and south by the Pacific Ocean and by the Golden Gate, which separates it from San Francisco by only a mile and a half at its nearest point, and on the east by San Francisco Bay.

The topographical features are rolling hills and numerous small valleys. A part of the Coast Range crosses Marin in a northwesterly and south-easterly direction, and much of the surface of the county is broken and hilly, but a considerable portion immediately on the shore is composed of marsh and overflowed lands. A part of the Coast Range crosses the county, the highest point of which is Mount Tamalpais, which has an elevation of 2,520 feet.

The principal industry is dairying, but of late years attention has been paid to fruit growing in the Novato district.

At Bivalve on Tomales Bay are located the largest oyster beds in the state. There are also the shrimp fisheries at Point Pedro, the crab fishing with headquarters at Sausalito, the Booth Sardine Cannery at Hamlet. Potato and bean raising chiefly in the northern end of the county around Tomales and Fallon. Hog, poultry and Belgian rabbit raising throughout the county. There are also a number of sheep raised in the county.

Milk and milk products production are still the chief industry—in fact, it is at its high point at present. As a consequence, hog raising is on the increase. A company is now raising a great many hogs at Gallinas.

MARIN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910	498	Cattle—	
Total in 1920	718	Beef.....	860
		Dairy.....	35,187
		Total.....	36,047
		Value.....	\$2,342,667
		Horses—	
		Number.....	2,778
		Value.....	\$253,459
		Mules—	
		Number.....	59
		Value.....	\$7,740
		Swine—	
		Number.....	23,780
		Value.....	\$351,654
		Sheep—	
		Number.....	10,207
		Value.....	\$107,289
		Goats—	
		Number.....	665
		Value.....	\$6,181
		Total value all domestic animals.....	\$3,068,990
		Value dairy products.....	2,665,016
Land and Farm Areas.			
Approximate land, acres.....	338,560		
Land in farms in 1910.....	263,442		
Land in farms in 1920.....	290,148		
Improved land in farms in 1910.....	93,115		
Improved land in farms in 1920.....	87,846		
Woodland in farms.....	58,876		
Other unimproved land.....	143,426		
Value of All Farm Property.			
Total value in 1910.....	\$12,426,158		
Total value in 1920.....	19,954,684		
Land in 1910.....	9,384,625		
Land in 1920.....	13,079,670		
Buildings in 1910.....	1,156,830		
Buildings in 1920.....	2,532,960		
Implements and machinery in 1910.....	343,482		
Implements and machinery in 1920.....	1,027,633		
Domestic animals, poultry and bees in 1910.....	1,541,221		
Domestic animals, poultry and bees in 1920.....	3,314,421		

Mariposa County.

Date of creation, February 18, 1850.

		1890	1910	1920
Land area, 1,463 square miles.	Population	4,720	3,956	2,775
County seat, Mariposa (township).	Population	1,009	654	671
Population per square mile, 1.9.				

Yosemite (Station):	Highest	Lowest	Inches		Inches	
Elevation, 3,960 feet.	1917: Temperature	96	0	Rainfall	18.93	Snow
	1918: Temperature	98	8	Rainfall	34.45	Snow
					91.5	0

The county reaches eastward from the edge of the San Joaquin plains across the foothills far into the Sierra Nevada Mountains, its altitude varying from 300 to 13,000 feet, Mount Dana, the highest point of land, reaching an elevation of 13,627 feet.

There are about 300,000 acres of plains and lower foothills together, the latter predominating, and the balance consists of high hills and mountains; bare of timber on the plains, then scattering oak and scrub pines, then rising to immense tracts of sugar and yellow pine, fir, spruce, and cedar, and the giant sequoias of Mariposa Big Tree Grove, which contains some 427 trees, many of 35 feet in diameter and 150 to 300 feet high. The county is well provided with water in the Merced, Mariposa and Chowchilla rivers. The famous Yosemite Valley is located in the eastern part of this county, at an elevation of 4,060 feet, with walls 5,000 feet higher. The Merced River flows through the valley.

There are three mining belts in the county—the Mother Lode with its offshoots, the east belt, and the copper belt.

Irrigation is practiced to some extent, water being taken from streams and mining ditches, and used with good results.

MARIPOSA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	330	Mules—	
Total in 1920	381	Number	323
		Value	\$27,585
Land and Farm Areas.			
Approximate land, acres	936,320	Asses and burros—	
Land in farms in 1910	206,059	Number	84
Land in farms in 1920	235,849	Value	\$2,049
Improved land in farms in 1910	37,017	Swine—	
Improved land in farms in 1920	49,587	Number	8,378
Woodland in farms	64,298	Value	\$96,729
Other unimproved land	121,964	Sheep—	
		Number	5,464
		Value	\$53,154
Value of All Farm Property.			
Total value in 1910	\$2,829,235	Goats—	
Total value in 1920	5,107,025	Number	3,792
Land in 1910	1,817,100	Value	\$22,201
Land in 1920	3,596,817		
Buildings in 1910	276,180	Total value all domestic animals	\$859,629
Buildings in 1920	448,390	Poultry and bees—	
Implements and machinery in 1910	79,403	Poultry of all kinds	11,608
Implements and machinery in 1920	186,302	Value	\$15,363
Domestic animals, poultry and bees in 1910	656,552	Colonies of bees	67
Domestic animals, poultry and bees in 1920	875,516	Value	\$524
		Poultry products—	
		Poultry raised, number	8,874
		Eggs produced, dozen	50,591
		Value poultry and eggs produced	\$33,575
Domestic Animals on Farms and Ranges.			
Cattle—		Honey and wax—	
Beef	11,389	Honey produced, pounds	2,670
Dairy	262	Wax produced, pounds	40
Total	11,651	Value of honey and wax produced	\$550
Value	\$561,067	Wool—	
Horses—		Wool, fleeces shorn	2,056
Number	1,561	Goat hair, fleeces shorn	829
Value	\$96,844	Value wool and mohair produced	\$5,021

MARIPOSA COUNTY SUMMARY—Continued.

Principal Crops.					
	Acres	Bushels	Subtropical fruits—		Number bearing trees
Corn.....	9	108	Lemons.....		35
Oats.....	330	4,415	Oranges.....		994
Wheat.....	273	3,189			
Barley.....	1,230	19,435	Grapevines—		
Dry edible beans.....	3	36	Number in bearing.....		17,883
Potatoes.....	89	4,829			
Hay and forage—	Acres	Tons	Small fruits—		
Clover alone.....	7	14	Total acres.....		8
Alfalfa.....	121	186			
Other tame and cultivated grasses.....	702	381			
Grains cut green.....	5,376	4,501	Nuts—		Number bearing trees
All other hay and forage.....	175	158	Almonds.....		251
Total.....	6,381	5,240	Walnuts.....		79
Special crops—			Total.....		330
Potatoes, acres.....		89			
All other vegetables, acres.....		17			
Orchard fruits—		Number bearing trees			
Apples.....		12,619			
Apricots.....		47			
Peaches.....		2,433			
Pears.....		612			
Prunes and plums.....		2,467			
Total.....		18,178			
			Irrigation.		
			Acres irrigated in 1919.....		66
			Acres enterprises were capable of irrigating in 1920.....		89
			Acres included in projects.....		109

Mendocino County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,539 square miles.	Population.....	17,612	20,465	23,929	24,116
County seat, Ukiah (city).	Population.....	1,627	1,850	2,136	2,305
Population per square mile, 6.9.					
		Highest	Lowest	Inches	Inches
Elevation, 620 feet.	1917: Temperature.....	106	16	Rainfall..... 25.20	Snow..... 0
	1918: Temperature.....	110	18	Rainfall..... 26.57	Snow..... 0

Mendocino County has 100 miles of coast line. In general topography it is mountainous, with valleys lying between the mountain chains and along the coast. It, together with the counties of Humboldt and Trinity, embodies the greater part of the northern Coast Range Mountains, and contains their highest peaks and deepest canyons, fertile valleys, wooded slopes, rushing rivers, and picturesque scenery. It shares with Sonoma, Humboldt and Del Norte the glory of the great redwood belt.

The county has a length of 85 miles from north to south, and the width is 45 miles from east to west. It is traversed the entire length by the Coast Range, which is composed of two parallel ridges. These Mountains vary in height from 1000 feet to 3000 feet. Their lower slopes have a gentle declivity, while the higher portions are generally precipitous and furrowed with ravines and gulches. There are many small productive valleys throughout the county.

The Eel River, running north, and the Russian River, running south, have their sources in this county, and are the principal streams.

Stock raising, grazing and wool growing are the principal industries, there being an abundance of summer and winter pasture.

The Angora goat thrives well, the mountains being an ideal pasture.

No irrigation is required, and crops do not suffer from drought at any time.

In the county are large tracts of redwood, and it also has a large number of mineral springs.

Mendocino is one of the leading counties in the production of hops. Lumbering, fishing, and the growing of Bartlett pears, grapes, prunes, hay and grains are also important industries.

The streams are well stocked with trout, and deer and small game are found in abundance. It is in fact a sportsman's paradise.

In the summer season thousands of people spend their vacation in Mendocino County, where beautiful scenery, mineral springs and ideal climate blend happily together to make a wonderful playground.

State highways, constructed and under construction, traverse the county north and south and east and west.

MENDOCINO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,356	Poultry raised, number.....	76,305
Total in 1920.....	1,759	Eggs produced, dozen.....	421,224
		Value poultry and eggs produced.....	\$237,195
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	2,264,960	Honey produced, pounds.....	10,055
Land in farms in 1910.....	721,325	Wax produced, pounds.....	138
Land in farms in 1920.....	923,087	Value of honey and wax produced.....	\$2,065
Improved land in farms in 1910.....	82,578	Wool—	
Improved land in farms in 1920.....	101,220	Wool, fleeces shorn.....	95,680
Woodland in farms.....	261,196	Goat hair, fleeces shorn.....	3,847
Other unimproved land.....	560,671	Value wool and mohair produced.....	\$332,151
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$14,659,467		Acres Bushels
Total value in 1920.....	30,267,265	Corn.....	1,060 21,081
Land in 1910.....	10,774,439	Oats.....	2,896 76,199
Land in 1920.....	21,972,951	Wheat.....	7,848 120,670
Buildings in 1910.....	1,816,135	Barley.....	2,069 56,641
Buildings in 1920.....	3,741,630	Dry edible beans.....	40 349
Implements and machinery in 1910.....	375,049	Potatoes.....	686 60,095
Implements and machinery in 1920.....	1,246,956	Hay and forage—	
Domestic animals, poultry and bees in 1910.....	1,693,844		Acres Tons
Domestic animals, poultry and bees in 1920.....	3,305,728	Timothy alone.....	95 99
		Timothy and clover mixed.....	148 207
		Clover alone.....	84 173
		Alfalfa.....	5,532 15,475
		Other tame and cultivated grasses.....	1,231 1,461
		Wild, salt, or prairie grasses.....	1,623 1,818
		Grains cut green.....	21,979 26,763
		All other hay and forage.....	1,015 5,303
		Totals.....	31,707 51,299
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	686
Beef.....	22,519	All other vegetables, acres.....	139
Dairy.....	10,351		
Total.....	32,870	Orchard fruits—	
Value.....	\$1,534,636		Number bearing trees
Horses—		Apples.....	94,574
Number.....	5,562	Apricots.....	63
Value.....	\$421,129	Peaches and nectarines.....	13,970
Mules—		Pears.....	51,087
Number.....	431	Prunes and plums.....	65,795
Value.....	\$35,870	Total.....	225,489
Asses and burros—		Grapevines—	
Number.....	39		Number in bearing
Value.....	\$891		1,939,977
Swine—		Small fruits—	
Number.....	24,061		Total acres.....
Value.....	\$285,971		70
Sheep—		Nuts—	
Number.....	99,918		Number bearing trees
Value.....	\$875,341	Almonds, etc.....	705
Goats—		Walnuts.....	1,876
Number.....	4,703	Total.....	2,581
Value.....	\$29,054	Irrigation.	
Total value all domestic animals.....	\$3,182,892	Acres irrigated in 1919.....	1,362
Poultry and bees—		Acreage enterprises were capable of irrigating in 1920.....	1,666
Poultry of all kinds.....	89,140	Acreage included in projects.....	1,736
Value.....	\$117,406		
Colonies of bees.....	1,068		
Value.....	\$5,430		

also travel in their own autos. Except for a few days in winter, the road to the valley from Merced is open the year around. Yosemite Valley is both a summer and winter resort.*

MERCED COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,856	Poultry raised, number.....	112,965
Total in 1920.....	2,846	Eggs produced, dozen.....	753,476
Land and Farm Areas.		Value poultry and eggs produced.....	\$450,154
Approximate land, acres.....	1,276,800	Honey and wax—	
Land in farms in 1910.....	1,162,167	Honey produced, pounds.....	110,256
Land in farms in 1920.....	1,122,550	Wax produced, pounds.....	2,388
Improved land in farms in 1910.....	607,742	Value of honey and wax produced.....	\$22,982
Improved land in farms in 1920.....	506,582	Wool—	
Woodland in farms.....	38,873	Wool, fleeces shorn.....	64,766
Other unimproved land.....	577,095	Goat hair, fleeces shorn.....	4,014
Value of All Farm Property.		Value wool and mohair produced.....	\$167,778
Total value in 1910.....	\$49,520,913	Principal Crops.	
Total value in 1920.....	102,044,796	Acres Bushels	
Land in 1910.....	40,047,324	Corn.....	5,152 97,428
Land in 1920.....	77,682,800	Oats.....	3,731 75,026
Buildings in 1910.....	2,338,587	Wheat.....	29,759 482,847
Buildings in 1920.....	9,622,643	Barley.....	80,002 1,403,569
Implements and machinery in 1910.....	804,625	Kafr corn and milo maize.....	7,845 122,048
Implements and machinery in 1920.....	3,505,015	Dry edible beans.....	4,164 38,929
Domestic animals, poultry and bees in 1910.....	6,330,377	Potatoes.....	265 17,242
Domestic animals, poultry and bees in 1920.....	11,234,338	Rough rice.....	437 28,045
Domestic Animals on Farms and Ranges.		Hay and forage—	
Cattle—		Alfalfa.....	72,901 232,974
Beef.....	80,427	Other tame and cultivated	
Dairy.....	49,461	grasses.....	456 391
Total.....	129,888	Wild, salt, or prairie grasses.....	4,545 4,805
Value.....	\$7,850,040	Grains cut green.....	14,661 17,486
Horses—		All other hay and forage.....	2,812 12,885
Number.....	15,754	Totals.....	95,375 268,541
Value.....	\$1,343,782	Special crops—	
Mules—		Potatoes, acres.....	265
Number.....	2,471	All other vegetables, acres.....	1,211
Value.....	\$261,000	Orchard fruits—	
Asses and burros—		Number bearing trees	
Number.....	27	Apples.....	4,416
Value.....	\$3,125	Apricots.....	11,425
Swine—		Peaches and nectarines.....	382,270
Number.....	35,621	Pears.....	9,395
Value.....	\$585,035	Prunes and plums.....	7,235
Sheep—		Total.....	414,741
Number.....	85,005	Subtropical fruits—	
Value.....	\$886,150	Number bearing trees	
Goats—		Lemons.....	174
Number.....	4,826	Oranges.....	3,388
Value.....	\$37,097	Grapevines—	
Total value all domestic animals.....	\$10,966,229	Number in bearing.....	2,355,545
Value of dairy products.....	3,842,243	Small fruits—	
Poultry and bees—		Total acres.....	21
Poultry of all kinds.....	173,973	Nuts—	
Value.....	\$221,515	Number bearing trees	
Colonies of bees.....	6,568	Almonds, etc.....	52,187
Value.....	\$46,594	Walnuts.....	1,042
		Total.....	53,229
		Irrigation.	
		Acres irrigated in 1919.....	121,611
		Acraee enterprises were capable of irrigating	
		in 1920.....	196,657
		Acraee included in projects.....	215,994

*Arthur E. Beers, County Horticultural Commissioner.

Modoc County.

Date of creation, February 17, 1874.

	1890	1900	1910	1920
Land area, 3,823 square miles.				
County seat, Alturas (town).	Population.....	4,986	5,076	6,191
Population per square mile, 14.	Population.....	-----	-----	916
				979

	Highest	Lowest	Inches	Inches
Elevation, 4,400 feet.	1920: Temperature.....	98	15	Rainfall..... 9.81
	1921: Temperature.....	101	22	Rainfall..... 9.78
				Snow..... 46.05
				Snow..... 44.16

Modoc County is in the extreme northeastern corner of California, and is a succession of mountain ranges, plateaus and valleys. It is principally drained by Pit River, which flows into the Sacramento River. In the lava bed section, which occupies about one-twentieth of the total area, is found numerous natural ice caves and many relics of the stronghold of the Old Indian Chief "Captain Jack," during the Modoc War.

The valleys are the principal features, the leading ones being the Surprise, Goose Lake, Big, Jess, Hot Springs and Little Hot Springs.

Hay, wheat, barley, alfalfa seed, vegetables and apples are the leading staples. Owing to the superior quality and flavor of the Goose Lake apples, they command a high price on the market and notwithstanding the small development of this industry, due to transportation facilities, the shipment of apples is increasing from year to year.

Thousands of acres are in alfalfa and the dairying industry is rapidly increasing. Stock is usually fed through the winter months and grazed on the National Forest Reserve during the summer.

The entire county, outside of the lava bed section, is well watered, by lakes, streams, springs and artesian wells the flow of which is supplied through the summer months by the melting snow from the snow-capped mountains, insuring a continuous supply of water for irrigation purposes.

The timber of the county is principally pine and fir, although in the western part will be found sugar pine.

The sportsman will find his paradise in Modoc County, where will be found the bear, the mule tail deer, grouse, sage hens, both mountain and valley quail, ducks, geese, the snowshoe rabbit and fish, including many kinds of trout.

In the year 1921 there were 96 irrigation projects in course of construction, which when completed will irrigate 201,181 acres at an average cost per acre of \$21.00 per construction.

MODOC COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910.....	736	Total value in 1910.....	\$11,376,263
Total in 1920.....	743	Total value in 1920.....	22,009,931
Land and Farm Areas.		Land in 1910.....	7,379,085
Approximate land, acres.....	2,446,720	Land in 1920.....	15,601,701
Land in farms in 1910.....	410,134	Buildings in 1910.....	1,004,180
Land in farms in 1920.....	506,757	Buildings in 1920.....	1,405,254
Improved land in farms in 1910.....	164,784	Implements and machinery in 1910.....	365,550
Improved land in farms in 1920.....	168,251	Implements and machinery in 1920.....	727,218
Woodland in farms.....	129,819	Domestic animals, poultry and bees in 1910.....	2,627,448
Other unimproved land.....	298,687	Domestic animals, poultry and bees in 1920.....	4,275,758

MODOC COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.		Principal Crops.	
Cattle—		Wool—	
Beef.....	44,072	Wool, fleeces shorn.....	77,031
Dairy.....	3,756	Goat hair, fleeces shorn.....	381
		Value wool and mohair produced.....	\$284,960
Total.....	47,828		
Value.....	\$2,320,377		
Horses—		Corn.....	Acres 4 Bushels 93
Number.....	9,889	Oats.....	220 4,832
Value.....	\$478,411	Wheat.....	8,883 95,970
Mules—		Barley.....	2,349 41,313
Number.....	709	Dry edible beans.....	15 244
Value.....	\$46,267	Potatoes.....	250 21,960
Asses and burros—		Hay and forage—	Acres Tons
Number.....	107	Timothy alone.....	2,445 2,947
Value.....	\$7,637	Timothy and clover mixed.....	22,010 30,392
Swine—		Alfalfa.....	15,383 24,889
Number.....	4,858	Other tame and cultivated	
Value.....	\$49,894	grasses.....	3,692 4,079
Sheep—		Wild, salt, or prairie grasses.....	35,847 36,578
Number.....	108,062	Grains cut green.....	10,294 9,172
Value.....	\$1,338,935	All other hay and forage.....	110 129
Goats—		Totals.....	89,781 108,186
Number.....	448	Special crops—	
Value.....	\$3,214	Potatoes, acres.....	250
Total value all domestic animals.....	\$4,244,657	All other vegetables, acres.....	20
Poultry and bees—		Orchard fruits—	Number
Poultry of all kinds.....	23,788	Apples.....	bearing trees 25,076
Value.....	\$24,879	Apricots.....	47
Colonies of bees.....	1,069	Peaches.....	2,076
Value.....	\$6,114	Pears.....	1,172
Poultry products—		Prunes and plums.....	1,947
Poultry raised, number.....	26,941	Total.....	30,318
Eggs produced, dozen.....	123,518	Small fruits—	
Value poultry and eggs produced.....	\$74,778	Total acres.....	26
Honey and wax—		Irrigation.	
Honey produced, pounds.....	30,441	Acres irrigated in 1919.....	82,852
Wax produced, pounds.....	467	Acreage enterprises were capable of irrigating	
Value of honey and wax produced.....	\$6,270	in 1920.....	89,854
		Acreage included in projects.....	111,902

Mono County.

Date of creation, April 24, 1861.

Land area, 3,030 square miles.	Population.....	1890	1900	1910	1920
County seat, Bridgeport (township).	Population.....	2,002	2,167	2,042	960
Population per square mile, 0.3.	Population.....	335	373	312	125
Elevation, 6,500 feet.	1917: Temperature.....	Highest 85	Lowest -33	Rainfall.....	Inches 4.99
	1918: Station discontinued.			Snow.....	Inches 39.6

Mono is a long, narrow county lying on the eastern slope of the Sierras, its greatest length bordering on the state of Nevada, which forms its northeastern boundary, its general direction being northeast and northwest.

The general contour is mountainous and very rough, all but 400 square miles, or less, being mountainous. The western portion lies among the Sierra Nevada Mountains, along their summit, the heights being clad in snow, and the slopes of the range being covered with forest trees.

Among the highest peaks are Mount Dana, 13,627 feet; Mount Lyell, 13,217 feet, and Castle Peak, 13,000 feet. The greater portion of the population is in the eastern part, in the valleys and the mining camps in the surrounding mountains. This portion, which has always been considered a strange, mysterious country, is of a desert-like, volcanic character, abounding in salt pools, alkali, and volcanic table-lands.

Mono Lake, the "Dead Sea of America," is one of the attractions, and is situated in the center of the county; it is about 12 miles long and 8 miles wide; its waters are somewhat unusually compound, various chemical substances being found in solution in them. The lake has a number of small streams flowing into it, but is without perceptible outlet.

Owens River in the south, which takes its rise in a high peak in the Sierra, and Kitten and Walker rivers in the north, are the principal streams. One passes through the southern part into Inyo County. The other, after rising in Mono County, continues its course into the state of Nevada. These two streams with their branches, together with the small streams that flow into Mono Lake, furnish the principal water supply for irrigation. There are 20 mineral springs in the county.

Grazing is the leading industry, and the pasturage is good and plentiful. Herds of dairy cattle are moving from the valleys during the summer. Large bands of sheep are also driven to its mountains for summer pasturage.

The timber belt is very large and the product of good, marketable quality, but as there is no means of transportation, the development of the lumber interests is retarded, although considerable quantities are used for local mining purposes.

MONO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	91	Poultry and bees—	
Total in 1920.....	74	Poultry of all kinds.....	2,727
		Value.....	\$3,893
		Colonies of bees.....	100
		Value.....	\$883
Land and Farm Areas.			
Approximate land, acres.....	1,989,200	Poultry products—	
Land in farms in 1910.....	115,672	Poultry raised, number.....	2,301
Land in farms in 1920.....	42,034	Eggs produced, dozen.....	9,281
Improved land in farms in 1910.....	43,382	Value poultry and eggs produced.....	\$6,136
Improved land in farms in 1920.....	8,740		
Woodland in farms.....	735	Honey and wax—	
Other unimproved lands.....	32,559	Honey produced, pounds.....	3,712
		Wax produced, pounds.....	20
		Value honey and wax produced.....	\$750
Value of All Farm Property.			
Total value in 1910.....	\$2,347,797	Wool—	
Total value in 1920.....	2,596,668	Wool, fleeces shorn.....	21,154
Land in 1910.....	1,587,813	Value wool produced.....	\$87,582
Land in 1920.....	1,800,885		
Buildings in 1910.....	154,700	Principal Crops.	
Buildings in 1920.....	159,695		
Implements and machinery in 1910.....	45,345	Corn.....	Acres 7 Bushels 125
Implements and machinery in 1920.....	75,275	Oats.....	30 1,500
Domestic animals, poultry and bees in 1910.....	559,939	Wheat.....	53 1,630
Domestic animals, poultry and bees in 1920.....	560,808	Potatoes.....	124 17,016
Domestic Animals on Farms and Ranges.			
		Hay and forage—	Acres Tons
Cattle—		Timothy and clover mixed....	855 1,577
Beef.....	1,461	Clover alone.....	181 180
Dairy.....	285	Alfalfa.....	1,552 5,242
Total.....	1,746	Wild, salt, or prairie grasses.....	663 677
Value.....	\$100,941	All other hay and forage.....	119 76
		Totals.....	3,370 7,752
Horses—		Special crops—	
Number.....	504	Potatoes, acres.....	124
Value.....	\$37,300	All other vegetables, acres.....	16
Mules—			
Number.....	52	Orchard fruits—	Number
Value.....	\$5,890	Apples.....	bearing trees 1,083
Asses and burros—		Peaches.....	110
Number.....	25	Pears.....	76
Value.....	\$530	Prunes and plums.....	75
Swine—		Total.....	1,344
Number.....	368	Grapevines—	
Value.....	\$6,822	Number in bearing.....	218
Sheep—		Small fruits—	
Number.....	30,285	Total acres.....	1
Value.....	\$404,363	Irrigation.	
Goats—		Acres irrigated in 1919.....	46,012
Number.....	55	Acres enterprises were capable of irrigating in 1920.....	89,335
Value.....	\$186	Acres included in projects.....	121,886
Total value all domestic animals.....	\$556,032		

Monterey County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,330 square miles.	Population.....	18,637	19,380	24,146	27,980
County seat, Salinas (city).	Population.....	2,339	3,304	3,736	4,308
Population per square mile, 8.4.					

		Highest	Lowest		Inches	Inches
Elevation, 40 feet.	1917: Temperature.....	97	23	Rainfall.....	5 17	Snow..... 0
	1918: Temperature.....	98	21	Rainfall.....	17.74	Snow..... 0

Monterey County is situated about 100 miles south of San Francisco and 300 miles north of Los Angeles, on the Pacific Ocean. It is 124 miles long and 45 miles wide, its extreme length being from north to south. A state highway traverses its length, with excellent laterals.

The country is divided into three sections—the mountains and hills on the east, mountains and hills on the west, and the great Salinas Valley situated between these ranges of mountains.

The portion of Pajaro Valley lying south of the Pajaro River and running to Monterey Bay on the southwest is in Monterey County, and is about 15 miles long and from 6 to 8 miles wide. The land is exceedingly fertile and under a thorough system of cultivation, producing large crops of all kinds of vegetables, grain, fruit, and berries.

There is a considerable acreage in sugar beets, and the largest sugar factory in the state is the Spreckels, situated near Salinas City, having a daily slicing capacity of 4000 tons.

In the southern part of the county barley excels and prunes, apricots, cherries and almonds grow to perfection in the foothills, canyons, and small valleys.

The greatest apple district of the state is in the Pajaro Valley, which includes also parts of Santa Cruz County, centering at Watsonville.

Currants, gooseberries, blackberries, loganberries and raspberries grow well. Strawberries are in the market most of the year, and are shipped from Natividad by carloads.

Dairying is very important, if not a leading industry. Some of the finest dairies in the state are in Monterey County, and some of the best cheese and butter in the state are made here. The Meyenberg Evaporated Milk plant now in operation will give an immense impetus to this industry.

In the harbor of Monterey Bay the largest battleships of our navy find anchorage within 100 feet of the shore. The fishing industry is an important one, especially for salmon and sardines. More than two-thirds of the abalone catch of the state also comes from this bay. An immense whaling station is in constant operation at Moss Landing near Castroville.

Considerable interest in horticulture is being shown. Large plantings of almonds, pears and apricots have been made during the last season, an estimate of 200,000 trees being a conservative figure.

A strawberry project of over 100 acres has been established, which is the largest strawberry farm west of the Mississippi.

Salinas, the county seat, has recently built a Union High School and Junior College at a cost of \$450,000.

MONTEREY COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,658	Poultry raised, number.....	65,618
Total in 1920.....	1,712	Eggs produced, dozen.....	563,257
		Value poultry and eggs produced.....	\$302,680
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	2,131,200	Honey produced, pounds.....	126,763
Land in farms in 1910.....	1,147,416	Wax produced, pounds.....	1,740
Land in farms in 1920.....	1,104,048	Value of honey and wax produced.....	\$26,032
Improved land in farms in 1910.....	371,509	Wool—	
Improved land in farms in 1920.....	398,320	Wool, fleeces shorn.....	8,856
Woodland in farms.....	201,891	Goat hair, fleeces shorn.....	1,338
Other improved land.....	503,837	Value wool and mohair produced.....	\$24,185
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$35,021,930	Acres	Bushels
Total value in 1920.....	61,899,333	Corn.....	1,317 15,687
Land in 1910.....	27,885,000	Oats.....	4,207 57,123
Land in 1920.....	49,108,783	Wheat.....	39,315 491,992
Buildings in 1910.....	2,178,728	Barley.....	51,012 764,693
Buildings in 1920.....	4,022,555	Kafir corn and milo maize.....	1 29
Implements and machinery in 1910.....	811,886	Dry edible beans.....	17,791 200,009
Implements and machinery in 1920.....	2,886,129	Potatoes.....	2,101 187,597
Domestic animals, poultry and bees in 1910.....	4,146,316	Hay and forage—	
Domestic animals, poultry and bees in 1920.....	5,881,875	Acres	Tons
		Clover alone.....	10 15
		Alfalfa.....	16,817 52,713
		Other tame and cultivated grasses.....	276 327
		Wild, salt, or prairie grasses.....	932 924
		Grains cut green.....	56,966 48,572
		All other hay and forage.....	715 2,698
		Totals.....	75,716 105,249
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	2,101
Beef.....	52,862	All other vegetables, acres.....	543
Dairy.....	22,213	Sugar beets, acres.....	23,488
Total.....	75,075		
Value.....	\$4,196,353	Orchard fruits—	
Horses—		Number	Number
Number.....	13,292	Apples.....	207,850
Value.....	\$1,036,980	Apricots.....	42,371
Mules—		Peaches and nectarines.....	8,373
Number.....	1,113	Pears.....	12,499
Value.....	\$73,804	Prunes and plums.....	10,503
Asses and burros—		Total.....	281,596
Number.....	14	Grapevines—	
Value.....	\$2,115	Number in bearing.....	54,682
Swine—		Small fruits—	
Number.....	23,286	Total acres.....	106
Value.....	\$303,903	Nuts—	
Sheep—		Number	Number
Number.....	10,829	Almonds.....	3,637
Value.....	\$110,340	Walnuts.....	805
Goats—		Total.....	4,442
Number.....	1,359	Irrigation.	
Value.....	\$8,780	Acres irrigated in 1919.....	47,336
Total value all domestic animals.....	\$5,732,275	Acreage enterprises were capable of irrigating in 1920.....	56,056
Poultry and bees—		Acreage included in projects.....	59,537
Poultry of all kinds.....	106,322		
Value.....	\$123,512		
Colonies of bees.....	3,224		
Value.....	\$26,088		
Dairy products—			
Value.....	\$1,817,210		

Napa County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 783 square miles.	Population.....	16,411	16,451	19,800	20,678
County seat, Napa (city).	Population.....	4,395	4,036	5,791	6,757
Population per square mile, 26. 4.					
St. Helena (Station):	Highest	Lowest	Inches	Inches	
Elevation, 225 feet.	1917: Temperature.....	107	23	Rainfall.....13. 64	Snow..... 0
Napa, 20 feet.	1918: Temperature.....	98	23	Rainfall.....19. 75	Snow..... 0

The principal resources of Napa County are the raising of grapes, for the manufacture of grape juice; raising of prunes, pears, plums, and other fruit, and growing of grain. The value of mineral products is also considerable. There is a large cement manufactory at Napa Junction. Among the minerals produced of commercial importance are magnesite, quicksilver, and mineral water.

Napa County has the great advantage of river transportation to the bay of San Francisco, passenger and freight steamers making daily trips between Napa and San Francisco.

No irrigation is required to produce any crops.

Its southern boundary reaches down to within 29 miles of San Francisco. The Napa River, a short tidal stream which drains the great Napa Valley, is navigable to the heart of the city of Napa.

There are many large creeks, brooks, and many springs in the hills, both mineral and otherwise.

Since 1910, hundreds of acres of fruit have come into bearing and hundreds of acres have been set out. The plantings are chiefly confined to prunes and pears, which are the chief commercial crops of the county in agriculture. Grapes are the premier crop, there being some 13,000 acres of dry wine grapes in bearing. About two-thirds of the country taxes of the county are said to come out of the vineyards.

Large areas are being cut up and planted to trees, or are being farmed on a more scientific plan—the grain farms *per se*, becoming a thing of the past. Farmers in certain sections are also reviving their interest in sheep and this is bound to improve the farms where they are kept.

Peach orchards are now on the decline, but good prune land is being rapidly planted up and few first-class prune orchards in full bearing are for sale. There are some 4000 acres of non-bearing prunes. A considerable acreage of pears is being planted continuously.

Dairying is on the increase in the county. The Napa State Hospital has recently completed a 200-cow plant, and many silos have been installed by different men the past two or three years. A cow testing association is organized for the purpose of improving the herds.*

*W. D. Butler, County Horticultural Commissioner

NAPA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	1,537	Poultry raised, number.....	121,547
Total in 1920.....	1,428	Eggs produced, dozen.....	643,335
		Value poultry and eggs produced.....	\$404,823
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	501,120	Honey produced, pounds.....	9,054
Land in farms in 1910.....	360,580	Wax produced, pounds.....	153
Land in farms in 1920.....	293,925	Value of honey and wax produced.....	\$1,871
Improved land in farms in 1910.....	101,114	Wool—	
Improved land in farms in 1920.....	116,723	Wool, fleeces shorn.....	16,319
Woodland in farms.....	40,321	Goat hair, fleeces shorn.....	790
Other unimproved land.....	136,881	Value wool and mohair produced.....	\$49,280
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$18,082,066	Corn.....	Acres 1,143 Bushels 29,543
Total value in 1920.....	29,478,221	Oats.....	4,465 122,851
Land in 1910.....	13,086,656	Wheat.....	8,789 136,943
Land in 1920.....	21,435,821	Barley.....	2,742 54,872
Buildings in 1910.....	3,365,470	Dry edible beans.....	20 167
Buildings in 1920.....	4,747,570	Potatoes.....	49 6,701
Implements and machinery in 1910.....	500,921	Hay and forage—	
Implements and machinery in 1920.....	1,469,321	Timothy and clover mixed.....	Acres 2 Tons 2
Domestic animals, poultry and bees in 1910.....	1,128,959	Clover alone.....	52 53
Domestic animals, poultry and bees in 1920.....	1,825,509	Alfalfa.....	2,317 7,217
		Other tame and cultivated grasses.....	248 241
		Wild, salt or prairie grasses.....	116 106
		Grains cut green.....	16,032 25,249
		All other hay and forage.....	513 1,346
		Totals.....	19,280 34,214
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	49
Beef.....	9,116	All other vegetables, acres.....	145
Dairy.....	7,141	Orchard fruits—	
Total.....	16,257	Number bearing trees	
Value.....	\$959,086	Apples.....	69,828
Horses—		Apricots.....	4,658
Number.....	3,845	Cherries.....	16,955
Value.....	\$333,995	Peaches and nectarines.....	7,100
Mules—		Pears.....	59,087
Number.....	307	Prunes and plums.....	449,866
Value.....	\$30,490	Total.....	607,494
Asses and burros—		Subtropical fruits—	
Number.....	17	Number bearing trees	
Value.....	\$920	Lemons.....	74
Swine—		Oranges.....	720
Number.....	8,541	Grapevines—	
Value.....	\$134,143	Number in bearing.....	
Sheep—		5,822,727	
Number.....	16,500	Small fruits—	
Value.....	\$171,454	Total acres.....	
Goats—		26	
Number.....	1,357	Nuts—	
Value.....	\$11,861	Number bearing trees	
Total value all domestic animals.....	\$1,641,949	Almonds, etc.....	2,811
Poultry and bees—		Walnuts.....	6,259
Poultry of all kinds.....	129,214	Total.....	9,070
Value.....	\$178,693	Irrigation.	
Colonies of bees.....	544	Acres irrigated in 1919.....	
Value.....	\$4,867	Acreage enterprises were capable of irrigating	
Dairy products—		in 1920.....	
Value.....	\$325,023	1,284	
		Acreage included in projects.....	
		1,405	

Nevada County

Date of creation, April 25, 1851.

Land area, 974 square miles.	Population.....	1890	1900	1910	1920
County seat, Nevada City.	Population.....	17,369	17,789	14,955	10,850
Population per square mile, 11 1.	Population.....	2,524	3,250	2,689	1,782
		Highest	Lowest	Inches	Inches
Elevation, 2,850 feet.	1917: Temperature.....	99	12	Rainfall.....25.71	Snow.....32.5
	1918: Temperature.....	101	13	Rainfall.....40.70	Snow.....17.5

Nevada County is situated in that portion of the state generally known as northern California, although its county seat, Nevada City, is but 76 miles from Sacramento. It is bounded on the north by Sierra County, on the east by the state line between California and Nevada, on the south by Placer County, and on the west by Yuba County. From the Yuba County line, Nevada County is hemmed in by the Yuba and Bear rivers until their sources are reached. The South Yuba River heads in the high Sierras and runs across the county almost its entire length from east to west.

On the rolling foothills of the western portion, where snow and frost are seldom seen, the elevation is slightly above the sea level, while along the eastern boundaries rise the snowcapped peaks of the Sierra Nevada to an elevation of nearly 8,000 feet.

"In its undeveloped state a large part of the county is adapted to the grazing of cattle and sheep. The National Forests which cover a considerable portion of the area provide splendid ranges at the higher altitudes during the summer, the cattle being returned to the lowlands for wintering.

A large part of the county is peculiarly adapted to the growing of Bartlett pears, to which the elevation and climate give a flavor and texture second to none. In the Chicago Park section, between Colfax and Grass Valley, both Bartlett pears and Hungarian prunes are grown very successfully without irrigation. This is also true of some other sections. As irrigation water is developed pear growing will see a tremendous expansion."*

In the southwestern portion of the county, where there is an abundance of water, the farmers are turning their attention to dairying.

In the production of gold, Nevada County has been one of the largest producers, in 1917 being first with the production of \$3,682,947. Some of the mines are working at a depth of upwards of 4000 feet, and have proven conclusively that in every instance where depth has been attained the ore bodies and the values are equally distributed.

"The Sierra Nevada Mountains pass through the eastern third of the county, making the general slopes eastward to the state of Nevada basin and on the west to the great Sacramento Valley.

The altitude varies from 400 feet on the west to 9140 feet on the summit of the mountains. All ranges of temperature are to be found, from the heat of the valley to the coolness of the mountain heights.

The industries of the county are gold mining, power, lumbering, paper making, ice making, fruit growing, stock raising, dairying and general farming.

On the eastern slope there is a large area of the primeval forest. It is being extensively lumbered with Hobart Mills as the center. At

*H. Graser, County Agent.

Floriston is located the largest paper pulp mill in the state. The locality grows a fir in inexhaustible quantities, that is especially adapted for paper making.

Ice along the Truckee River is a large and profitable industry. Truckee is the seat of this ice making industry. Also the well known ice carnival during the winter is held here.

The area of the gold mining zone is large, with Grass Valley, Nevada City and Washington as centers.

The county is well supplied with water for power, municipal and irrigation purposes. Here are located some of the largest reservoirs in the state, notably Lake Spalding, which is the source of the main hydro-electrical development of the Pacific Gas and Electric Company. But a small portion of the annual run-off has been utilized.

The western slope is especially adapted to the growing of all kinds of fruit, to which great attention is being paid. The acreage of commercial fruit trees is rapidly increasing.

Nevada County took the highest awards for pears at the Panama Exposition in 1915."*

NEVADA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Swine—	
Total in 1910	544	Number	3,096
Total in 1920	481	Value	\$43,115
Land and Farm Areas.		Sheep—	
Approximate land, acres	623,360	Number	11,475
Land in farms in 1910	175,398	Value	\$126,659
Land in farms in 1920	198,441	Goats—	
Improved land in farms in 1910	24,542	Number	2,332
Improved land in farms in 1920	26,196	Value	\$11,360
Woodland in farms	59,369	Total value all domestic animals	\$712,726
Other unimproved land	112,876	Poultry and bees—	
Value of All Farm Property.		Poultry of all kinds	25,572
Total value in 1910	\$3,022,685	Value	\$30,872
Total value in 1920	5,125,345	Colonies of bees	199
Land in 1910	1,817,417	Value	\$1,760
Land in 1920	3,338,537	Dairy products—	
Buildings in 1910	664,400	Value	\$165,190
Buildings in 1920	815,258	Poultry products—	
Implements and machinery in 1910	132,857	Poultry raised, number	26,583
Implements and machinery in 1920	226,192	Eggs produced, dozen	144,310
Domestic animals, poultry and bees in 1910	408,011	Value poultry and eggs produced	\$90,535
Domestic animals, poultry and bees in 1920	745,358	Honey and wax—	
Domestic Animals on Farms and Ranges.		Honey produced, pounds	8,835
Cattle—		Wax produced, pounds	91
Beef	6,789	Value of honey and wax produced	\$1,802
Dairy	2,958	Wool—	
Total	9,747	Wool, fleeces shorn	9,896
Value	\$421,239	Goat hair, fleeces shorn	1,261
Horses—		Value wool and mohair produced	\$34,393
Number	1,523	Principal Crops.	
Value	\$107,888	Corn	Acres 68 Bushels 2,263
Mules—		Oats	110 1,892
Number	24	Wheat	117 774
Value	\$2,130	Barley	122 1,919
Asses and burros—		Dry edible beans	6 68
Number	23	Potatoes	106 13,084
Value	\$335		

*W. W. Waggoner, C. E., Nevada City.

ORANGE COUNTY SUMMARY.—Continued.

Domestic Animals on Farms and Ranges.—Continued.			Special crops—	
Goats—			Potatoes, acres	607
Number	552			
Value	\$20,381			
Total value all domestic animals	\$2,703,961			
Poultry and bees—			Orchard fruits—	Number bearing trees
Poultry of all kinds	189,143		Apples	25,519
Value	\$290,975		Apricots	53,433
Colonies of bees	5,447		Peaches	29,709
Value	\$49,144		Pears	3,197
			Prunes and plums	5,341
Poultry products—			Total	117,199
Poultry raised, number	114,890			
Eggs produced, dozen	967,747		Subtropical fruits—	Number bearing trees
Value poultry and eggs produced	\$506,408		Lemons	490,204
Honey and wax—			Oranges	1,434,078
Honey produced, pounds	117,138			
Wax produced, pounds	2,259		Grapevines—	
Value of honey and wax produced	\$24,309		Number in bearing	42,516
Wool—				
Wool, fleeces shorn	99		Small fruits—	
Value of wool produced	\$273		Total acres	18
Principal Crops.				
	Acres	Bushels		
Corn	1,505	59,379	Nuts—	Number bearing trees
Oats	442	10,574	Walnuts	290,775
Wheat	2,058	25,650		
Barley	6,137	91,165		
Kafir corn and milo maize	149	3,719		
Dry edible beans	36,759	481,959		
Potatoes	607	50,711		
Hay and forage—	Acres	Tons		
Alfalfa	2,926	10,784		
Other tame and cultivated grasses	494	540		
Wild, salt, or prairie grasses	36	36		
Grains cut green	27,681	23,226		
All other hay and forage	3,040	5,283		
Totals	34,177	39,869		
			Irrigation.	
			Acres irrigated in 1919	86,060
			Acreage enterprises were capable of irrigating in 1920	98,740
			Acreage included in projects	109,341

Placer County.

Date of creation, April 25, 1851.

Land area, 1,411 square miles.	Population.....	1890	1900	1910	1920
County seat, Auburn (city).	Population.....	15,101	15,786	18,237	18,584
Population per square mile, 13.2.	Population.....	1,595	2,050	2,376	2,289
	Highest	Lowest	Inches	Inches	
Elevation, 1,360 feet.	1917: Temperature.....	105	21	Rainfall.....24.33	Snow.....2.3
Blue Canyon, 4,695 feet.	1918: Temperature.....	93	13	Rainfall.....48.72	Snow.....170.0

Placer County is about 100 miles long and of varying widths, from 10 to 30 miles, the course and distance being defined by the course of the rivers which mark its boundaries. It extends from about eight miles from the Sacramento River to the summit of the Sierra Nevada Mountains. Just above Auburn, between the Bear and American rivers, the county is very narrow, being about eight miles across. Above Auburn it widens out into the two divides lying between the Bear River and the Middle Fork of the American River. These are known as the Dutch Flat, or Railroad Divide, and the Forest Hill Divide. The southwestern portion is more regular in shape than the part just described. This section contains the foothill and level agricultural lands.

The entire extent faces toward the west, extending from an altitude of some 40 feet on the plains in the western portion to over 7000 feet at its eastern boundary line. At the eastern boundary, separating it from the State of Nevada, is Lake Tahoe, one of the most picturesque lakes in America, and is visited by thousands of tourists and vacationists every summer.

The soil of the western, or valley, portion is of the same general alluvial composition as all the soil in the Sacramento Valley, and is well adapted to the growth of grain. The low foothills near Lincoln are excellent for viticulture.

Placer County holds a foremost position among the fruit producers and is unique in the fact that practically all of its crops are shipped when ripe and ready for the consumer's use, without canning, drying or any preserving process.

It excels all others in plums for table use and ranks high in its crops of cherries, table grapes and persimmons. Oranges are also among the commercial crops shipped, and no loss of crop has ever occurred through frosts.

The olive industry is also an important interest in both olive oil, and pickled olives, which are both produced here.

Dairying and stock and poultry raising are successful industries. Butter making is carried on in the summer, the mountain ranges providing plenty of natural feed for the cattle.

Much sugar and yellow pine, fir, spruce, and cedar are found in the mountains, and the lumber output from that section has been very large for many years. Oak and scrub pine abound all over the foothills and fuel is plentiful.

The county abounds in many streams and mountain lakes and affords a "Sportsman's Paradise."

Several places in those sections of the county at elevations of 1200 to 2500 feet possess a climate particularly favorable for the relief of asthma and pulmonary diseases.

Plumas County.

Date of creation, March 18, 1854.

Land area, 2,593 square miles.		1900	1910	1920
County seat, Quincy (Plumas township).	Population.....	4,657	5,259	5,681
Population per square mile, 2.2.	Population.....	748	884	1,134

	Highest	Lowest	Inches	Inches
Elevation, 3,400 feet.	1917: Temperature.....	99	—12	Rainfall.....25.72
La Porte, 5,000 feet.	1918: Temperature.....	87	5	Rainfall.....53.0
				Snow.....181.2

Plumas County is situated in the northeastern part of California. It is bounded on the north by Shasta and Lassen counties, on the south by Yuba, Butte and Sierra counties, on the east by Lassen, and on the west by Butte and Tehama counties. In the lowest portion the elevation is about 1800 feet, but sloping gradually from its valleys, it rises gently to an elevation of its mountain ridges of over 7000 feet. Although a great deal of valley lands have been cultivated, there is still a large acreage of uncleared land.

Plumas County has the largest area of timber land of any county in California. It is practically one entire sweep of forest land from one end to the other. While the greater part of it has been in reserve, the timber on it has been taken up, and the many sawmills throughout its mountains are turning out thousands of feet of white, sugar pine and spruce lumber.

Running in numerous channels through all of its mountain ridges, the ancient river beds afford large stores of gold. There have been large quantities of gold taken from the mines of Plumas. There has also been a great deal of surface mining done in times past. The mining section of Plumas County is scattered throughout the entire county.

Hot Springs Valley, near the northwest corner of the county, contains scores of rumbling springs from which issue steam, or in which hot mud is bubbling, suggesting nearness to an active volcano. To the southwest of this valley are the geyser and a lake of boiling mud.

PLUMAS COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	321	Cattle—	
Total in 1920.....	150	Beef.....	6,322
		Dairy.....	3,845
		Total.....	10,167
		Value.....	\$546,812
		Horses—	
		Number.....	1,285
		Value.....	\$118,522
		Mules—	
		Number.....	21
		Value.....	\$1,335
		Swine—	
		Number.....	1,027
		Value.....	\$18,879
		Sheep—	
		Number.....	4,395
		Value.....	\$57,366
		Goats—	
		Number.....	40
		Value.....	\$382
		Total value all domestic animals.....	\$743,316
			\$743,316

Land and Farm Areas.

Approximate land, acres.....	1,659,520
Land in farms in 1910.....	134,259
Land in farms in 1920.....	101,653
Improved land in farms in 1910.....	54,281
Improved land in farms in 1920.....	34,223
Woodland in farms.....	14,864
Other unimproved land.....	52,566

Value of All Farm Property.

Total value in 1910.....	\$3,362,955
Total value in 1920.....	4,317,073
Land in 1910.....	2,201,654
Land in 1920.....	2,641,161
Buildings in 1910.....	532,156
Buildings in 1920.....	686,525
Implements and machinery in 1910.....	123,300
Implements and machinery in 1920.....	237,985
Domestic animals, poultry and bees in 1910.....	505,845
Domestic animals, poultry and bees in 1920.....	751,402

Riverside County.

Date of creation, March 11, 1893.

		1890	1900	1910	1920
Land area, 7,223 square miles.	Population	-----	17,897	34,696	50,297
County seat, Riverside (city).	Population	4,683	7,973	15,212	19,341
Population per square mile, 7.0.					

		Highest	Lowest		Inches	Inches
Elevation, 851 feet.	1917: Temperature.....	118	28	Rainfall.....	5.46	Snow..... T
	1918: Temperature.....	110	25	Rainfall.....	12.70	Snow..... 0

Riverside County was formed in 1893 from the southwestern part of San Bernardino and the northern part of San Diego counties. It is about 200 miles long by 40 miles wide, and embraces most varied geographical and topographical features, climate, scenery, soil, agricultural, horticultural, and mineral resources. It contains within its borders one of the highest mountains in southern California, Mount San Jacinto, 10,805 feet high, and part of Salton Sea, 250 feet below sea level.

The central and greater part of the eastern portion of the county is desert, but known to be heavily mineralized. The high cost of freight, fuel, and scarcity of water, making prospecting dangerous, all combine to retard mining developments.

"The principal rivers of the county are the Colorado, which forms its eastern boundary; the Santa Ana, having its head in the San Bernardino range of mountains, flowing through the northwestern part of the county, furnishing irrigation for a large area of land; the San Jacinto, having its source in the San Jacinto range, flowing through the San Jacinto, Hemet, and Perris valleys, and forming Lake Elsinore.

The earlier and principal development of Riverside County has been in the northwestern portion. The central and eastern parts of the county are largely desert, though yielding readily to development with the coming of water through storage reservoirs or artesian wells. These sections of Riverside County have large mineral resources which are yet undeveloped on account of inaccessibility and the scarcity of fuel and water.

In the northwestern section of the county is one of the great citrus districts of southern California with Riverside City as its center. Here irrigation systems are highly developed and the land is intensively cultivated.

Adjacent to this district and lying east and south are the Elsinore, Hemet, San Jacinto, Beaumont and Banning districts, where rapid and extensive agricultural development has occurred during recent years. In general these sections are particularly devoted to the production of deciduous fruits and nuts. Here the olive, apricot, peach, apple and almond grow in great luxuriance. With the further development of the resources of water in the San Jacinto mountains it will be possible to bring Perris and Moreno valleys into prominence in the matter of similar productions. These valleys are now chiefly devoted to dry farming. Alfalfa production is an especially flourishing industry of Riverside County, almost all parts of the country where water is available being well adapted to its culture. Poultry farming is also much in evidence, especially in the Arlington neighborhood.

Further east lies the Coachella Valley, rapidly coming under cultivation as irrigating systems are developed and chiefly noted for the pro-

duction of dates. This industry, though new, is exceedingly promising, the quality of the product being second to none.

In the extreme eastern part of Riverside County lies the Palo Verde Valley, consisting of some 100,000 acres of land lying along the Colorado River. Here the cotton industry has come into prominence in recent years, the 1918 crop amounting to 14,000 bales and worth \$2,500,000.

Temecula, Wildomar, Nuevo and other neighboring localities are noted for their stock raising and the production of seeds in commercial quantities.

Among the industries of Riverside County should be noted the plant of the Riverside Portland Cement Company, one of the largest in the West; the citrus by-product industries of Corona, engaged particularly in the production of citric acid from cull lemons; the Temescal Rock Company's plant at Corona; Alberhill Coal and Clay Company's plant near Elsinore; the Western Products Company's fibre manufacturing plant at Riverside, for converting the yucca plant of the desert into fibre in commercial quantities, and the Riverside plants engaged in the manufacture of packing house machinery.

Riverside County has a large number of health and pleasure resorts. Among these are those in the vicinity of Lake Elsinore, Murrietta Hot Springs, Eden Hot Springs, and Palm Springs, all distinguished for their medicinal properties; the charming resort of Glen Ivy near Corona, Idylwild and Keen Camp in the San Jacinto Mountains, and Palm and Andreas canyons.

The Citrus Experiment Station of the University of California, the Indian School at Arlington (Sherman Institute), one of the largest in the country, and the March Aviation Field, are all situated in the county."*

*Information supplied by the Riverside Chamber of Commerce.

HORTICULTURAL.

Districts Where the Various Fruits Are Mostly Grown.*

ORANGES—Riverside District, including Arlington, Highgrove and West Riverside; Corona, Hemet, Perris District, including Moreno.

LEMONS—Riverside, Corona.

AVOCADO—Riverside.

ALMONDS—Banning, Elsinore.

APPLES—Beaumont, Banning, Yucaipa District, Hemet.

APRICOTS—Banning, Beaumont, Corona, Elsinore, Hemet District, including San Jacinto.

CHERRIES—Beaumont.

GRAPES—Wineville District, Coachella Valley.

OLIVES—Banning District, including Cabazon; Beaumont, Elsinore, Perris, Hemet, Corona.

PEACHES—Banning, Beaumont, Corona, Perris, Hemet and San Jacinto.

PEARS—Beaumont, Perris, Hemet and San Jacinto, Elsinore.

PRUNES—Banning.

WALNUTS—Elsinore, Perris, Hemet, San Jacinto and Riverside.

DATES—Coachella Valley.

*D. D. Sharp, County Horticultural Commissioner.

RIVERSIDE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	2,688		
Total in 1920.....	3,949		
Land and Farm Areas.			
Approximate land, acres.....	4,622,720		
Land in farms in 1910.....	520,806		
Land in farms in 1920.....	676,293		
Improved land in farms in 1910.....	278,151		
Improved land in farms in 1920.....	348,538		
Woodland in farms.....	26,027		
Other unimproved land.....	301,728		
Value of All Farm Property.			
Total value in 1910.....	\$46,203,795		
Total value in 1920.....	94,456,776		
Land in 1910.....	39,363,652		
Land in 1920.....	80,337,350		
Buildings in 1910.....	3,666,689		
Buildings in 1920.....	7,974,641		
Implements and machinery in 1910.....	1,112,189		
Implements and machinery in 1920.....	3,656,194		
Domestic animals, poultry and bees in 1910.....	2,061,265		
Domestic animals, poultry and bees in 1920.....	3,488,691		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	10,607		
Dairy.....	8,205		
Total.....	18,812		
Value.....	\$1,202,018		
Horses—			
Number.....	10,035		
Value.....	\$998,122		
Mules—			
Number.....	2,913		
Value.....	\$345,302		
Asses and burros—			
Number.....	118		
Value.....	\$6,685		
Swine—			
Number.....	15,599		
Value.....	\$264,360		
Sheep—			
Number.....	13,964		
Value.....	\$130,570		
Goats—			
Number.....	4,493		
Value.....	\$45,783		
Total value all domestic animals.....	\$2,993,040		
Poultry and bees—			
Poultry of all kinds.....	229,112		
Value.....	\$351,672		
Colonies of bees.....	17,014		
Value.....	\$143,979		
Poultry products—			
Poultry raised, number.....	201,133		
Eggs produced, dozen.....	1,120,579		
Value poultry and eggs produced.....	\$628,676		
Honey and wax—			
Honey produced, pounds.....	480,016		
Wax produced, pounds.....	12,678		
Value honey and wax produced.....	\$100,947		
Wool—			
Wool, fleeces shorn.....	12,345		
Goat hair, fleeces shorn.....	601		
Value wool and mohair produced.....	\$20,626		
Principal Crops.			
	Acres	Bushels	
Corn.....	1,388	28,836	
Oats.....	875	16,332	
Wheat.....	18,986	179,776	
Barley.....	35,222	542,291	
Kafir corn and milo maize.....	6,763	134,293	
Dry edible beans.....	719	8,305	
Potatoes.....	687	66,826	
Hay and forage—		Acres	Tons
Timothy alone.....	13	13	
Alfalfa.....	17,694	74,898	
Other tame and cultivated grasses.....	1,426	1,083	
Wild, salt, or prairie grasses.....	11	11	
Grains cut green.....	34,300	31,852	
All other hay and forage.....	3,516	10,832	
Totals.....	56,960	118,689	
Special crops—			
Potatoes, acres.....		687	
All other vegetables, acres.....		2,691	
Sugar beets, grown for sugar.....		Acres	Tons
		1,100	6,131
Cotton.....		Acres	Bales
		22,482	17,169
Orchard fruits—		Number bearing trees	
Apples.....			107,808
Apricots.....			363,918
Peaches.....			204,566
Pears.....			22,086
Prunes and plums.....			47,866
Total.....			746,244
Subtropical fruits—		Number bearing trees	
Lemons.....			320,066
Oranges.....			1,047,343
Grapevines—		Number in bearing.....	
			1,041,495
Small fruits—			
Total acres.....			72
Nuts—		Number bearing trees	
Almonds.....			85,428
Walnuts.....			35,100
Total.....			120,528
Irrigation.			
Acres irrigated in 1919.....		108,336	
Acreege enterprises were capable of irrigating in 1920.....		131,907	
Acreege included in projects.....		230,144	

Sacramento County.

Date of creation, February 18, 1850.

Land area, 983 square miles.			1890	1900	1910	1920	
County seat, Sacramento (city).	Population		40,339	45,915	67,806	91,029	
Population per square mile, 92.6.	Population		26,386	29,282	44,696	65,908	
		Highest	Lowest		Inches	Inches	
Elevation, 71 feet.	1917: Temperature	107	26	Rainfall	8.92	Snow	0
	1918: Temperature	107	29	Rainfall	16.92	Snow	0

Sacramento County is situated at the southern entrance of the great Sacramento Valley, and is well named the "Heart of California."

Its land area is 983 square miles, is largely comprised of rich sediment or bottom land surrounding the three main rivers, and owing to the enormous yield obtained each year, these sections have proven to be among the richest farming districts in the world.

This county leads the state in the production of pears and asparagus, besides being a large producer of other fruits, such as grapes, peaches, prunes, plums, almonds and olives. Over 35,000 acres are devoted to fruits, vines and nuts. The fruit production and net returns therefrom surpassed all the previous records of Sacramento County during the season of 1920, which netted the growers nearly \$9,500,000 profit. This large production is due, however, to a normal increase in plantings during the last eight years, which has placed Sacramento among the leading fruit producing counties of the state.

Apart from the ideal soil and climatic conditions, so necessary to profitable fruit culture, several other factors have contributed largely to this gradual increase of plantings of this county. Among these are the permanent building of three of the largest fruit and vegetable canneries in the state; three olive pickling plants, seven asparagus canneries, which handle the enormous 14,000-acre crop.

Again the splendid river transportation handling the bulk of the vast delta fruit output, and last but not least, the transcontinental shipping facilities which enable the grower to get his fruit started to Eastern markets under refrigeration without the slightest loss of time. From 60 to 80 cars of deciduous fruits leave this county each day during the shipping season.

In addition to the enormous fruit industry, there are over 100,000 acres devoted to alfalfa, beans, hops, corn, vegetable and vegetable seed growing, and about 150,000 acres are planted each year to wheat, barley and other cereal crops.

The livestock industry has been gradually increased so that now we have some of the largest and best dairy and swine herds in the state. The large yields of alfalfa and other forage crops, together with the building of several large modern creameries and a condensary have practically trebled this industry during the last three years.

Poultry is also on the increase, especially in the new districts that are being settled, where the farmers are growing large flocks to carry them along until the newly planted orchards come into bearing.

The 1920 Federal census places the total value of all crops of Sacramento County at \$19,845,858.

The Wealth of Sacramento County.

The wealth of Sacramento County is increasing amazingly, as is indicated by the following statement taken from the records of the County Assessor. In 1910 the total assessed valuation of property in the county was \$58,620,075. In 1920 the total assessed valuation of property was \$127,000,000. This wonderful gain in values is due to the tremendous industrial development in all lines of endeavor and it is not unwise to estimate that the gain in material wealth will be in far greater proportion as the European countries settle down to normal conditions, when much of the commerce of the world will be directed through the Panama Canal, thereby adding greatly to the population and development of all California and the Pacific Coast states.

While it must be apparent to the reader that there has been marked activity in the industrial life of Sacramento County and consequent rise in property values, it should be thoroughly understood that there has been no boom here and all values are based upon actual worth. Land in Sacramento County is valued on a basis of what it will produce.

Sacramento County is just a trifle smaller than the State of Rhode Island. There is very little waste land in the county, now that practically all of the overflowed areas have been reclaimed.

The county has an excellent system of good roads. Two main trunk lines of the state highway pass through the county and state roads lead from Sacramento City in five different directions. The Lincoln Highway, the transcontinental road from New York to San Francisco, passes through Sacramento. The county has 240 miles of improved highways.

The level condition of the county's surface renders motoring ideal. Most of the farmers of the county own motor cars, which they use for business and pleasure.

SACRAMENTO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910	1,601	Number	11,019
Total in 1920	2,975	Value	\$1,006,598
Land and Farm Areas.		Mules—	
Approximate land, acres	629,120	Number	743
Land in farms in 1910	473,044	Value	\$74,921
Land in farms in 1920	555,503	Asses and burros—	
Improved land in farms in 1910	275,682	Number	11
Improved land in farms in 1920	399,024	Value	\$345
Woodland in farms	63,155	Swine—	
Other unimproved land	93,324	Number	16,393
Value of All Farm Property.		Value	\$278,375
Total value in 1910	\$36,694,682	Sheep—	
Total value in 1920	87,983,650	Number	42,637
Land in 1910	30,425,404	Value	\$476,084
Land in 1920	72,412,416	Goats—	
Buildings in 1910	3,205,416	Number	142
Buildings in 1920	7,482,007	Value	\$3,843
Implements and machinery in 1910	786,353	Total value all domestic animals.....	
Implements and machinery in 1920	3,719,948	\$3,993,355	
Domestic animals, poultry and bees in 1910	2,277,479	Poultry and bees—	
Domestic animals, poultry and bees in 1920	4,369,279	Poultry of all kinds	254,948
Domestic Animals on Farms and Ranges.		Value	\$364,774
Cattle—		Colonies of bees	1,827
Beef	13,327	Value	\$11,150
Dairy	18,695	Dairy products—	
Total	32,022	Value	\$1,218,237
Value	\$2,153,189		

SACRAMENTO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.

Poultry products—		
Poultry raised, number	348,240	
Eggs produced, dozen	1,218,376	
Value poultry and eggs produced	\$805,985	
Honey and wax—		
Honey produced, pounds	31,330	
Wax produced, pounds	402	
Value of honey and wax produced	\$6,423	
Wool—		
Wool, fleeces shorn	37,313	
Value wool produced	\$105,455	

Principal Crops.

	Acres	Bushels
Corn	4,030	159,145
Oats	17,367	226,180
Wheat	60,669	914,289
Barley	18,872	474,930
Kafir corn and milo maize	488	6,588
Dry edible beans	22,222	411,645
Potatoes	1,910	108,035
Rough rice	100	4,500
Hay and forage—		
Timothy alone	15	10
Alfalfa	13,455	51,614
Other tame and cultivated grasses	380	245
Wild, salt, or prairie grasses	3,483	3,335
Grains cut green	27,997	29,095
All other hay and forage	1,589	7,359
Totals	46,919	91,658

Special crops—

Potatoes, acres	1,919
All other vegetables, acres	17,944
Sugar beets, acres	515

Orchard fruits—

	Number bearing trees
Apples	16,636
Apricots	14,265
Peaches	169,848
Pears	309,540
Prunes and plums	233,237
Total	743,526

Subtropical fruits—

	Number bearing trees
Lemons	2,709
Oranges	77,948

Grapes—

Number in bearing	7,259,957
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Small fruits—

Strawberries, etc., acres	722
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Nuts—

	Number bearing trees
Almonds	162,604
Walnuts	4,176
Total	166,780

Irrigation.

Acres irrigated in 1919	72,857
Acres enterprises were capable of irrigating in 1920	103,249
Acres included in projects	141,351

San Benito County.

Date of creation, February 12, 1874.

Land area, 1,392 square miles.	Population	1890	1900	1910	1920
County seat, Hollister (town).	Population	6,412	6,633	8,041	8,995
Population per square mile, 6.5.	Population	1,234	1,315	2,308	2,781
		Highest	Lowest	Inches	Inches
Elevation, 234 feet.	1917: Temperature	103	22	Rainfall	9.17
	1918: Temperature	101	23	Rainfall	17.29
				Snow	0
				Snow	0

The county extends from northwest to southeast about 60 miles, with a general width of 20 miles. The Gabilan Mountains on the southwest constitute the dividing line from Monterey County, and at their base flows northerly, the entire length, the San Benito River. Farther east the Tres Pinos forms another valley.

Irrigation is by gravity from the San Benito River and the Tres Pinos. This is supplemented by an extensive system of pumping from an apparently inexhaustible supply of underground flow, and further by artesian wells in the northern end of the county.

The lime industry, though once large, has ceased, awaiting better transportation facilities. Nearly half the quicksilver produced in the state comes from San Benito County, the New Idria mine being the largest.

Large deposits of potter's clay of superior quality lie in easy access.

SAN BENITO COUNTY SUMMARY.

(Census Figures)

Number of Farm Areas.		Asses and burros—	
Total in 1910	921	Number	14
Total in 1920	945	Value	\$430
Land and Farm Areas.		Swine—	
Approximate land, acres	890,850	Number	9,003
Land in farms in 1910	544,301	Value	\$107,495
Land in farms in 1920	530,378		
Improved land in farms in 1910	186,573	Sheep—	
Improved land in farms in 1920	122,606	Number	14,875
Woodland in farms	13,577	Value	\$183,981
Other unimproved land	403,195		
Value of All Farm Property.		Goats—	
Total value in 1910	\$14,963,867	Number	988
Total value in 1920	32,852,189	Value	\$6,819
Land in 1910	11,272,156	Total value all domestic animals	\$2,660,376
Land in 1920	25,249,043		
Buildings in 1910	1,336,855	Poultry and bees—	
Buildings in 1920	3,654,630	Poultry of all kinds	67,661
Implements and machinery in 1910	391,059	Value	\$101,145
Implements and machinery in 1920	1,184,012	Colonies of bees	539
Domestic animals, poultry and bees in 1910	1,963,798	Value	\$2,983
Domestic animals, poultry and bees in 1920	2,764,504		
Domestic Animals on Farms and Ranges.		Poultry products—	
Cattle—		Poultry raised, number	28,826
Beef	27,928	Eggs produced, dozen	367,415
Dairy	5,160	Value poultry and eggs produced	\$208,210
Total	33,097		
Value	\$1,933,397	Honey and wax—	
Horses—		Honey produced, pounds	12,916
Number	5,219	Wax produced, pounds	240
Value	\$418,069	Value honey and wax produced	\$2,677
Mules—		Wool—	
Number	110	Wool, fleeces shorn	11,289
Value	\$10,185	Mohair and goat hair, fleeces shorn	1,083
		Value wool and mohair produced	\$26,698

SAN BENITO COUNTY SUMMARY—Continued.

Principal Crops.				
	Acres	Bushels		Number bearing trees
Corn.....	613	6,879	Subtropical fruits--	
Oats.....	192	2,810	Lemons.....	11
Wheat.....	7,182	94,634	Oranges.....	31
Barley.....	8,668	156,459	Grapevines--	
Dry edible beans.....	147	1,069	Number in bearing.....	286,697
Potatoes.....	204	4,369	Small fruits--	
Totals.....	17,006	266,220	Total acres.....	61
Hay and forage--	Acres	Tons	Nuts--	Number bearing trees
Alfalfa.....	4,000	14,828	Almonds, etc.....	3,765
Other tame and cultivated grasses.....	130	174	Walnuts.....	2,372
Wild, salt, or prairie grasses.....	3,537	2,298	Total.....	6,137
Grains cut green.....	24,947	25,207		
All other hay and forage.....	641	5,895		
Totals.....	33,255	48,402		
Special crops--				
Potatoes, acres.....		204		
All other vegetables, acres.....		904		
Sugar beets, acres.....		209		
Orchard fruits--		Number bearing trees		
Apples.....		10,838		
Apricots.....		126,552		
Peaches.....		37,177		
Pears.....		21,486		
Prunes and plums.....		145,311		
Total.....		341,354		
			Irrigation.	
			Acres irrigated in 1919.....	12,519
			Acreege enterprises were capable of irrigating in 1920.....	17,252
			Acreege included in projects.....	23,053

San Bernardino County.

Date of creation, April 26, 1853.

Land area, 20,175 square miles.	Population.....	1890	1900	1910	1920
County seat, San Bernardino (city).	Population.....	25,497	27,929	56,706	73,401
Population per square mile, 306..	Population.....	4,012	6,159	12,779	18,721

		Highest	Lowest		Inches	Inches
Elevation, 1,054 feet.	1917: Temperature.....	116	26	Rainfall.....	8.37	Snow..... 0
	1918: Temperature.....	110	25	Rainfall.....	17.61	Snow..... 0

San Bernardino is not only the largest county in California, but it is the largest in the United States. It is larger than New Hampshire, Vermont, and Rhode Island combined; larger than New Jersey, Delaware, Massachusetts and Rhode Island combined; very nearly as large as Massachusetts, Connecticut, and New Jersey. There are eight states whose area is less than that of this county.

San Bernardino County is in the southeastern part of the state. The greater portion is desert. In the north is the Mojave Desert, and in the east the northern end of the Colorado Desert, the arable portion being confined to the southwestern part—the San Bernardino Valley. This valley forms an almost perfect amphitheater, encircled by mountains and hills, open only on the west, allowing the sea breeze from the ocean to sweep its entire length.

Mount St. Bernardino, from its distinctive cone, has been adopted by the United States surveyors as the initial point for land surveys in southern California, both base and meridian starting from its peak of 10,100 feet.

The northern and western portions of the county are almost sterile, yet, along the Mojave River, where it debouches from the mountains to the desert, and for many miles, the land on both sides is fertile, easily worked, and produces abundantly as long as the water supply is available.

Here was dug the first irrigation ditch in the state, and here were raised the first crops by irrigation. It is over a hundred years since the mission fathers of San Gabriel established a sub-mission, just west of Redlands, and employed Indian labor to dig what is known as the zanja. This ancient ditch is still in use and within the same banks that were first thrown up by Indian labor almost a century ago.

Almost every variety of fruit can be produced in some part of this county. On the lower levels, all the deciduous fruits are produced. The production of oranges, lemons, and pomeloes is large, these fruits being rapidly grown to perfection. The production of oranges has increased rapidly during the last few years, San Bernardino County being the largest producer in the state for many years. There has also been a large increase within the last five years, in alfalfa, and deciduous fruits, but wine grapes are grown to a considerable extent; one of the largest vineyards in the state at Guasti, belonging to the Italian Vineyard Company, contains over 6000 acres of all the best varieties of wine grapes.

In the western part of Rialto, Etiwanda and Cucamonga neighborhoods a considerable quantity of raisins is made.

At Chino is a factory of the American Beet Sugar Company, which is one of the largest beet-sugar factories in the state.

The northern and eastern portions are heavily mineralized. The greatest source of potash is in the saline deposits at Searles Lake, where several plants are in operation, representing an investment of millions of dollars, effecting a complete commercial utilization of the vast supply of raw material in sight. The deposits are not only rich in potash, but contain, also, borax, common salt, sodium sulphate, and sodium carbonate. The scarcity of water, which renders the life of the prospector precarious, as well as interfering with the working of the mines, and the scarcity and high cost of fuel, all combined, have limited prospecting and retarded mining development in the past.

SAN BERNARDINO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910.....	2,949	Poultry raised, number.....	222,549
Total in 1920.....	4,023	Eggs produced, dozen.....	943,471
		Value poultry and eggs produced.....	\$606,958
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	12,912,000	Honey produced, pounds.....	536,935
Land in farms in 1910.....	208,396	Wax produced, pounds.....	8,838
Land in farms in 1920.....	415,738	Value honey and wax produced.....	\$110,834
Improved land in farms in 1910.....	136,625		
Improved land in farms in 1920.....	175,272	Principal Crops.	
Woodland in farms.....	35,843		
Other unimproved land.....	204,623		
Value of All Farm Property.			
Total value in 1910.....	\$58,499,103	Corn.....	Acres Bushels
Total value in 1920.....	99,728,993	Oats.....	1,295 41,083
Land in 1910.....	60,681,348	Wheat.....	748 17,965
Land in 1920.....	83,064,894	Barley.....	1,730 40,299
Buildings in 1910.....	5,238,858	Kafir corn and milo maize.....	4,445 183,408
Buildings in 1920.....	10,168,443	Potatoes.....	6,208 79,088
Implements and machinery in 1910.....	1,077,851		1,267 97,117
Implements and machinery in 1920.....	3,407,629	Hay and forage—	Acres Tons
Domestic animals, poultry and bees in 1910.....	1,501,046	Timothy alone.....	86 123
Domestic animals, poultry and bees in 1920.....	3,088,027	Clover alone.....	1,092 540
		Alfalfa.....	11,244 43,395
		Other tame and cultivated	
		grasses.....	856 1,672
		Wild, salt, or prairie grasses.....	100 113
		Grains cut green.....	20,811 27,494
		All other hay and forage.....	2,972 14,178
		Totals.....	37,161 87,515
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	1,267
Beef.....	12,890	All other vegetables, acres.....	1,260
Dairy.....	7,608	Sugar beets, acres.....	1,294
Total.....	20,498		
Value.....	\$1,221,741	Orchard fruits—	Number
Horses—		bearing trees	
Number.....	6,819	Apples.....	263,922
Value.....	\$773,120	Apricots.....	156,173
Mules—		Peaches.....	549,221
Number.....	1,300	Pears.....	21,473
Value.....	\$181,626	Prunes and plums.....	10,542
Asses and burros—		Total.....	1,001,331
Number.....	59	Subtropical fruits—	Number
Value.....	\$1,720	bearing trees	
Swine—		Lemons.....	293,499
Number.....	20,651	Oranges.....	2,334,245
Value.....	\$397,571	Grapevines—	
Sheep—		Number in bearing.....	6,276,671
Number.....	3,919	Small fruits—	Number
Value.....	33,476	Total acres.....	77
Goats—		Nuts—	Number
Number.....	1,152	bearing trees	
Value.....	\$41,467	Almonds.....	3,594
Total value all domestic animals.....	\$2,650,721	Walnuts.....	27,398
Poultry and bees—		Total.....	30,992
Poultry of all kinds.....	197,204	Irrigation.	
Value.....	\$307,147	Acres irrigated in 1919.....	105,481
Colonies of bees.....	13,186	Acreege enterprises were capable of irrigating	
Value.....	\$130,159	in 1920.....	120,628
		Acreege included in projects.....	186,784

San Diego County.

Date of creation, February 18, 1850.

Land area, 4,221 square miles.	Population	1890	1900	1910	1920
County seat, San Diego (city).	Population	34,897	35,099	61,665	112,248
Population per square mile, 26.0.	Population	16,159	17,700	39,578	74,683
Elevation, 87 feet.	Highest	Lowest	Inches	Inches	
1917: Temperature	92	39	Rainfall	8.04	Snow
1918: Temperature	94	35	Rainfall	11.99	Snow

"San Diego County occupies the extreme southwestern portion of the state, and has an area slightly larger than Massachusetts. From the ocean to the Jacumba Mountains on the east, which form the natural barrier between this county and the great Imperial Valley, San Diego County is a natural amphitheatre sweeping from the sea through a succession of fertile valleys, rolling foothills and rugged mountains. Its sea coast is 75 miles in length from north to south, and the rocky backbone, better known as the 'back country,' enjoys a distinct increase in altitude from 1200 to 5000 feet above sea level.

IRRIGABLE LANDS—The total number of acres under cultivation at the close of 1920 was 25,483, with sufficient water available to irrigate 100,000 acres. New irrigation projects now under way will materially increase the supply of water for irrigation purposes and it is expected that the farming area of the county will be largely increased, as there are thousands of acres of fertile land that will produce fine crops when the necessary water becomes available.

COOPERATIVE ORGANIZATIONS—Within the past five years, the shipment of the Muscat, or raisin grape, for table use, has been put on a substantial basis by the development of an almost unlimited market in the eastern states. The California Raisin Growers' Association is successfully looking after the raisin end, and the 1920 yield was approximately 15,000 tons of grapes.

The Milk Producers' Association of San Diego County, a cooperative marketing concern, dealing with the distributor only, was formed in the winter of 1917, and has done much to put the dairy business of the county on a firm financial basis. As a result of this work, the wholesale milk supply of San Diego city for 1918 was 63.75 per cent grade 'A' raw. Formerly it was 36.76 per cent.

Poultry raising is becoming an important industry in San Diego County, there being approximately 400,000 laying hens in the county. The bulk of the egg output is marketed through the San Diego Poultry Association, a strictly cooperative organization, organized about four years ago with a membership of 20. The present membership totals approximately 500, and the association does a business of about \$100,000 a month. Last year the organization shipped out 112 carloads of eggs, each car containing approximately 12,000 dozen. A few months ago the association purchased a block of land at Twenty-second street and Imperial avenue, and erected a \$50,000 warehouse and feed mill. There are sidetrack facilities for handling four cars at a time.

A strong Bean Growers' Association, formed primarily to solve marketing problems, is finding many avenues of usefulness to its members. The 1920 acreage planted to beans was 20,000 acres, producing 150,000 bags of beans.

The citrus industry is well organized, and most of the packing houses are members of the California Fruit Growers' Exchange.

The San Diego Beekeepers' Association is well organized, and is doing good work in the way of improving the industry. Intelligent methods are being employed to stamp out foul brood and generally to improve conditions. The past season has been a very profitable one for the honey producers of the county, 1,476,000 pounds of honey having been gathered and sold at generally satisfactory prices. San Diego County is one of the oldest honey producing counties in the state, and one of the leading counties in point of production.

Tomatoes are picked from May 1 until October 15, and, in favored sections of the county as late as January 1, and, occasionally throughout the year.

In both the coastal and interior belts, vegetable growing and truck farming is being carried on. In portions of this area where frost seldom comes, tomatoes can be ripened as late as January 1, cucumbers can be put on the market in February; and cabbage ready for shipment in January are not uncommon occurrences. String beans and peas prove to be profitable crops throughout the winter, while bell peppers and egg plant are profitably grown until very late in the winter.

This area has also a great opportunity in the growth of the early potato, it being quite possible to mature a spring crop by the first of March, and a fall crop during December."*

*Information supplied by the San Diego Chamber of Commerce.

SAN DIEGO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	2,208	Mules—	
Total in 1920	3,200	Number	1,206
		Value	\$138,501
Land and Farm Areas.		Asses and burros—	
Approximate land, acres	2,701,440	Number	130
Land in farms in 1910	\$34,426	Value	\$8,427
Land in farms in 1920	925,192	Swine—	
Improved land in farms in 1910	234,045	Number	15,731
Improved land in farms in 1920	262,646	Value	\$277,951
Woodland in farms	60,330	Sheep—	
Other unimproved land	602,226	Number	7,311
		Value	\$60,784
Value of All Farm Property.		Goats—	
Total value in 1910	\$31,124,814	Number	7,360
Total value in 1920	64,081,885	Value	\$62,603
Land in 1910	23,934,732	Total value all domestic animals	\$3,871,407
Land in 1920	49,995,330	Poultry and bees—	
Buildings in 1910	3,327,382	Poultry of all kinds	402,669
Buildings in 1920	6,923,517	Value	\$632,788
Implements and machinery in 1910	\$31,501	Colonies of bees	19,012
Implements and machinery in 1920	2,512,000	Value	\$146,843
Domestic animals, poultry and bees in 1910	3,001,109	Poultry products—	
Domestic animals, poultry and bees in 1920	3,001,109	Poultry raised, number	376,187
		Eggs produced, dozen	2,305,717
		Value poultry and eggs produced	\$1,373,837
Domestic Animals on Farms and Ranges.		Honey and wax—	
Cattle—		Honey produced, pounds	480,165
Beef	34,644	Wax produced, pounds	9,584
Dairy	11,904	Value of honey and wax produced	\$99,771
Total	46,548		
Value	\$2,527,723		
Horses—			
Number	9,739		
Value	\$795,418		

SAN DIEGO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Orchard fruits—		Number
Wool—					bearing trees
Wool, fleeces shorn	5,442		Apples	227,677	
Goat hair, fleeces shorn	1,713		Apricots	21,376	
Value wool and mohair produced	\$11,240		Peaches	124,429	
			Pears	12,573	
			Prunes and plums	16,972	
			Total	463,027	
Principal Crops.			Subtropical fruits—		Number
	Acres	Bushels			bearing trees
Corn	3,199	51,846	Lemons	278,480	
Oats	2,662	48,509	Oranges	96,788	
Wheat	8,899	87,727	Grapevines—		
Barley	18,150	271,533	Number in bearing	1,275,873	
Kafir corn and milo maize	1,926	14,327	Small fruits—		
Dry edible beans	16,067	120,243	Total acres	48	
Potatoes	487	33,288	Nuts—		Number
Hay and forage—	Acres	Tons			bearing trees
Timothy alone	42	37	Almonds and pecans	10,032	
Clover alone	42	32	Walnuts	10,798	
Alfalfa	4,814	20,121	Total	20,830	
Other tame and cultivated grasses	517	318	Irrigation.		
Wild, salt, or prairie grasses	2,534	2,006	Acres irrigated in 1919	24,790	
Grains cut green	59,658	42,698	Acres enterprises were capable of irrigating in 1920	31,921	
All other hay and forage	5,034	12,716	Acres included in projects	68,170	
Totals	72,641	77,928			
Special crops—					
Potatoes, acres	487				
All other vegetables, acres	2,704				
Sugar beets, acres	432				

San Francisco City and County.

Date of creation, February 12, 1874.

		1890	1900	1910	1920
Land area, 42 square miles.	Population.....	298,997	342,782	416,912	506,676
County seat, San Francisco.					
Population per square mile, 12,063.7.					
Water area, 80½ square miles.					
		Highest	Lowest	Inches	Inches
Elevation, 207 feet.	1917: Temperature.....	96	34	Rainfall..... 9.00	Snow..... 0
	1918: Temperature.....	85	38	Rainfall..... 20.85	Snow..... 0

San Francisco is essentially a commercial and manufacturing city. It produces no agricultural products, except to a small extent the minor vegetables. Its location on the Bay of San Francisco, one of the finest and safest harbors in the world, eminently fits it for a commercial city, and its importance in this respect insures it a place among the chief shipping centers of the world.

The value of all property has increased enormously in recent years in spite of a temporary setback owing to the terrible double disaster of earthquake and fire in 1906, as the following summary of assessed values will prove:

-GRAND TOTAL OF ALL PROPERTY, 1850-1921.

1850.....	\$21,621,184	1914.....	\$647,456,025
1860.....	35,967,499	1915.....	656,677,332
1870.....	116,375,988	1916.....	756,235,432
1880.....	253,520,326	1917.....	791,957,717
1890.....	301,438,040	1918.....	792,251,382
1900.....	410,425,849	1919.....	794,459,406
1911.....	545,398,908	1920.....	819,829,078
1912.....	605,141,664	1921.....	869,187,114
1913.....	624,182,130		

San Francisco's industrial district embraces approximately 4200 square miles, with a population of 1,070,000.

FINANCE.—San Francisco ranks seventh in bank clearings in the country. Clearings in 1921 amounted to \$6,629,000,000, and ranks fifth in bank debits, surpassed only by New York, Chicago, Philadelphia and Boston. Of all bank deposits in California, 42.5 per cent are contained in San Francisco banks, the total amounting to \$957,500,142. Total resources of San Francisco banks (December, 1921) amounted to \$1,171,678,033, or 43.5 per cent of total bank resources in California.

MANUFACTURING.—The United States Census Bureau reports that San Francisco leads all cities on the Pacific Coast in value of manufacturing production. Figures for 1919, the latest available, give San Francisco in that year a total production valued at \$417,321,000, with 2360 manufacturing plants employing 61,328 persons, with a capital investment of \$326,398,000, and an annual payroll totaling \$78,621,000.

TRANSPORTATION.—San Francisco is served by five transcontinental railway systems, the Southern Pacific with three lines (one by way of New Orleans, a second by way of Ogden, and a third by way of Portland, Ore.), the Western Pacific and Santa Fe. Fifty-three steamship lines serve San Francisco, 24 are engaged in foreign service and 29 in coastal trade.

FOREIGN TRADE.—Trade with foreign countries passing through the Port of San Francisco in 1921 totaled \$223,733,138, of which exports amounted to \$124,767,770 and imports to \$96,965,368. Total ship tonnage entering and leaving the Golden Gate in 1921 was \$16,380,294.

HARBOR FACILITIES.—San Francisco Bay is the finest and largest land-locked harbor in the world. Its area is 450 square miles, shore line 100 miles, exclusive of navigable inlets. The Golden Gate, the entrance to the bay, is six miles long and one mile wide at its narrowest point. Its docks consist of 15 miles of berthing space, 135 acres of cargo space, and 41 modern piers. Ship repairing can be done at two graving docks at Hunter's Point, four floating dry-docks and eight marine railways in San Francisco Bay. One graving dock is 1020 feet long and 153 feet wide, and admits vessels of the largest size.

SAN FRANCISCO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910.....	157	Swine—	
Total in 1920.....	74	Number.....	209
		Value.....	\$1,934
Land and Farm Areas.		Goats—	
Approximate land, acres.....	26,880	Number.....	15
Land in farms in 1910.....	2,091	Value.....	\$235
Land in farms in 1920.....	1,295	Total value all domestic animals.....	\$22,272
Improved land in farms in 1910.....	1,562		
Improved land in farms in 1920.....	840	Poultry and bees—	
Woodland in farms.....	7	Poultry of all kinds.....	3,303
Other unimproved land.....	448	Value.....	\$3,835
Value of All Farm Property.		Poultry products—	
Total value in 1910.....	\$2,630,428	Poultry raised, number.....	8,036
Total value in 1920.....	1,619,862	Eggs produced, dozen.....	19,829
Land in 1910.....	2,097,111	Value poultry and eggs produced.....	\$16,981
Land in 1920.....	1,427,945		
Buildings in 1910.....	326,789	Principal Crops.	
Buildings in 1920.....	128,125		
Implements and machinery in 1910.....	68,270	Potatoes.....	Acres Bushels
Implements and machinery in 1920.....	37,685		66 3,652
Domestic animals, poultry and bees in 1910.....	138,258	Special crops—	
Domestic animals, poultry and bees in 1920.....	26,107	Potatoes, acres.....	66
		All other vegetables, acres.....	542
Domestic Animals on Farms and Ranges.		Irrigation.	
Cattle—		Acres irrigated in 1919.....	372
Dairy.....	254	Acreage enterprises were capable of irrigating	
Value.....	\$11,164	in 1920.....	412
		Acreage included in projects.....	412
Horses—			
Number.....	105		
Value.....	\$8,889		

Imports and Exports of Gold and Silver (Coin and Bullion) of California Ports, for Fiscal Years Ending June 30, 1900-1921.
San Francisco.

Year	Gold		Silver		Gold and silver	
	Imports	Exports	Imports	Exports	Total imports	Total exports
1900	\$10,574,256	\$2,025,189	\$3,096,775	\$7,502,120	\$13,671,031	\$9,527,309
1901	24,911,109	364,758	3,738,814	7,927,900	28,649,923	8,292,658
1902	14,338,906	781,826	4,169,221	8,368,761	18,508,127	9,150,587
1903	9,263,674	3,114,023	2,679,547	6,392,414	11,943,221	9,506,437
1904	40,366,771	652,277	3,492,909	4,600,950	43,859,679	5,253,237
1905	15,590,871	5,905,700	3,007,796	6,622,002	18,594,667	12,527,702
1906	4,233,579	5,306,189	2,331,861	9,417,951	6,747,440	14,784,140
1907	14,504,917	22,391	3,414,584	2,410,717	17,919,501	2,433,108
1908	3,759,329	34,539	3,164,428	5,182,657	6,923,757	5,217,196
1909	3,588,424	3,033,975	2,652,954	6,886,849	6,241,378	9,920,824
1910	3,362,104	27,008,324	2,582,352	7,314,954	3,944,456	34,323,278
1911	8,111,108	20,690	1,579,109	9,262,759	9,690,217	9,283,449
1912	4,532,321	7,034,962	1,455,089	9,905,094	5,985,410	16,940,056
1913	3,641,975	113,108	1,808,461	11,753,927	3,750,436	11,867,035
1914	1,831,388	5,090	1,046,866	9,494,498	3,478,254	9,499,588
1915	25,881,230	68,855	2,150,338	6,021,927	28,032,068	6,090,782
1916	58,087,257	23,303,121	3,250,236	9,054,271	61,337,493	32,357,392
1917	56,639,954	71,882,839	4,724,147	23,028,927	61,365,201	95,811,766
1918	5,714,726	5,580,548	11,295,274	39,255,440	100,210,488	138,465,928
1919	15,074,542	188,734,653	8,356,219	175,465,253	23,430,761	364,199,906
1920	22,709,803	144,226,436	11,011,007	90,153,323	33,720,810	234,379,759
1921	52,636,579	9,531,715	3,330,707	28,055,233	55,967,286	37,586,948

Imports and Exports of Foreign and Domestic Merchandise from California Ports, 1900-1921.
(For fiscal year ending June 30.)

Year	San Francisco		Los Angeles	
	Imports	Exports	Imports	Exports
1900	\$47,869,628	\$40,368,288	\$1,011,090	
1901	35,161,753	34,596,792	885,473	\$30
1902	35,102,981	38,183,755	676,615	80
1903	36,454,283	33,502,616	1,019,481	682
1904	37,542,978	32,547,181	1,292,560	503
1905	46,675,545	49,924,026	810,000	291
1906	44,433,271	39,915,269	827,059	12,105
1907	51,094,570	33,026,664	1,559,322	45,000
1908	48,251,476	28,000,069	1,538,199	187,247
1909	49,998,111	31,669,370	1,305,341	193,221
1910	49,350,643	31,180,760	1,942,647	135,911
1911	53,885,021	40,624,903	2,655,558	86,415
1912	59,235,471	49,249,734	3,225,618	161,735
1913	62,501,681	66,021,385	2,747,601	253,562

Year	San Francisco*		Southern California**		Total	
	Imports	Exports	Imports	Exports	Imports	Exports
1914	\$67,111,081	\$63,374,909	\$4,908,543	\$2,010,280	\$72,019,624	\$65,385,189
1915	76,068,028	81,500,979	4,716,390	2,512,355	80,784,418	84,013,334
1916	113,645,919	94,558,987	4,175,260	3,268,105	117,821,179	97,827,092
1917	144,027,410	143,202,190	6,532,381	5,825,090	150,559,791	149,027,280
1918	269,197,408	211,670,858	9,855,619	7,502,399	278,963,027	219,173,257
1919	238,074,051	239,601,049	16,166,628	15,501,911	254,240,689	255,102,960
1920	211,928,232	220,257,271	9,723,217	18,606,121	221,651,449	238,863,392
1921	96,965,368	126,767,770	12,105,399	17,512,854	109,070,767	144,280,624

*San Francisco and Humboldt consolidated since 1913.

**San Diego and Los Angeles consolidated since 1913.

San Joaquin County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 1,488 square miles.	Population	28,629	35,452	50,731	79,907
County seat, Stockton (city).	Population	14,424	17,506	23,253	40,296
Population per square mile, 55.2.					

		Highest	Lowest	Inches	Inches
Elevation, 23 feet.	1917: Temperature	105	22	Rainfall	7.01
	1918: Temperature	103	26	Rainfall	15.21
	1921: Temperature	107	26	Rainfall	12.59
				Snow	0
				Snow	0
				Snow	0

San Joaquin County lies directly east of San Francisco and San Pablo bays and spans the great interior valley of California from the foothills of the Coast Range to the foothills of the Sierra Nevada Mountains. It thus commands the entrance to the chief port and metropolis of the coast from the continent, and for both water and land traffic; hence it is termed the "Gateway County." The soil varies in character, but the surface is mostly level and well adapted to intensive agriculture. The climate of this area is tempered by sea influences, by the air which rushes through the gap in the Coast Range.

The county is famous for its good roads, built by the county at a cost of \$2,500,000.

Four hundred miles of navigable waterways, three transcontinental railways, three interurban lines, and 460 miles of improved highways give San Joaquin County unusually good transportation facilities and make it possible to capitalize fully its advantageous location, directly east of San Francisco. A developed arm of the San Joaquin River penetrates into the center of its county seat, Stockton. The western third of the county embraces the far-famed San Joaquin Delta, reclaimed by levee construction and drainage, land of exceptional productivity. The soils of the county are roughly divided into peats of the delta, the adobes along the river and surrounding Stockton, the deep, mellow loams of the west side, and the great body of sandy loam found in the northern and southern parts of the county. It is estimated that over 67 per cent of the farm area of the county is developed for irrigation by public and private enterprises.

San Joaquin County ranks fourth in the United States and third in California in value of all crops, according to 1920 census figures. It produces 38.9 per cent on its assessed valuation. San Joaquin County ranks first in California in the production of cereals (wheat, corn and barley), potatoes and table grapes. It is fourth in vegetables other than potatoes; fifth in hay and forage; sixth in bean production; seventh in nut production; tenth in value of chickens and poultry; tenth in value of honey and wax and fifteenth in production of all fruits, among the 58 counties of the state. It is significant to note that all the crops are staples. Hundreds of acres have been planted to orchards and vineyards in the county in the past few years and fruits are becoming a more valuable crop annually.

Animal husbandry is fast coming to the front, opportunities in such lines being especially attractive. Sugar beets have become one of the important crops, and sugar factories are near Manteca and Tracy. In the last few years field corn has become one of the biggest and most satisfactory crops.

The great South San Joaquin Irrigation District of 71,050 acres and the new West Side Irrigation District of nearly 12,000 acres are both within the county. They are owned and operated by the land owners themselves as municipal corporations.

The United States Veterans Bureau recently selected a tract of land, consisting of 1197 acres, in San Joaquin County for the establishment of an agricultural training center for world war veterans. The decision of the government for this school in San Joaquin County is a wonderful recommendation for the climate, living conditions and the soil.

The commerce over the tidewater channel from Stockton to the lower bay region amounts to 700,000 tons of freight annually, valued at \$42,203,211. Over 242,000 passengers are carried on the river each year.

SAN JOAQUIN COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Sheep—	
Total in 1910	3,286	Number	68,874
Total in 1920	4,500	Value	\$680,792
Land and Farm Areas.		Goats—	
Approximate land, acres	926,720	Number	2,573
Land in farms in 1910	763,048	Value	\$12,489
Land in farms in 1920	706,308	Total value all domestic animals	\$6,923,386
Improved land in farms in 1910	611,762	Dairy products—	
Improved land in farms in 1920	599,403	Value	\$2,340,938
Woodland in farms	18,471	Poultry and bees—	
Other unimproved land	88,431	Poultry of all kinds	303,465
		Value	\$377,558
		Colonies of bees	3,177
		Value	\$28,218
Value of All Farm Property.		Poultry products—	
Total value in 1910	\$67,286,628	Poultry raised, number	342,860
Total value in 1920	140,702,764	Eggs produced, dozen	1,183,000
Land in 1910	55,909,884	Value poultry and eggs produced	\$416,694
Land in 1920	115,785,808	Honey and wax—	
Buildings in 1910	5,675,665	Honey produced, pounds	137,477
Buildings in 1920	11,731,875	Wax produced, pounds	2,618
Implements and machinery in 1910	1,741,053	Value of honey and wax produced	\$28,516
Implements and machinery in 1920	5,855,919	Wool—	
Domestic animals, poultry and bees in 1910	3,960,026	Wool, fleeces shorn	49,984
Domestic animals, poultry and bees in 1920	7,329,162	Goat hair, fleeces shorn	675
		Value wool and mohair produced	\$106,282
Domestic Animals on Farms and Ranges.		Principal Crops.	
Cattle—			
Beef	14,329	Corn	Acres 30,350 Bushels 1,236,160
Dairy	31,927	Oats	19,309 341,666
Total	46,256	Wheat	73,272 1,594,310
Value	\$3,755,609	Barley	104,933 2,878,687
Horses—		Kafir corn and milo maize	5,727 109,587
Number	18,050	Dry edible beans	22,487 401,780
Value	\$1,684,634	Potatoes	18,462 3,208,310
Mules—		Hay and forage—	
Number	1,885		
Value	\$197,884	Timothy and clover mixed	Acres 196 Tons 229
Asses and burros—		Clover alone	327 537
Number	50	Alfalfa	35,088 144,896
Value	\$7,495	Other tame and cultivated grasses	804 1,154
Swine—		Wild, salt, or prairie grasses	2,855 2,750
Number	34,204	Grains cut green	34,082 44,740
Value	\$584,488	All other hay and forage	2,479 10,479
		Totals	75,831 204,785

SAN JOAQUIN COUNTY SUMMARY—Continued.

Principal Crops—Continued			
Special crops—		Grapevines—	
Potatoes, acres.....	18,462	Number in bearing.....	13,074,667
All other vegetables, acres.....	10,990	Small fruits—	
Sugar beets, acres.....	2,647	Total acres.....	172
	Number		Number
Orchard fruits—	bearing trees	Nuts—	bearing trees
Apples.....	11,347	Almonds.....	224,981
Apricots.....	22,238	Walnuts.....	13,244
Peaches.....	318,700	Total.....	238,225
Pears.....	24,553		
Prunes and plums.....	94,222		
Total.....	471,060		
	Number		
Subtropical fruits—	bearing trees	Irrigation.	
Lemons.....	456	Acres, irrigated in 1919.....	183,853
Oranges.....	3,257	Acreage enterprises were capable of irrigating	
		in 1920.....	230,763
		Acreage included in projects.....	324,099

San Luis Obispo County.

Date of creation, February 12, 1850.

Land area, 3,334 square miles.	Population	1890	1900	1910	1920
County seat, San Luis Obispo (city).	Population	16,072	16,637	19,383	21,893
Population per square mile, 6.6.	Population	2,995	3,021	5,157	5,895
		Highest	Lowest	Inches	Inches
Elevation, 201 feet	1917: Temperature	110	30	Rainfall	Snow
	1918: Temperature	104	27	Rainfall	Snow

This large and fertile county lies on the coast side of the state, about midway between San Francisco and Los Angeles. It is an old county, organized in the days of gold, and received its name nearly a hundred years before the Americans came into the country. It was a great region in the days of Spanish occupation, and is a great region still in its advantages of soil and climate, of diversified surface and abundant natural resources, and at the present it is undergoing the greatest development in its history.

Much grain is still grown. In the eastern portion of the county wheat is still a large product, with an increasing acreage sown to barley.

Fruit is grown successfully in almost all portions of the county, and there are wide areas where fruit of many kinds is a prolific crop. The coast section is especially adapted, nearly every variety doing well.

San Luis Obispo, the county seat, is a rapidly growing city situated in a beautiful bowl-shaped valley in the heart of a rich dairying and cattle raising section.

Paso Robles is the leading town east of the Santa Lucia Mountains, and the second in size in the county, and is pleasantly situated on the Salinas River in a land of oaks and rolling hills. Its chief features are the hot springs. The great hot springs flow approximately 2,000,000 gallons per day, and there are several other springs of varying chemical constituents and adapted to wide medicinal uses.

The producing oil wells of San Luis Obispo County demonstrate the fact that the Monterey shale, found over the greater portion of the coast side of the county, is an extension of those of the great Santa Maria oil fields immediately adjoining the county on the south. Port San Luis, which is the terminus of three pipe lines from the Santa Maria fields, is one of the largest oil ports. The well known Coalinga, Kern River, Midway, Sunset, and McKittrick fields are also connected by pipe line with this port.

SAN LUIS OBISPO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910.....	1,714	Total value in 1910.....	\$32,426,353
Total in 1920.....	1,803	Total value in 1920.....	61,515,149
Land and Farm Areas.		Land in 1910.....	24,745,375
Approximate land, acres.....	2,133,760	Land in 1920.....	48,924,414
Land in farms in 1910.....	1,588,660	Buildings in 1910.....	2,136,447
Land in farms in 1920.....	1,377,536	Buildings in 1920.....	3,765,162
Improved land in farms in 1910.....	326,928	Implements and machinery in 1910.....	742,498
Improved land in farms in 1920.....	402,269	Implements and machinery in 1920.....	2,443,250
Woodland in farms.....	77,264	Domestic animals, poultry and bees in 1910.....	4,802,033
Other unimproved land.....	898,003	Domestic animals, poultry and bees in 1920.....	6,382,323

SAN LUIS OBISPO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.		Principal Crops.		
Cattle—			Acres	Bushels
Beef.....	62,311	Corn.....	2,443	64,176
Dairy.....	26,366	Oats.....	1,768	42,266
Total.....	88,677	Wheat.....	62,777	908,260
Value.....	\$4,790,734	Barley.....	18,956	527,867
Horses—		Kafir corn and milo maize.....	21	525
Number.....	11,820	Dry edible beans.....	26,330	385,827
Value.....	\$1,039,506	Potatoes.....	363	30,531
Mules—		Hay and forage—	Acres	Tons
Number.....	767	Alfalfa.....	3,877	13,591
Value.....	\$68,651	Other tame and cultivated grasses.....	1,973	1,233
Asses and burros—		Wild, salt, or prairie grasses ..	490	460
Number.....	21	Grains cut green.....	45,270	67,207
Value.....	\$1,095	All other hay and forage.....	1,049	3,838
Swine—		Totals.....	52,659	86,329
Number.....	17,451	Special crops—		
Value.....	\$260,286	Potatoes, acres.....		363
Sheep—		All other vegetables, acres.....		581
Number.....	11,609	Sugar beets, acres.....		2,215
Value.....	\$99,744	Crochard fruits—		Number
Goats—		Apples.....		bearing trees
Number.....	405	Apricots.....		34,264
Value.....	\$4,653	Peaches.....		15,086
Total value all domestic animals.....	\$6,264,669	Pears.....		12,645
Poultry and bees—		Prunes and plums.....		26,838
Poultry of all kinds.....	90,204	Total.....		29,275
Value.....	\$104,558	Total.....		117,508
Colonies of bees.....	1,694	Subtropical fruits—		Number
Value.....	\$13,066	Lemons.....		bearing trees
Dairy products—		Oranges.....		898
Value.....	\$1,084,282	Grapevines—		411
Poultry products—		Number in bearing.....		148,842
Poultry raised, number.....	62,794	Small fruits—		
Eggs produced, dozen.....	390,871	Total acres.....		31
Value poultry and eggs produced.....	\$212,171	Nuts—		Number
Honey and wax—		Almonds.....		bearing trees
Honey produced, pounds.....	73,098	Walnuts.....		125,835
Wax produced, pounds.....	1,873	Total.....		10,363
Value of honey and wax produced.....	\$15,350	Total.....		136,198
Wool—		Irrigation.		
Wool, fleeces shorn.....	5,858	Acres irrigated in 1919.....		5,302
Goat hair, fleeces shorn.....	128	Acreage enterprises were capable of irrigating in 1920.....		10,878
Value wool and mohair produced.....	\$8,825	Acreage included in projects.....		11,229

Santa Barbara County.

Date of creation, February 18, 1850.

Land area, 2,740 square miles	Population.....	1890	1900	1910	1920
County seat, Santa Barbara (city).	Population.....	15,754	18,934	27,738	41,097
Population per square mile, 15. 0.		5,864	6,587	11,659	19,441
		Highest	Lowest	Inches	Inches
Elevation, 130 feet.	1917: Temperature.....	115	28	Rainfall.....11.79	Snow..... 0
	1918: Temperature.....	93	31	Rainfall.....28.85	Snow..... 0

Santa Barbara County is situated in the parallelogram formed by the break in the coast line made by Point Conception, the great continental headland. From this point, the coast line extends for about 50 miles in each direction. The Coast Range of mountains divides the county into five natural divisions.

The largest of these divisions is the Santa Maria Valley, occupying the northern and western portion of the county. This valley contains about 160,000 acres, 80 per cent of which is under cultivation. The Santa Maria River is the chief stream, furnishing water for irrigation purposes in the upper valley and replenishing the underground flow nearer the ocean. The soil is mostly a light sandy loam, noted for its great depth and fertility. It is especially adapted to the growing of beans, beets, potatoes, and onions. The Union Sugar Company maintains a large factory near Betteravia, where upwards of 100,000 tons of beets are made into sugar.

South of the Santa Maria Valley, and parallel to it, is the Los Alamos Valley. Most of the cultivated land is planted to beans, the higher lands being devoted to the growing of grain.

The Lompoc Valley, extending along the Santa Ynez River from the ocean eastward, lies parallel to the Los Alamos Valley. While not as wide as the Santa Maria Valley, its length is greater. The lower portion of the valley resembles the Santa Maria, the products and soil being very similar. Beans, beets, potatoes, and mustard head the list. The valley is noted also for the fine quality of apples and cherries. In the upper part of the valley, beans, barley, and alfalfa are the leading crops. Irrigation water can be had in abundance from the Santa Ynez River.

The Santa Barbara Valley, varying in width from one-half to four miles and extending from Point Conception to the Ventura County line, is a coastal plain, traversed by many mountain streams. The soil laid down by these streams is characterized by great depth and fertility. The high mountains to the north afford protection from strong winds while the proximity to the ocean greatly moderates the temperature. Near the ocean, the broad flat bottom lands are devoted to the production of lima beans, while the lands farther back are planted to orchards. Lemons, walnuts, olives and other fruits flourish. Water is obtained for irrigation from the mountain streams and through artesian wells. Many of the canyons are free from frost and are especially adapted to the growth of semi-tropical fruits, the avocado and cherimoya heading the list.

The Cuyama Valley lies in the extreme northern and eastern part of the county. As yet this valley is largely undeveloped, but it affords many possibilities to the prospective settler.

SANTA BARBARA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued				
Honey and wax—			Orchard fruits—	
Honey produced, pounds	15,565		Apples	19,856
Wax produced, pounds	468		Apricots	14,573
Value of honey and wax produced	\$3,294		Peaches	8,847
			Pears	2,734
			Prunes and plums	1,796
Wool—			Total	47,806
Wool, fleeces shorn	16,065		Subtropical fruits—	
Mohair and goat hair, fleeces shorn	42		Lemons	77,925
Value wool and mohair produced	\$34,755		Oranges	4,359
Principal Crops.			Grapevines—	
	Acres	Bushels	Number in bearing	209,833
Corn	689	10,483	Small fruits—	
Oats	2,610	43,651	Total acres	35
Wheat	4,451	54,819	Nuts—	
Barley	8,568	251,483	Walnuts	116,826
Dry edible beans	86,578	1,117,726	Irrigation.	
Potatoes	414	25,759	Acres irrigated in 1919	16,420
Hay and forage—			Acreage enterprises were capable of irrigating	
Timothy and clover mixed	20	10	in 1920	34,494
Alfalfa	2,190	7,086	Acreage included in projects	37,875
Other tame and cultivated				
grasses	242	221		
Grains cut green	36,178	46,992		
All other hay and forage	2,053	4,918		
Totals	40,683	59,227		
Special crops—				
Potatoes, acres		414		
All other vegetables, acres		731		
Sugar beets, acres		4,165		

Santa Clara County.

Date of creation, February 18, 1850.

Land area, 1,328 square miles.		1890	1900	1910	1920
County seat, San Jose (city).	Population	48,005	60,216	83,539	100,676
Population per square mile, 75.8.	Population	18,060	21,500	28,946	39,642
		Highest	Lowest	Inches	Inches
Elevation, 95 feet.	1918: Temperature	95	27	Rainfall.....18.28	Snow.....0
	1919: Temperature	97	20	Rainfall.....11.97	Snow.....0
	1920: Temperature	101	27	Rainfall.....13.21	Snow.....0
	1921: Temperature	102	29	Rainfall.....14.59	Snow.....0

Santa Clara County is situated to the south of San Francisco Bay, and is separated from the Pacific Ocean by San Mateo and Santa Cruz counties. The county seat is San Jose, and is distant 50 miles from San Francisco. The county is 47 miles wide from north to south, and through the center runs the favored Santa Clara Valley, with an average width of 15 miles, which is one of the most fertile valleys in the state. The county from the valley slopes upward through rolling hills to the summit of the Santa Cruz Mountains on the west. The county is famous for its large fruit production, especially of prunes, and embracing cherries, apricots, plums, pears, peaches, apples, and all kinds of deciduous fruits; there are 39 large fruit and vegetable canneries in the county and nearly as many packing houses. San Jose is the headquarters of the California Prune and Apricot Growers, Inc. For a number of years Turkish tobacco of fine quality has been grown in the county and the acreage is being increased. Tomatoes, peas and other vegetables are grown extensively for the canneries.

The county has 1200 miles of roads, of which 180 miles are paved, and 620 miles are excellent roads of various types, and more than 400 miles are sprinkled during the summer.

Educational interests are represented by Leland Stanford Junior University, University of Santa Clara, the State Teachers' College, the College of Notre Dame, and several high schools.

The valley is drained by a number of streams. In summer their watercourses greatly diminish and smaller ones wholly disappear; having their sources in the surrounding hills and sinking as they approach the valley, they augment the subterranean supply of artesian wells.

Orchards and Production, 1921.*

	Acres	Tons		Acres	Tons
Apples	1,200	10,000	Walnuts	1,000	300
Apricots	7,000	25,000	Olives	250	.....
Cherries	4,000	10,000	Lemons	200	.....
Grapes	10,000	40,000	Limes	10	.....
Peaches	5,000	25,000	Oranges	40	.....
Pears	3,500	18,000	Figs	40	.....
Prunes	80,000 (Dried)	60,000	Pomelos	10	.....
Plums	11,500	37,700	Berries .....	.....	Chests 65,000
Alonds	400	200			

Vegetable Production.

	Tons		Tons
Sugar beets (for refineries)	150,000	Potatoes (Fall)	1,000
Beans (canning)	500	Potatoes (early)	1,500
Peas (canning)	150	Other vegetables (cabbage, cauliflower, celery, artichokes, lettuce, squash, corn, onions, etc.)	2,500
Spinach (canning)	1,000		
Tomatoes (canning)	60,000		

*Furnished by Chamber of Commerce, San Jose.

SANTA CLARA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	4 731	Honey and wax—	
Total in 1920	5,016	Honey produced, pounds	75,679
		Wax produced, pounds	1,195
		Value honey and wax produced	\$15,602
Land and Farm Areas.		Dairy products—	
Approximate land, acres	849,920	Value	\$1,536,935
Land in farms in 1910	734,819	Wool—	
Land in farms in 1920	576,812	Wool, fleeces shorn	196
Improved land in farms in 1910	237,170	Value wool produced	\$603
Improved land in farms in 1920	206,890	Principal Crops.	
Woodland in farms	70,668	Corn	Acres 2,107 Bushels 41,682
Other unimproved land	299,254	Oats	591 8,123
		Wheat	1,323 22,199
		Barley	3,565 85,672
		Dry edible beans	1,344 16,079
		Potatoes	639 51,613
		Hay and forage—	Acres Tons
		Timothy alone	249 214
		Clover alone	186 261
		Alfalfa	7,958 33,602
		Other tame and cultivated grasses	849 1,118
		Wild, salt, or prairie grasses	672 756
		Grains cut green	33,882 43,264
		All other hay and forage	1,127 5,179
		Totals	44,923 84,394
Value of All Farm Property.		Special crops—	
Total value in 1910	\$67,187,549	Potatoes, acres	639
Total value in 1920	149,875,095	All other vegetables, acres	8,917
Land in 1910	52,882,603	Sugar beets, acres	95
Land in 1920	123,567,923	Orchard fruits—	
Buildings in 1910	9,125,640	Number bearing trees	
Buildings in 1920	15,352,090	Apples	92,013
Implements and machinery in 1910	1,942,339	Apricots	1,113,405
Implements and machinery in 1920	6,061,049	Peaches	259,674
Domestic animals, poultry and bees in 1910	3,236,967	Pears	249,320
Domestic animals, poultry and bees in 1920	4,894,033	Prunes and plums	3,371,436
		Total	5,085,848
Domestic Animals on Farms and Ranges.		Subtropical fruits—	
Cattle—		Number bearing trees	
Beef	25,176	Lemons	2,143
Dairy	17,213	Oranges	5,414
Total	42,389	Grapevines—	
Value	\$3,223,281	Number in bearing	3,907,761
Horses—		Small fruits—	
Number	10,305	Total acres	394
Value	\$1,044,790	Nuts—	
Mules—		Number bearing trees	
Number	225	Almonds, etc.	36,817
Value	\$25,181	Walnuts	51,004
Asses and burros—		Total	87,821
Number	6	Irrigation.	
Value	\$550	Acres irrigated in 1919	71,274
Swine—		Acreeage enterprises were capable of irrigating in 1920	74,977
Number	10,317	Acreeage included in projects	86,501
Value	\$191,689		
Sheep—			
Number	531		
Value	\$7,388		
Goats—			
Number	622		
Value	\$15,736		
Total value all domestic animals	\$4,508,615		
Poultry and bees—			
Poultry of all kinds	249,345		
Value	\$358,950		
Colonies of bees	3,275		
Value	\$26,468		
Poultry products—			
Poultry raised, number	314,123		
Eggs produced, dozen	1,109,532		
Value poultry and eggs produced	\$790,156		

Santa Cruz County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 435 square miles.	Population	19,270	21,512	26,140	26,269
County seat, Santa Cruz (city).	Population	5,596	5,659	11,146	10,917
Population per square mile, 60.4.					
	Highest	Lowest		Inches	Inches
Elevation, 20 feet.	1917: Temperature	101	24	Rainfall	12.37
	1918: Temperature	95	28	Rainfall	22.84
				Snow	0
				Snow	0

Santa Cruz fronts its entire length on the Pacific Ocean. It is separated from San Mateo and Santa Clara counties by the Santa Cruz Mountains, and from Monterey County by the Pajaro River. It is one of the smallest counties, and comprises a narrow strip of mountainous land about 40 miles long and 18 miles broad, forming a vast amphitheater, and sloping from the summits of the Santa Cruz Range, whose highest elevation, Loma Prieta, is 3793 feet, southward and westward to the bay of Monterey.

The curving line of shore and the corresponding curve of the mountain line inclose an irregular, crescent-shaped tract of country, with an average width of 20 miles. The sides of the mountain are closely set with forests of pine, redwood, madrone, and other trees, the redwoods having in many cases attained gigantic growth.

The extent of the apple industry, which is the principal fruit raised, is shown by statistics, and is one of the most valuable industries. During the harvesting of the crop in the Pajaro Valley, this industry gives employment to several thousands. The leading varieties are the Newtown Pippin and Bellflower; also Red Pearmain, White Pearmain, Missouri Pippin, Baldwin, Rome Beauty, Spitzenberg, Winesap, Langford Seedling, and Ben Davis.

An average apple crop amounts to about 3600 cars, represented as follows: Newtown Pippins, 2100; Bellflowers, 900; and other varieties, 600 cars. An ordinary car is 640 boxes.

Of the small fruits, the strawberry is the most widely grown and furnishes a crop from about April 1 to December 1.

In the southern part of the county a large acreage is devoted to the profitable growth of sugar beets, potatoes, beans, and onions.

Asparagus and rhubarb are grown for outside markets.

Seeds, bulbs, plants, and cut flowers are cultivated on a large scale.

The Santa Cruz Portland cement plant has the largest capacity for the manufacture of cement of any in the state.

There is a cold storage plant at Watsonville with a capacity of 500 carloads.

The fish hatchery at Brookdale, on Clear Creek, which was established in 1905, produces large quantities of steelhead trout and also of quinnat salmon and silver salmon.

SANTA CRUZ COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Poultry products—	
Total in 1910	1,466	Poultry raised, number	218,606
Total in 1920	1,759	Eggs produced, dozen	1,523,711
		Value poultry and eggs produced	\$827,764
Land and Farm Areas.		Honey and wax—	
Approximate land, acres	278,400	Honey produced, pounds	2,646
Land in farms in 1910	157,308	Wax produced, pounds	32
Land in farms in 1920	144,751	Value of honey and wax produced	\$541
Improved land in farms in 1910	66,875	Wool—	
Improved land in farms in 1920	67,838	Wool, fleeces shorn	1,403
Woodland in farms	46,618	Goat hair, fleeces shorn	711
Other unimproved land	30,295	Value wool and mohair produced	\$6,345
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$17,653,136	Corn	Aces Bushels
Total value in 1920	27,109,492	Oats	2,463 42,121
Land in 1910	14,103,715	Wheat	1,082 22,010
Land in 1920	20,235,412	Barley	537 7,279
Buildings in 1910	2,299,890	Dry edible beans	765 11,845
Buildings in 1920	4,319,998	Potatoes	1,644 24,891
Implements and machinery in 1910	461,107		875 83,208
Implements and machinery in 1920	1,242,341	Hay and forage—	
Domestic animals, poultry and bees in 1910	788,424	Timothy alone	Aces Tons
Domestic animals, poultry and bees in 1920	1,311,741	Clover alone	5 10
		Alfalfa	15 29
		Other tame and cultivated	616 1,528
		grasses	116 176
		Wild, salt, or prairie grasses	15 15
		Grains cut green	12,144 13,988
		All other hay and forage	456 2,224
		Totals	13,367 17,961
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres	875
Beef	2,991	All other vegetables, acres	651
Dairy	5,177	Sugar beets, acres	513
Total	8,168	Orchard fruits—	
Value	\$481,876	Apples	Number bearing trees
		Apricots	665,535
Horses—		Peaches	77,749
Number	3,445	Pears	15,486
Value	\$306,164	Prunes and plums	27,450
Mules—			103,154
Number	77	Total	889,374
Value	\$5,850	Subtropical fruits—	
Asses and burros—		Lemons	Number bearing trees
Number	5	Oranges	2,183
Value	\$190		552
Swine—		Grapevines—	
Number	6,122	Number in bearing	629,816
Value	\$93,999	Small fruits—	
Sheep—		Total acres	907
Number	2,061	Nuts—	
Value	\$21,567	Walnuts	Number bearing trees
Goats—			2,671
Number	1,516	Irrigation.	
Value	\$15,254	Acres irrigated in 1919	1,269
Total value all domestic animals	\$924,900	Acres enterprises were capable of irrigating in 1920	2,044
Poultry and bees—		Acres included in projects	2,671
Poultry of all kinds	224,572		
Value	\$382,569		
Colonies of bees	506		
Value	\$4,272		

Shasta County.

Date of creation, February 18, 1850.

Land area, 3,858 square miles.	Population.....	1890	1900	1910	1920
County seat, Redding (city).	Population.....	12,133	17,318	18,920	13,361
Population per square mile. 3.5.	Population.....	1,821	2,946	3,572	2,962
Elevation, 552 feet.		Highest	Lowest	Inches	Inches
	1917: Temperature.....	111	26	Rainfall.....22.95	Snow.....25.0
	1918: Temperature.....	111	27	Rainfall.....30.76	Snow..... T

Shasta County lies at the head of the famous Sacramento Valley. One mile north of Redding, the county seat, the valley ends and the canyon, second only in fame to the valley, which bears the name of the great waterway in the state, begins.

Covering a portion of eastern Shasta are the Sierra Nevada Mountains and on the northeastern boundary is the Coast Range. These are lofty, some peaks exceeding 5000 feet in height, and are very rugged. On the extreme eastern border of the county is Lassen Peak, raising its mighty head 10,437 feet above sea level. This peak has attracted much attention in recent years owing to numerous great eruptions. This mountain is timbered two-thirds of the way up. Hot and boiling springs and others noted for their medicinal qualities, abound in this region. The southwestern portion of this section is a succession of rounded hills, varying in height from 50 to 200 feet, while the central and southern portions consist of tablelands, varying in altitude from 500 to 700 feet. Fertile valleys predominate.

Shasta is noted for the number and beauty of its streams. First in importance is the Sacramento River, which enters the county on its northern boundary, traversing it throughout to its southern borders. The Sacramento is augmented by the combined McCloud, Pit, and Fall rivers, the former finding its source at Mount Shasta on the extreme north, enters the county and travels in a southerly direction, emptying into the Pit, which earlier has received the Fall River flow, and continuing still in a southerly course meets and enters the Sacramento at a point a few miles north of Kennett. Most beautiful of all northern streams is the Fall River.

Beautiful resorts and springs abound. The mountains are heavily timbered with sugar pine, cedar, fir, and other valuable timbers.

While dry farming is carried on successfully, irrigation is being inaugurated in different sections of the county. An irrigation system to irrigate about 30,000 acres, under what is known as the Anderson-Cottonwood Irrigation District, has been made. A small quantity of cotton was planted on the Rancho Buena Ventura at Cottonwood in 1918, as an experiment, but the rains came before it was matured.

The prune, peach, pear and plum thrive, while grapes have proved a success in the valley districts.

Anderson, 12 miles south of Redding, is the leading fruit district and also the lumber center of the county, and Kennett, 17 miles to the north of the county seat, are the two next important centers.

Shasta's pre-eminence in mineral production is largely due to her immense copper output, which in 1916 amounted to 39,437,000 pounds, valued at \$9,701,000.

SHASTA COUNTY SUMMARY.

(Census Figures).

Number of Farms.		Poultry products—	
Total in 1910.....	1,010	Poultry raised, number.....	33,375
Total in 1920.....	949	Eggs produced, dozen.....	205,340
		Value poultry and eggs produced.....	\$116,331
Land and Farm Areas.		Honey and wax—	
Approximate land, acres.....	2,469,120	Honey produced, pounds.....	67,648
Land in farms in 1910.....	389,218	Wax produced, pounds.....	1,073
Land in farms in 1920.....	565,235	Value of honey and wax produced.....	\$13,948
Improved land in farms in 1910.....	96,217	Wool—	
Improved land in farms in 1920.....	103,470	Wool, fleeces shorn.....	17,251
Woodland in farms.....	276,284	Goat hair, fleeces shorn.....	3,820
Other unimproved land.....	185,481	Value wool and mohair produced.....	\$66,890
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$7,847,929	Rice.....	Acres 257 Bushels 12,320
Total value in 1920.....	16,095,556	Corn.....	270 5,470
Land in 1910.....	5,403,079	Oats.....	409 7,590
Land in 1920.....	11,054,935	Wheat.....	11,213 137,525
Buildings in 1910.....	851,750	Barley.....	724 11,057
Buildings in 1920.....	1,562,565	Dry edible beans.....	76 1,086
Implements and machinery in 1910.....	289,511	Potatoes.....	170 16,629
Implements and machinery in 1920.....	683,619	Hay and forage—	
Domestic animals, poultry and bees in 1910.....	1,303,589	Timothy alone.....	Acres 737 Tons 902
Domestic animals, poultry and bees in 1920.....	2,794,437	Timothy and clover mixed.....	4,206 5,009
		Clover alone.....	289 433
		Alfalfa.....	6,637 21,098
		Other tame and cultivated grasses.....	2,668 3,148
		Wild, salt, or prairie grasses.....	11,924 11,723
		Grains cut green.....	5,405 5,964
		All other hay and forage.....	673 1,564
		Totals.....	32,539 49,841
Domestic Animals on Farms and Ranges.		Special crops—	
Cattle—		Potatoes, acres.....	170
Beef.....	36,477	All other vegetables, acres.....	105
Dairy.....	2,665		
Total.....	39,142	Orchard fruits—	
Value.....	\$1,859,878	Number bearing trees.....	
		Apples.....	28,688
Horses—		Apricots.....	288
Number.....	4,505	Peaches and nectarines.....	59,153
Value.....	\$271,659	Pears.....	9,472
		Prunes and plums.....	71,437
Mules—		Total.....	169,038
Number.....	297		
Value.....	\$21,442	Grapevines—	
Asses and burros—		Number in bearing.....	112,007
Number.....	52		
Value.....	\$23,340	Small fruits—	
Swine—		Total acres.....	50
Number.....	26,270		
Value.....	\$279,618	Nuts—	
Sheep—		Almonds.....	Number bearing trees 4,329
Number.....	23,258	Walnuts.....	580
Value.....	\$254,418	Total.....	4,909
Goats—		Irrigation.	
Number.....	4,802	Acres irrigated in 1919.....	50,173
Value.....	\$25,909	Acres enterprises were capable of irrigating in 1920.....	58,989
Total value all domestic animals.....	\$2,736,264	Acres included in projects.....	110,407
Poultry and bees—			
Poultry of all kinds.....	42,376		
Value.....	\$46,610		
Colonies of bees.....	1,182		
Value.....	\$11,563		

Sierra County.

Date of creation, April 16, 1852.

Land area, 923 square miles.	Population.....	1890	1900	1910	1920
County seat, Downieville (township).	Population.....	5,051	4,017	4,098	1,783
Population per square mile, 1.9.	Population.....			751	374

		Highest	Lowest		Inches	Inches
Elevation, 3,150 feet.	1917: Temperature.....	99	11	Rainfall.....	46.40	Snow.....76.0
	1918: Temperature.....	104	16	Rainfall.....	55.72	Snow.....25.2

Sierra County has an area practically all mountainous. The altitude ranges from 2000 feet to 8600 feet, the highest elevation being that of the Sierra Buttes, but the greater portion has an elevation of from 4000 to 5000 feet.

The main ridge of the Sierra Nevada crosses the eastern part from south to north. Several spurs traverse the county from east to west, forming the watersheds of the four principal streams which make the drainage system of the western part. These streams consist of the Middle Yuba River on the south, the North Yuba near the center, and Canyon Creek and Slate Creek on the north, and in the eastern end the many streams that form the headwaters of the Feather and Truckee rivers. Of the peculiar topographical features are the expansive valleys and lakes, lying among the loftiest peaks of the Sierra. The lakes vary from one-eighth of a mile to three or four miles in length, most of them circular, and, considering their small size, are remarkable for their depth.

The important body of agricultural land is Sierra Valley. It extends over the boundary line into Plumas County, and is the largest and the most elevated of the valleys of the Sierra, being 4750 feet above sea level. It is 30 miles in length and 10 miles in width. This valley is particularly adapted to stock raising and dairying purposes. There are several creameries in the valley. The soil is deep, black loam, largely admixed with rich mold.

The greater portion is practically covered with a virgin belt of soft timber. The lumber cut runs into many millions of feet, and the cut-over timber land is gradually passing into the hands of stock men for grazing purposes.

Since 1849, the principal industry has been gold mining.

SIERRA COUNTY SUMMARY.

(Census Figures).

Number of Farms.			
Total in 1910.....	110	Buildings in 1910.....	262,125
Total in 1920.....	77	Buildings in 1920.....	254,550
Land and Farm Areas.		Implements and machinery in 1910.....	65,524
Approximate land, acres.....	590,720	Implements and machinery in 1920.....	111,860
Land in farms in 1910.....	84,220	Domestic animals, poultry and bees in 1910.....	360,575
Land in farms in 1920.....	60,667	Domestic animals, poultry and bees in 1920.....	608,555
Improved land in farms in 1910.....	30,794	Domestic Animals on Farms and Ranges.	
Improved land in farms in 1920.....	21,607	Cattle—	
Woodland in farms.....	14,152	Beef.....	4,811
Other unimproved land.....	24,908	Dairy.....	2,517
Value of All Farm Property.		Total.....	7,328
Total value in 1910.....	\$1,650,799	Value.....	\$440,281
Total value in 1920.....	2,172,015	Horses—	
Land in 1910.....	962,575	Number.....	822
Land in 1920.....	1,197,050	Value.....	\$82,620

SIERRA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.		Principal Crops.	
Mules—		Oats	Acres 173 Bushels 1,736
Number	27	Wheat	144 1,269
Value	\$2,475	Barley	105 835
Asses and burros—		Potatoes	29 4,401
Number	7	Hay and forage—	Acres Ton2
Value	\$820	Timothy alone	67 108
Swine—		Timothy and clover mixed	975 1,815
Number	482	Clover alone	36 61
Value	\$7,346	Alfalfa	1,918 2,02
Sheep—		Other tame and cultivated	
Number	3,656	grasses	441 382
Value	\$70,710	Wild, salt, or prairie grasses	10,261 12,135
Goats—		Grains cut green	1,132 1,183
Number	51	Totals	14,830 17,706
Value	\$605	Special crops—	
Total value all domestic animals	\$804,407	Potatoes, acres	29
Poultry and bees—		All other vegetables, acres	4
Poultry of all kinds	2,906	Orchard fruits—	Number bearing trees
Value	\$3,319	Apples	1,677
Colonies of bees	118	Peaches	88
Value	\$829	Pears	125
Poultry products—		Prunes and plums	211
Poultry raised, number	2,476	Total	2,101
Eggs produced, dozen	15,603	Nuts—	Number bearing trees
Value poultry and eggs produced	\$10,188	Walnuts	28
Honey and wax—		Irrigation.	
Honey produced, pounds	3,418	Acres irrigated in 1919	15,292
Wax produced, pounds	10	Acreage enterprises were capable of irrigating	
Value of honey and wax produced	\$688	in 1920	15,873
Wool—		Acreage included in projects	18,547
Wool, fleeces shorn	1,172		
Value wool and mohair produced	\$5,024		

Siskiyou County.

Date of creation, March 22, 1852.

		1890	1900	1910	1920
Land area, 6,256 square miles.	Population	12,163	16,962	18,801	18,545
County seat, Yreka (town).	Population	1,100	1,254	1,134	1,277
Population per square mile, 3.0.					
Sisson (Station):	Highest	Lowest	Inches	Inches	
Elevation, 2,625 feet.	1917: Temperature	105	-3	Rainfall	33.06
	1918: Temperature	102	6	Snow	25.5
				Rainfall	14.13
				Snow	0.6

Siskiyou is one of the northern counties of the state, adjoining Oregon for 80 miles on the north. Of its area of 6256 square miles, 1500 square miles are valley; the remainder is mountains and forest. Much of the agricultural land is farmed without irrigation, producing good crops of wheat, barley, and in some localities, alfalfa and timothy. The so-called desert lands were long considered of little value save for pasturage, but are now being successfully farmed, and require only the application of water to produce abundant crops.

The agricultural lands are chiefly comprised in Scott Valley in the western portion of the county, Shasta Valley and Little Shasta in the central portion, and McCloud and Butte valleys in the eastern portion.

Timber is everywhere; there are thousands of sections that will cut from ten to twenty million feet of yellow and sugar pine, besides large quantities of red fir and cedar.

The Sierra Nevada and Coast Range mountains meet here. The altitude ranges from 2000 feet in the valleys to 14,000 feet on the mountain peaks, the highest of these being Mount Shasta. There are localities where snow seldom falls, and regions of perpetual snow. These conditions make it one of the most scenic of the counties.

The Marble Mountains, now but little known to tourists, will in time rival the Kings River Canyon and the Yosemite Valley. Chief among the noted resorts are the famous Shasta Springs and Upper Soda Springs, all situated on the Sacramento River Canyon, just over the border of Shasta County. At Sisson, at the base of Mount Shasta, the largest fish hatchery in the United States is located.

Lumbering is the chief industry, with mining and livestock a close second and third. The total assessed value of all property in 1921 was \$28,312,556. The coal deposits north of Yreka, in the vicinity of Hornbrook and Ager, have furnished a small amount of coal for domestic use for several years. It is a good grade of lignite, burns freely and leaves no clinkers.

SISKIYOU COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Value of All Farm Property.	
Total in 1910	1,114	Total value in 1910	\$14,270,302
Total in 1920	1,052	Total value in 1920	20,315,672
Land and Farm Areas.		Land in 1910	10,352,935
Approximate land, acres	4,003,840	Land in 1920	13,557,450
Land in farms in 1910	455,876	Buildings in 1910	1,411,810
Land in farms in 1920	537,396	Buildings in 1920	2,057,395
Improved land in farms in 1910	186,147	Implements and machinery in 1910	420,745
Improved land in farms in 1920	166,621	Implements and machinery in 1920	912,515
Woodland in farms	71,912	Domestic animals, poultry and bees in 1910	2,084,812
Other unimproved land	298,863	Domestic animals, poultry and bees in 1920	3,788,312

SISKIYOU COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.		Principal Crops.		
Cattle—			Acres	Bushels
Beef.....	42,204	Corn.....	212	4,655
Dairy.....	11,436	Oats.....	1,506	35,494
Total.....	53,640	Wheat.....	20,340	274,910
Value.....	\$2,838,586	Barley.....	2,457	39,689
Horses—		Dry edible beans.....	54	797
Number.....	7,676	Potatoes.....	448	51,916
Value.....	\$485,299	Hay and forage—	Acres	Tons
Mules—		Timothy alone.....	801	1,083
Number.....	399	Timothy and clover mixed.....	7,059	11,299
Value.....	\$28,293	Clover alone.....	133	292
Asses and burros—		Alfalfa.....	28,483	54,996
Number.....	49	Other tame and cultivated grasses.....	6,051	8,953
Value.....	\$3,490	Wild, salt, or prairie grasses.....	9,024	11,535
Swine—		Grains cut green.....	14,898	12,272
Number.....	11,787	All other hay and forage.....	139	649
Value.....	\$136,868	Totals.....	66,588	101,079
Sheep—		Special crops—		
Number.....	19,093	Potatoes, acres.....		448
Value.....	\$239,788	All other vegetables, acres.....		49
Goats—		Orchard fruits—		Number bearing trees
Number.....	243	Apples.....		20,557
Value.....	\$1,778	Apricots.....		31
Total value all domestic animals.....	\$3,734,102	Peaches and nectarines.....		4,295
Poultry and bees—		Pears.....		1,866
Poultry of all kinds.....	39,936	Prunes and plums.....		3,104
Value.....	\$39,856	Total.....		29,853
Colonies of bees.....	2,353	Grapevines—		
Value.....	\$14,354	Number in bearing.....		2,461
Dairy products—		Small fruits—		
Value.....	\$585,132	Total acres.....		30
Poultry products—		Nuts—		Number bearing trees
Poultry raised, number.....	33,232	Almonds.....		59
Eggs produced, dozen.....	182,899	Walnuts.....		98
Value poultry and eggs produced.....	\$109,885	Total.....		157
Honey and wax—		Irrigation.		
Honey produced, pounds.....	84,143	Acres irrigated in 1919.....		65,637
Wax produced, pounds.....	1,389	Acreage enterprises were capable of irrigating in 1920.....		71,077
Value of honey and wax produced.....	\$17,371	Acreage included in projects, 1920.....		130,741
Wool—				
Wool, fleeces shorn.....	10,089			
Goat hair, fleeces shorn.....	96			
Value wool and mohair produced.....	\$36,109			

Solano County.

Date of creation, February 18, 1850.

Land area, 822 square miles.	Population.....	1890	1900	1910	1920
County seat, Fairfield (town).	Population.....	20,946	24,143	27,559	40,602
Population per square mile, 49.4.	Population.....	-----	-----	834	1,008

Solano County is about 30 miles north of San Francisco, the great bay system forming its southern boundary. The Sacramento River forms the eastern line, and these bodies of water have created a great acreage, originally swamp land, but with reclamation, capable of producing prodigious crops. There are several delta islands within the county lines. On the west the county extends into the foothills of the Coast Range where several warm, sheltered valleys, with rich soil, are the home of the choicest deciduous fruits. In addition, there are sections of plain and rolling land, where cereals are produced and live stock raised in large numbers. The county has 526,000 acres of land, and is small in area compared with other counties, but is a leader in material products. In the production of deciduous fruits Solano holds a high position among the counties of the state. There is also a considerable acreage in grapes. The federal census of 1920 places the annual fruit and nut production at \$4,244,608 and of all crops at \$11,246,439.

Manufacturing and industries are a source of great wealth. At Vallejo, the largest city, is Mare Island Navy Yard. The Sperry flour mills, just completed, are the most modern in the state. Benicia has the United States Arsenal, a great iron working plant; two shipyards, several tanneries, and other industries. Dixon is the center of a splendid dairy section, and Vacaville and Suisun are the shipping points for green and dried fruits. Rio Vista is the main shipping point on the Sacramento River in the county, and is a prosperous community.

Transportation facilities are excellent. The Southern Pacific main line traverses the county, with two branch lines. There are three electric lines in the different sections of the county, while freight and passenger service by water is accessible to nearly every portion of the county, effectively regulating charges for freight, and affording splendid accommodations for passengers.

The school facilities are in keeping with the wealth and prosperity of the county. There are six fully equipped high schools, and a complete elementary system with several private schools of equal merit. Every inducement for home seekers is offered by the county. The warmth of summer is tempered by sea breezes coming from the bays, and severe frosts are seldom known.

There are several mineral springs with commercial outputs, and one producing quicksilver mine.

SOLANO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910.....	1,143	Honey produced, pounds.....	13,762
Total in 1920.....	1,358	Value of honey and wax produced.....	\$2,898
Land and Farm Areas.		Wool—	
Approximate land, acres.....	526,080	Wool, fleeces shorn.....	101,318
Land in farms in 1910.....	474,866	Value wool produced.....	\$285,253
Land in farms in 1920.....	408,288	Principal Crops.	
Improved land in farms in 1910.....	310,452	Corn.....	Acres 1,870 Bushels 61,391
Improved land in farms in 1920.....	299,264	Oats.....	6,597 144,980
Woodland in farms.....	17,142	Wheat.....	42,828 1,035,049
Other unimproved land.....	91,882	Barley.....	35,979 910,421
Value of All Farm Property.		Dry edible beans.....	6,555 150,862
Total value in 1910.....	\$28,727,683	Potatoes.....	1,165 177,610
Total value in 1920.....	50,393,638	Rough rice.....	113 5,760
Land in 1910.....	23,025,081	Hay and forage—	
Land in 1920.....	39,680,249	Timothy and clover mixed.....	Acres 95 Tons 95
Buildings in 1910.....	2,278,540	Clover alone.....	415 595
Buildings in 1920.....	4,351,826	Alfalfa.....	7,881 33,863
Implements and machinery in 1910.....	767,136	Other tame and cultivated grasses.....	272 415
Implements and machinery in 1920.....	2,586,638	Wild, salt, or prairie grasses.....	1,088 1,385
Domestic animals, poultry and bees in 1910.....	2,656,926	Grains cut green.....	22,100 29,465
Domestic animals, poultry and bees in 1920.....	3,774,925	All other hay and forage.....	838 1,997
Domestic Animals on Farms and Ranges.		Totals.....	32,639 67,755
Cattle—		Special crops—	
Beef.....	10,542	Potatoes, acres.....	1,165
Dairy.....	12,897	All other vegetables, acres.....	2,958
Total.....	23,439	Orchard fruits—	
Value.....	\$1,548,265	Apples.....	Number bearing trees 5,979
Horses—		Apricots.....	217,358
Number.....	5,891	Peaches.....	214,412
Value.....	\$563,656	Pears.....	195,504
Mules—		Prunes and plums.....	609,755
Number.....	1,161	Total.....	1,243,008
Value.....	\$138,522	Subtropical fruits—	
Asses and burros—		Lemons.....	Number bearing trees 290
Number.....	7	Oranges.....	3,586
Value.....	\$525	Grapevines—	
Swine—		Number in bearing.....	565,624
Number.....	14,529	Small fruits—	
Value.....	\$230,596	Total acres.....	4
Sheep—		Nuts—	
Number.....	98,669	Almonds.....	Number bearing trees 93,496
Value.....	\$1,175,410	Walnuts.....	4,598
Goats—		Total.....	98,094
Number.....	67	Irrigation.	
Value.....	\$896	Acres irrigated in 1919.....	23,900
Total value all domestic animals.....	\$3,657,870	Acreege enterprises were capable of irrigating in 1920.....	28,660
Poultry and bees—		Acreege included in projects.....	36,023
Poultry of all kinds.....	99,600		
Value.....	\$110,710		
Colonies of bees.....	787		
Value.....	\$6,345		
Poultry products—			
Poultry raised, number.....	70,096		
Eggs produced, dozen.....	368,548		
Value poultry and eggs produced.....	\$196,667		

Sonoma County.

Date of creation, February 18, 1850.

Land area, 1,582 square miles.	Population	1890	1900	1910	1920
County seat, Santa Rosa (city).	Population	32,721	38,480	48,394	52,090
Population per square mile, 32.9.	Population	5,220	6,673	7,817	8,758

		Highest	Lowest	Inches	Inches
Elevation, 181 feet.	1917: Temperature	111	23	Rainfall	Snow
	1918: Temperature	100	20	Rainfall	Snow

Sonoma County is bounded on the west by the Pacific Ocean, for more than 65 miles that boundary conforming to the irregularities of the shore, while on San Pablo Bay it has a frontage of 20 miles.

The great central valley extends the entire length of the county from south to north. The area on which rough stone interferes with farming operations is small. Out of the area of land in the county at least 200,000 acres are valley land, the richest soil known, being a black loam; 200,000 acres are rolling, or higher tableland, of exceedingly rich, alluvial, brown soil, with considerable sand. This is the best fruit land. At least 100,000 acres of mountain land are adapted to grazing, and about 80,000 acres are covered with redwood timber of a magnificent growth.

Sonoma Valley is about 20 miles in length, with an average width of 8 miles. It lies parallel to Petaluma Valley, from which it is separated by a range of mountains.

The streams and watercourses of Sonoma County are numerous. Russian River, the largest stream, enters on the north, flows in a south-easterly direction for 20 miles, turns at Fitch Mountain and finds its way to the largest depression in the Santa Rosa Basin, from which it breaks through a gap in the Coast Range to the Pacific Ocean. This river gathers the waters from three-fifths of the area of the county. Owing to the abundant rainfall little or no irrigation is required, as is the case in some of the valley counties.

"Sonoma County leads the state in the production of poultry and eggs, hops, berries, and juice grapes. It stands second in apples, prunes, and cherries, and has extensive dairy, stock, sheep, and general farming interests.

Poultry and egg production make up the largest single interest in the county. In recent years the five million hens in the county have returned to their owners an average of about \$15,000,000 per year.

The berry business has developed as a companion interest to the apples, the berries being grown between the rows of young trees. Loganberries and blackberries are the chief varieties. The berries are shipped fresh to Eastern markets and to California canneries. A large loganberry juice industry is now being developed.

Sonoma County prunes are superior in size to other California prunes and are not excelled by any in quality. The prune industry returns from three to eight million dollars per year to the county.

The apple producers are on a firm business basis, as Sonoma Gravensteins, which make up the bulk of the crop, reach the markets ahead of those from other sections. The apple industry is expanding rapidly.

There are about 4,760 acres of hops in Sonoma County and contracts at remunerative prices covering a period of three years have recently been entered into by a large proportion of growers.

Because of the long period of green pasture and cheap range lands in the coast section, dairy products are produced as cheaply in Sonoma County as anywhere in the country."

The climate of this county is kindly to plant and animal life. Hot days come only two or three at a time and then only occasionally in August or September. Excessive cold never occurs. The temperature rarely goes below 20 degrees above zero, except in the mountain sections. Snow is rare and only lasts a short time if it does come. The period between April 15th and December 1st, is usually frostless in the valleys, so that tender plants are set out in April. The proximity of the large cities of the bay region, with the excellent rail and water transportation, give the county a positive advantage in the matter of marketing products.

The Northwestern Pacific Railroad from San Francisco to Eureka passes through the entire length of the county from north to south with a branch line running through the Sonoma Valley and another from Fulton to Cazadero. Another line of the same company runs from the bay up the coast as far as Cazadero. The Southern Pacific Railroad comes into the county through the Napa Valley, passing through the Sonoma and Los Guillicos valleys to Santa Rosa. The Petaluma and Santa Rosa Railroad, an electric line, operates an efficient system, both freight and passenger, between Petaluma, Sebastopol, Santa Rosa and Forestville, with a branch running to Valley Ford. Stage lines cover all of the principal highways, making good time with fine accommodations.

Petaluma River affords a water connection with San Francisco Bay and secures for Petaluma and Santa Rosa terminal railroad rates. This river is incalculable in importance to the county. It is the third river in the state in volume and tonnage of freight carried. It is navigable at all seasons of the year. The Sonoma River also affords water transportation for the farmers of the Lower Sonoma Valley. Quick transportation and low freight rates to the great markets of the state is one of the chief assets of the county.

The educational facilities of the county are of the highest order. There are 142 grammar schools in the county employing 313 teachers, seven high schools with 109 teachers and property just purchased for a regional junior college, to be built by the state and supplied with professors from the university. This will permit Sonoma County pupils to do the first two years college work at home, in the most critical period of their lives. Santa Rosa has a business college equal to any in the state besides Ursuline College, a Catholic school for girls.

SONOMA COUNTY SUMMARY.

(Census Figures).

Number of Farms.			
Total in 1910.....	4,772		
Total in 1920.....	5,739		
Land and Farm Areas.			
Approximate land, acres.....	1,012,480		
Land in farms in 1910.....	744,644		
Land in farms in 1920.....	748,147		
Improved land in farms in 1910.....	248,271		
Improved land in farms in 1920.....	251,730		
Woodland in farms.....	204,763		
Other unimproved land.....	291,654		
Value of All Farm Property.			
Total value in 1910.....	\$55,351,049		
Total value in 1920.....	112,294,273		
Land in 1910.....	41,512,703		
Land in 1920.....	81,430,296		
Buildings in 1910.....	8,758,784		
Buildings in 1920.....	17,240,647		
Implements and machinery in 1910.....	1,326,832		
Implements and machinery in 1920.....	4,668,489		
Domestic animals, poultry and bees in 1910.....	3,752,724		
Domestic animals, poultry and bees in 1920.....	8,954,947		
Domestic Animals on Farms and Ranges.			
Cattle—			
Beef.....	9,865		
Dairy.....	36,242		
Total.....	46,107		
Value.....	\$2,757,203		
Horses—			
Number.....	12,011		
Value.....	\$1,013,705		
Mules—			
Number.....	382		
Value.....	\$40,876		
Asses and burros—			
Number.....	16		
Value.....	\$357		
Swine—			
Number.....	22,040		
Value.....	\$356,271		
Sheep—			
Number.....	62,846		
Value.....	\$523,427		
Goats—			
Number.....	3,409		
Value.....	\$32,347		
Total value all domestic animals.....	\$4,724,186		
Poultry and bees—			
Poultry of all kinds.....	3,011,998		
Value.....	\$4,221,336		
Colonies of bees.....	964		
Value.....	\$9,425		
Dairy products—			
Value.....	\$2,145,704		
Poultry products—			
Poultry raised, number.....	2,512,179		
Eggs produced, dozen.....	19,684,744		
Value poultry and eggs produced.....	\$12,380,034		
		Honey and wax—	
		Honey produced, pounds.....	10,990
		Wax produced, pounds.....	132
		Value of honey and wax produced.....	\$2,249
		Wool—	
		Wool, fleeces shorn.....	55,199
		Mohair and goat hair, fleeces shorn.....	1,396
		Value wool and mohair produced.....	\$295,266
		Principal Crops.	
		Aces	Bushels
		Corn.....	3,360 81,405
		Oats.....	6,204 167,345
		Wheat.....	4,068 70,744
		Barley.....	1,101 36,436
		Dry edible beans.....	155 2,133
		Potatoes.....	7,685 827,146
		Hay and forage—	
		Aces	Tons
		Timothy alone.....	4,718 8,715
		Timothy and clover mixed.....	261 421
		Clover alone.....	20 48
		Alfalfa.....	1,669 5,578
		Other tame and cultivated grasses.....	820 1,463
		Wild salt, or prairie grasses.....	3,513 4,956
		Grains cut green.....	44,652 82,281
		All other hay and forage.....	1,509 7,812
		Totals.....	57,162 111,274
		Special crops—	
		Potatoes, acres.....	7,685
		All other vegetables, acres.....	1,973
		Orchard fruits—	
		Number bearing trees	
		Apples.....	617,021
		Apricots.....	3,313
		Peaches and nectarines.....	61,186
		Pears.....	124,739
		Prunes and plums.....	854,411
		Total.....	1,660,670
		Subtropical fruits—	
		Number bearing trees	
		Lemons.....	666
		Oranges.....	5,539
		Grapevines—	
		Number in bearing.....	11,414,171
		Small fruits—	
		Aces.....	2,432
		Quarts.....	3,351,258
		Nuts—	
		Number bearing trees	
		Almonds.....	1,536
		Walnuts.....	15,691
		Total.....	17,227
		Irrigation.	
		Aces irrigated in 1919.....	2,126
		Acreage enterprises were capable of irrigating in 1920.....	3,163
		Acreage included in projects.....	11,256

Stanislaus County.

Date of creation, April 1, 1854.

Land area, 1,450 square miles.	Population.....	1890	1900	1910	1920
County seat, Modesto (city).	Population.....	10,040	9,550	22,522	43,557
Population per square mile, 30.0.	Population.....	2,402	2,024	4,034	9,241
Newman (Station):	Highest	Lowest	Inches		Inches
Elevation, 91 feet.	1917: Temperature.....	106	18	Rainfall.....	5 10 Snow.....
	1918: Temperature.....	106	21	Rainfall.....	16 02 Snow.....

Situated in the great San Joaquin Valley, within 100 miles of San Francisco Bay, Stanislaus County is 1450 square miles in extent. Of its 928,000 acres the greater part is arable, and about half is capable of irrigation. The valley floor, between the Sierra Nevada Mountains on the east and the Coast Range on the west, slopes gently toward the San Joaquin River, which flows northwesterly through the western side of the county. The Stanislaus River forms the northern boundary, the Tuolumne flows through the middle, and its southern watershed is that of the Merced. All these rivers rise in the snows of the high Sierras and empty into the San Joaquin. The total average run-off of the three first named, which supply the irrigation needs of the county, is 5,540,000 acre-feet.

The soil ranges from a light sandy loam in the southerly part to a heavy sandy loam in the central part and adobe and redlands in the east. The county is crossed by four lines of railways, while the Sierra Road connects Oakdale and vicinity with the mountain counties to the north.

The county has a large acreage in alfalfa, barley, oats and wheat, and in 1921 lead the state in the production of butter, having produced 7,164,219 pounds as compared with 3,308,093 pounds in 1919. Fruits also grow well, especially peaches, apricots, figs and melons. The peach crop of 1921 ran about 30,000 tons, of which half was canned at Modesto and Turlock, 10,000 tons at other canneries, and 5,000 tons shipped to eastern markets.

STANISLAUS COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910.....	2,687	Cattle—	
Total in 1920.....	4,566	Beef.....	23,563
		Dairy.....	55,292
		Total.....	78,855
		Value.....	\$6,176,164
		Horses—	
		Number.....	14,364
		Value.....	\$1,341,445
		Mules—	
		Number.....	2,413
		Value.....	\$268,312
		Asses and burros—	
		Number.....	39
		Value.....	\$4,440
		Swine—	
		Number.....	26,849
		Value.....	\$412,823
Land and Farm Areas.			
Approximate land, acres.....	928,000		
Land in farms in 1910.....	649,392		
Land in farms in 1920.....	748,678		
Improved land in farms in 1910.....	512,189		
Improved land in farms in 1920.....	477,871		
Woodland in farms.....	98,320		
Other unimproved land.....	172,487		
Value of All Farm Property.			
Total value in 1910.....	\$43,787,887		
Total value in 1920.....	110,595,497		
Land in 1910.....	35,324,743		
Land in 1920.....	85,580,234		
Buildings in 1910.....	3,320,475		
Buildings in 1920.....	10,665,305		
Implements and machinery in 1910.....	820,079		
Implements and machinery in 1920.....	5,209,161		
Domestic animals, poultry and bees in 1910.....	4,323,090		
Domestic animals, poultry and bees in 1920.....	9,140,797		

Sutter County.

Date of creation, February 18, 1850.

Land area, 608 square miles.	Population	1890	1900	1910	192 0
County seat, Yuba City (town).	Population	5,469	5,886	6,328	10,115
Population per square mile, 16. 6.	Population			1,160	1,708
Elevation, 57 feet. (No observation station in county. Figures practically the same as for Marysville, Yuba County, which adjoins.)					

Almost in the center of the far-famed valley of the Sacramento is located the county of Sutter, the larger portion of which lies between the Sacramento and Feathers rivers directly at their confluence. The remaining portion of the county lies east of the Feather River, just south of Bear River. Surrounded by rivers on almost every side, it is evident that the soil of the county is largely river made, the wash of a thousand years from the Sierra Nevada and Coast Range mountains, and is deep and fertile, the equal of any in the whole state of California.

The western portion of Sutter County in particular is being rapidly developed. The large land holdings are being cut up and sold out in small tracts. Meridian is a prosperous little town, located in the western portion of the county, as well as Live Oak, in the northern part, and Nicolaus in the southern division.

The county has a large acreage in beans, much of the land in the Sutter basin being devoted to this crop.

The dairy industry is thriving, and there are a number of large creameries.

Sutter County is the home of the Thompson seedless grape, which is being grown so extensively in various valleys of the state. Most other fruits are grown with great success, especially cling peaches, the production having increased from about 9700 tons in 1915 to 19,000 tons in 1920.

SUTTER COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Horses—	
Total in 1910.....	873	Number.....	5,081
Total in 1920.....	1,437	Value.....	\$439,311
Land and Farm Areas.		Mules—	
Approximate land, acres.....	389,120	Number.....	1,814
Land in farms in 1910.....	385,462	Value.....	\$129,251
Land in farms in 1920.....	288,940	Asses and burros—	
Improved land in farms in 1910.....	159,510	Number.....	38
Improved land in farms in 1920.....	232,070	Value.....	\$2,470
Woodland in farms.....	9,367	Swine—	
Other unimproved land.....	47,503	Number.....	11,759
Value of All Farm Property.		Value.....	\$194,081
Total value in 1910.....	\$19,115,593	Sheep—	
Total value in 1920.....	51,378,460	Number.....	68,775
Land in 1910.....	14,860,242	Value.....	\$757,009
Land in 1920.....	41,443,246	Goats—	
Buildings in 1910.....	2,032,535	Number.....	80
Buildings in 1920.....	4,023,340	Value.....	\$843
Implements and machinery in 1910.....	458,269	Total value all domestic animals.....	\$2,364,498
Implements and machinery in 1920.....	3,424,801	Domestic Animals on Farms and Ranges.	
Domestic animals, poultry and bees in 1910.....	1,755,547	Cattle—	
Domestic animals, poultry and bees in 1920.....	2,487,073	Beef.....	5,548
		Dairy.....	8,131
		Total.....	13,679
		Value.....	\$841,533
		Poultry and bees—	
		Poultry of all kinds.....	88,299
		Value.....	\$112,988
		Colonies of bees.....	1,397
		Value.....	\$9,587

SUTTER COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Special crops—	
Poultry products—			Potatoes, acres	57
Poultry raised, number	67,293		All other vegetables, acres	153
Eggs produced, dozen	362,042		Sugar beets, acres	990
Value poultry and eggs produced	\$212,877			
Honey and wax—			Orchard fruits—	
Honey produced, pounds	42,573		Number bearing trees	
Wax produced, pounds	598		Apples	6,753
Value of honey and wax produced	\$8,748		Apricots	2,924
			Peaches	522,074
			Pears	18,052
			Prunes and plums	159,002
Wool—			Total	708,805
Wool, fleeces shorn	95,982			
Value wool produced	\$469,486		Subtropical fruits—	
			Number bearing trees	
			Lemons	302
			Oranges	6,831
Principal Crops.			Grapevines—	
	Acres	Bushels	Number in bearing	
Corn	2,145	44,244	2,417,954	
Oats	5,313	95,805		
Wheat	45,174	649,584	Nuts—	
Barley	36,114	1,113,876	Number bearing trees	
Kafir corn and milo maize	1,959	33,561	Almonds	173,547
Dry edible beans	16,999	300,768	Walnuts	4,068
Potatoes	57	3,416	Total	177,615
Rice	7,112	313,820		
Hay and forage—			Irrigation.	
Timothy and clover mixed	25	38	Acres irrigated in 1919	
Clover alone	201	238	47,037	
Alfalfa	7,194	22,948	Acreage enterprises were capable of irrigating	
Other tame and cultivated			in 1920	
grasses	230	274	96,004	
Wild, salt, or prairie grasses	926	1,283	Acreage included in projects	
Grains cut green	10,313	13,847	100,588	
All other hay and forage	648	2,638		
Total	19,537	41,266		

Tehama County.

Date of creation, April 9, 1856.

Land area, 2,925 square miles.	Population	1890	1900	1910	1920
County seat, Red Bluff (city).	Population	9,916	10,996	11,401	12,882
Population per square mile, 4.4.	Population	2,608	2,750	3,530	3,104
Elevation, 307 feet.	Highest	Lowest	Inches		Inches
1917: Temperature	110	24	Rainfall	14 16	Snow
1918: Temperature	112	26	Rainfall	23 57	Snow
					0

“GENERAL DESCRIPTION—Tehama County occupies the upper or northern portion of the Sacramento Valley. It is 200 miles north of San Francisco and 120 miles north of Sacramento. Part of its eastern boundary follows the summit of the Sierra Nevada Mountains, and its western boundary lies along the summit of the Coast Range. Its greatest length from east to west is 78 miles; its width from north to south, 38 miles.

The Sacramento River is navigable to Red Bluff and steamboats from San Francisco and Sacramento make trips up and down most of the year. The Sacramento River runs through the county from north to south. From this river there is a rise to the east and west until the summit of the mountain range is reached. South of Red Bluff and west of the river lie broad plains, beyond this, rolling hills developing into the foothills of the mountains, and then the mountains themselves, which rise quite abruptly to a height of from 3000 to 9000 feet.

IRRIGATION—Irrigation of the lands in the county is a very important factor in the production of crops, water being pumped from the river, creeks and wells. In the Los Molinos Colony, a good-sized gravity system of irrigation is now completed, the water being taken from Mill Creek by the construction of a dam, and from the same stream there are several other diversions irrigating several thousand acres. From Deer Creek they are irrigating many thousand acres, including the Leland Stanford Junior University Ranch at Vina, California. From Antelope Creek water is diverted for use of the city of Red Bluff and for the irrigation of the Cone Ranch and a portion of Los Molinos Colony.

INDUSTRIES—The principal industries are horticulture, agriculture, stock raising and lumbering. Mining of chrome ore in the western part of the county has become of considerable importance in the building up of the community, and more mines are being opened now on account of the great demand for chrome, caused by the war.

OLIVES—The growing of olives in the county has developed into an industry that will make the county famous as a producer of fine olives and olive oil. Two plants for pickling olives are now in operation at Corning, and we have over 500 acres of bearing trees.

ALFALFA—In agriculture there has been a gradual change from the growing of wheat and other grains, to fruits, alfalfa, etc. Alfalfa, also grain hay, is grown in quantities to feed the stock and supply the demand of the Alfalfa Meal Company, where large quantities of alfalfa are ground into meal and shipped to all parts of the world.

APPLES—Apples are grown only in the foothills. The chief apple-producing region of the county is at Manton, 35 miles to the northeast of Red Bluff, where very fine fruit is raised.

Berries and all small fruits do well. They come into the market early and sell readily.

SHEEP—Tehama County is one of the principal counties in northern California, if not in the state, in the production of wool and mutton. The favored breeds of sheep are the various types of the Merino for wool, Shropshires and Hampshires for mutton. For both purposes crosses of Lincolns, Cotswolds and Corriedales are bred to a great extent.

GOATS—Of late years Angora goats have come into greater favor as they thrive on the brushy hillside, and their wool is in great demand and brings good prices.

HOGS—Hog-raising in Tehama County offers wonderful opportunities. This part of our stock-raising industry has kept pace with our general development, and has shown an increase from 10 to 15 per cent since 1910.

BEEES—Bee keeping is steadily increasing in the alfalfa section of the county, and shows a 43 per cent increase in the last five years.

CATTLE—There is in Tehama County some of the finest cattle in the state, and the largest cattle company in northern California operates from the county seat. There are some 30,000 head of fine beef and dairy cattle, and one of the finest Holstein dairy herds in the world is being developed and for years has been considered the home of fine Holsteins. This herd is located at the Leland Stanford Junior University Ranch at Vina.

Faith in Tehama County peaches and prunes grows every year, there being 700 acres of non-bearing peaches and 1000 acres of young prunes."*

TEHAMA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Asses and burros—	
Total in 1910.....	1,006	Number.....	50
Total in 1920.....	1,414	Value.....	\$2,785
Land and Farm Areas.		Swine—	
Approximate land, acres.....	1,872,000	Number.....	20,561
Land in farms in 1910.....	915,227	Value.....	\$257,023
Land in farms in 1920.....	1,124,502	Sheep—	
Improved land in farms in 1910.....	186,642	Number.....	192,634
Improved land in farms in 1920.....	232,722	Value.....	\$2,202,779
Woodland in farms.....	324,240	Goats—	
Other unimproved land.....	567,540	Number.....	15,015
Value of All Farm Property.		Value.....	\$62,064
Total value in 1910.....	\$16,821,178	Total value all domestic animals.....	\$4,908,676
Total value in 1920.....	34,960,408	Poultry and bees—	
Land in 1910.....	12,932,446	Poultry of all kinds.....	89,680
Land in 1920.....	25,476,897	Value.....	\$121,529
Buildings in 1910.....	1,234,375	Colonies of bees.....	1,655
Buildings in 1920.....	2,900,099	Value.....	\$6,194
Implements and machinery in 1910.....	494,932	Poultry products—	
Implements and machinery in 1920.....	1,544,013	Poultry raised, number.....	97,430
Domestic animals, poultry and bees in 1910.....	2,159,425	Eggs produced, dozen.....	282,580
Domestic animals, poultry and bees in 1920.....	5,039,399	Value poultry and eggs produced.....	\$254,145
Domestic Animals on Farms and Ranges.		Honey and wax—	
Cattle—		Honey produced, pounds.....	83,263
Beef.....	32,726	Wax produced, pounds.....	2,298
Dairy.....	5,104	Value of honey and wax produced.....	\$17,549
Total.....	37,830	Wool—	
Value.....	\$1,895,751	Wool, fleeces shorn.....	150,154
Horses—		Mohair and goat hair, fleeces shorn.....	17,799
Number.....	5,698	Value wool and mohair produced.....	\$654,586
Value.....	\$350,366		
Mules—			
Number.....	1,529		
Value.....	\$137,908		

*Information supplied by the Chamber of Commerce.

TEHAMA COUNTY SUMMARY—Continued.

Principal Crops.					Number bearing trees	
	Acres	Bushels	Orchard fruits—			
Corn	293	5,278	Apples		22,093	
Oats	1,629	30,147	Apricots		19,425	
Wheat	25,112	284,962	Peaches		155,217	
Barley	18,895	322,345	Pears		24,697	
Dry edible beans	408	6,218	Prunes and plums		94,526	
Potatoes	55	4,499	Total		315,958	
Kafir corn, milo maize, etc.	1,651	26,821	Subtropical fruits—		Number bearing trees	
Rough rice	150	8,000	Lemons		302	
			Oranges		6,831	
Hay and forage—	Acres	Tons	Grapevines—			
Timothy alone	5	12	Number in bearing		73,057	
Timothy and clover mixed	178	158	Small fruits—			
Clover alone	67	114	Total acres		39	
Alfalfa	11,162	34,123	Nuts—		Number bearing trees	
Other tame and cultivated grasses	467	565	Almonds		54,069	
Wild, salt, or prairie grasses	1,258	1,128	Walnuts		2,565	
Grains cut green	12,369	13,849	Total		56,634	
All other forage	398	776	Irrigation.			
Totals	25,904	50,725	Acres irrigated in 1919		23,260	
Special crops—			Acreage enterprises were capable of irrigating in 1920		39,387	
Potatoes, acres		55	Acreage included in projects		44,720	
All other vegetables, acres		83				

Trinity County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 3,096 square miles.	Population	3,719	4,383	3,301	2,551
County seat, Weaverville (township).	Population	768	968	674	694
Population per square mile, 0. 8.					

		Highest	Lowest		Inches	Inches
Elevation, 2,162 feet.	1917: Temperature	107	5	Rainfall	24.82	Snow
	1918: Temperature	107	9	Rainfall	25.63	Snow

Trinity County is situated in the Coast Range of mountains and is well drained by the Trinity, Mad, Eel, and Van Duzen rivers, and is well watered by the numerous creeks that carry streams of water from the mountain snows to the rivers and their tributaries. The higher mountain ranges, being covered with snow during the winter season, give ample supply for irrigation, and also provide an abundance of pasturage on the mountains. Trinity is bounded on the north by Siskiyou, on the east by Shasta and Tehama, on the south by Mendocino, and on the west by Humboldt County, thus being on the great mineral belt of the northwestern part of the state. Mining for gold has been the principal industry for 50 years. Hydraulic, placer, drift placer, dredge, and quartz mining have produced profitable results. In 1917 the production of gold was valued at \$602,048. Many other valuable minerals have been found, but owing to the lack of cheap transportation facilities, none of them has been developed to any extent. With an abundance of sugar pine, yellow pine, and fir timber ready for the market, the lumbering interests will be extensive as soon as railroad transportation is provided.

TRINITY COUNTY SUMMARY.

(Census Figures.)

Number of Farms.			
Total in 1910	308	Horses—	
Total in 1920	377	Number	1,196
		Value	\$86,305
Land and Farm Areas.		Mules—	
Approximate land, acres	1,981,440	Number	157
Land in farms in 1910	91,310	Value	\$12,505
Land in farms in 1920	130,290	Asses and burros—	
Improved land in farms in 1910	13,300	Number	17
Improved land in farms in 1920	15,078	Value	\$910
Woodland in farms	40,246	Swine—	
Other unimproved land	74,966	Number	6,392
		Value	\$76,921
Value of All Farm Property.		Sheep—	
Total value in 1910	\$1,591,469	Number	2,344
Total value in 1920	2,991,851	Value	\$24,075
Land in 1910	900,855	Goats—	
Land in 1920	1,633,087	Number	371
Buildings in 1910	274,260	Value	\$2,620
Buildings in 1920	474,275		
Implements and machinery in 1910	69,119	Total value all domestic animals	\$717,802
Implements and machinery in 1920	155,505		
Domestic animals, poultry and bees in 1910	347,235	Domestic Animals on Farms and Ranges.	
Domestic animals, poultry and bees in 1920	728,924	Cattle—	
		Beef	10,731
		Dairy	723
		Total	11,454
		Value	\$514,466
		Poultry and bees—	
		Poultry of all kinds	9,592
		Value	\$10,264
		Colonies of bees	163
		Value	\$918

Tulare County.

Date of creation, April 20, 1852.

Land area, 4,856 square miles.	Population-----	1890	1900	1910	1920
County seat, Visalia (city).	Population-----	24,574	18,375	35,440	59,031
Population per square mile, 12.2.	Population-----	2,885	3,085	4,550	5,753
Elevation, 334 feet.	Highest	Lowest	Inches		Inches
1921: Temperature-----	111	27	Rainfall-----	9.98	Snow----- 0

Tulare County is one of the largest counties of the great San Joaquin Valley. The valley sweeps southward 250 miles to where the Tehachapi Mountains intersect with the Sierra and Coast ranges, forming the line between the so-called northern and southern California.

About one-half of the county is mountainous. Its eastern boundary, commencing at the crest of the Sierras, embraces Mount Whitney, whose hoary head reaches an altitude of 14,522 feet and is the highest summit in the United States. Out of these mountains flow many streams that furnish water to irrigate the level and fertile acres.

Wheat and small grain are grown without irrigation. Tulare County was at one time the banner wheat county, some individuals sowing five, ten, and twenty thousand acres, but farming on that scale is rapidly passing away. Still there are many thousand acres sown to wheat annually.

The principal agricultural products of Tulare County are wheat, barley, alfalfa, Egyptian corn, raisins, olives and citrus fruits.

Tulare County produces large quantities of peaches and prunes, also pears, apricots, apples, fig, plums, almonds, walnuts, table grapes, and berries of all kinds. The citrus orchards in the districts around Exeter, Porterville, and Lindsay are the largest and most successful in northern California.

Some of the largest raisin vineyards are to be found in Tulare County. The Muscat, Sultana, and Thompson's seedless are the principal varieties grown. In the vicinity of Dinuba, Orosi, and Sultana this industry is especially flourishing.

About 50 miles northeast of Visalia lies the Sequoia National Park, a reservation by the government of the largest forest of *Sequoia gigantea* trees in existence. The reservation contains about 250 square miles. There are more than 3,000 sequoias in this forest that measure over 45 feet in circumference and 300 feet in height. The General Sherman in this forest is said to be the largest living tree in the United States. Over 100 feet from its base it is 80 feet in circumference.

The county paved highway system has a mileage of 241 miles, and this, with the 63 miles of state highway, gives the county 304 miles of concrete base, which is the greatest mileage of hard finished roads of any county in the United States and connects all towns of the county with a paved road.

Electric power is a great factor in the industrial and domestic life of Tulare County. The Southern California Edison Company and the San Joaquin Light and Power Company carry a connected load of 85,000 horse-power, with an unlimited supply available. There are 3500 pumping plants in the county—3000 of which are electrically driven. About 125,000 acres are irrigated by pumps, and about 150,000 acres by the gravity canals fed from the rivers.

TULARE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910.....	4,021	Honey produced, pounds.....	172,215
Total in 1920.....	6,372	Wax produced, pounds.....	5,416
Land and Farm Areas.		Value honey and wax produced.....	\$36,555
Approximate land, acres.....	3,107,840	Wool—	
Land in farms in 1910.....	1,045,231	Wool, fleeces shorn.....	14,674
Land in farms in 1920.....	1,084,234	Goat hair, fleeces shorn.....	455
Improved land in farms in 1910.....	507,024	Value wool and mohair produced.....	\$105,187
Improved land in farms in 1920.....	544,598	Principal Crops.	
Woodland in farms.....	186,846		
Other unimproved land.....	352,790		
Value of All Farm Property.			
Total value in 1910.....	\$76,539,642	Corn.....	Acres 3,725 Bushels 82,448
Total value in 1920.....	198,984,831	Oats.....	655 13,455
Land in 1910.....	64,455,554	Wheat.....	74,784 732,739
Land in 1920.....	167,123,963	Barley.....	31,052 529,726
Buildings in 1910.....	4,195,452	Kafir corn and milo maize.....	15,570 424,287
Buildings in 1920.....	13,422,065	Dry edible beans.....	253 3,353
Implements and machinery in 1910.....	1,805,419	Potatoes.....	189 13,892
Implements and machinery in 1920.....	8,651,262	Hay and forage—	
Domestic animals, poultry and bees in 1910.....	6,083,217	Timothy and clover mixed.....	Acres 85 Tons 53
Domestic animals, poultry and bees in 1920.....	9,787,531	Clover alone.....	77 263
Domestic Animals on Farms and Ranges.		Alfalfa.....	53,533 277,135
Cattle—		Other tame and cultivated grasses.....	454 515
Beef.....	45,144	Wild, salt, or prairie grasses.....	2,638 2,075
Dairy.....	47,401	Grains cut green.....	40,340 46,342
Total.....	92,545	All other hay and forage.....	6,119 20,673
Value.....	\$5,678,487	Totals.....	103,246 347,056
Horses—		Special crops—	
Number.....	20,177	Potatoes, acres.....	189
Value.....	\$1,691,440	All other vegetables, acres.....	279
Mules—		Cotton, acres.....	297
Number.....	4,456	Orchard fruits—	Number bearing trees
Value.....	\$525,130	Apples.....	55,263
Asses and burros—		Apricots.....	49,395
Number.....	108	Peaches.....	717,195
Value.....	\$9,623	Pears.....	11,866
Swine—		Prunes and plums.....	422,228
Number.....	60,828	Total.....	1,255,947
Value.....	\$908,067	Subtropical fruits	Number bearing trees
Sheep—		Lemons.....	107,290
Number.....	45,191	Oranges.....	2,041,277
Value.....	\$438,941	Grapevines—	
Goats—		Number in bearing.....	13,022,279
Number.....	1,686	Small fruits—	
Value.....	\$16,042	Total acres.....	39
Total value all domestic animals.....	\$9,267,730	Nuts—	Number bearing trees
Poultry and bees—		Almonds.....	14,256
Poultry of all kinds.....	290,896	Walnuts.....	2,639
Value.....	\$473,057	Total.....	16,895
Colonies of bees.....	6,342	Irrigation.	
Value.....	\$46,744	Acres irrigated in 1919.....	327,591
Dairy products—		Acreege enterprises were capable of irrigating in 1920.....	551,182
Value.....	\$2,564,735	Acreege included in projects.....	657,149
Poultry products—			
Poultry raised, number.....	305,267		
Eggs produced, dozen.....	1,442,416		
Value poultry and eggs produced.....	\$850,029		

Tuolumne County.

Date of creation, February 18, 1850.

		1890	1900	1910	1920
Land area, 2,190 square miles.	Population.....	6,082	11,166	9,979	7,768
County seat, Sonora (city).	Population.....	1,441	1,922	2,029	1,684
Population per square mile, 4.6.					
		Highest	Lowest	Inches	Inches
Elevation, 1,825 feet.	1916: Temperature.....	98	17	Rainfall.....44.09	Snow.....4.5
Lake Eleanor, 4,700 feet.	1917: Temperature.....	96	—4	Rainfall.....27.43	Snow.....124.6
	1918: Station discontinued.				

Tuolumne County lies about 100 miles due east of San Francisco in the Sierra Nevada foothills extending back to the summit of that famous range of mountains. The entire area is of rugged character, with many fertile valleys and meadows and the mountains are covered with forests. There are many cattle ranges that exist in the lower altitude where the cattle are kept during the winter.

The main rivers are the Stanislaus and Tuolumne, along which are situated many reservoirs and reservoir sites. There is an abundance of water in these rivers and there are a large number of sites for hydro-electric power houses. The city and county of San Francisco are building the Hetch-Hetchy Dam which is one of the largest hydro-electric projects of the United States. The Turlock Irrigation District is constructing another large dam, the Don Pedro on the Tuolumne River. Oakdale and South San Joaquin Irrigation Districts are beginning constructions on another enormous dam below Melones on the Stanislaus.

The Mother Lode series of gold-bearing veins run through the west side of the county for about 23 miles. The mines are found all along this formation and there are millions of dollars worth of gold to be extracted from the massive ledges. During the past year a large number of the mines have reopened and will soon be back to the pre-war period of production. Extensive operations are under way along the famous Table Mountain, under which there is a stream containing gold bearing gravel.

There exists in Tuolumne County immense deposits of marble and two companies are actively supplying the demand of the high grade of stone that is found here. Some of the highest grade limestone is found.

Lumbering is one of the most important industries of the county, sales of which average from one-fourth to one-half million dollars worth every month.

Stock raising and farming are other leading industries. Thousands of head of cattle and sheep are ranged in the mountains in summer and graze in the lower foothills during the winter. Grain, hay and garden truck are raised to considerable extent and there is a big demand for all of it locally. The wheat is very high in protein and has excellent flour making quality.

The horticultural products of Tuolumne County have the reputation of being of the highest quality. Apples, pears, peaches, grapes, plums, figs, and walnuts, as well as other fruits, all produce maximum yields of the best quality. Citrus, olives, and almonds produce good in the lower altitudes. The big red apple is Tuolumne County's most prominent and profitable fruit. It is nowhere excelled in the world. The orchardists of Tuolumne County have agreed on three varieties for all future large commercial orchards, and these are the Rome Beauty, Delicious, and

Winesap. While the orchard plantings at present are only about 350 acres, sufficient stock was received in the county the spring of 1921 to plant about 800 acres of apples, 150 acres of pears, and about 50 acres of miscellaneous fruits. The county is no longer in the agricultural experiment stage. The most profitable fruits and other crops for growing in the county are now known, and the county is at the beginning of a new era. Apples are placed first on the list because of their high red color and quality and demand for them on the market. One grower sold \$15,258 worth of apples from 20 acres of 14-year-old orchard. Pears, also, are a very profitable crop.

Tuolumne County soils are of granodiorite and lava origin. The potash content east and north of Sonora is 2.29 per cent, and the phosphorus is 0.19 per cent, and south and west of Sonora the potash is 4.46 per cent and the phosphorus 0.55 per cent. The soil is strong in limestone, high in nitrogen and no noticeable amount of either alkali or acid. Alkali has never given any trouble in the county and likely never will because there is good under-drainage.

This county is an ideal camping and recreation center. The finest of scenery, good fishing and hunting exist all over the county. Forests, big trees and lakes are within short distances of Sonora. Big Oak Flat road, one of the gateways to the Yosemite National Park, traverses this county. The state highway is now under construction from the county line to Sonora. Good roads extend out from the main highway to all parts of the county. The Sierra Railway extends from Stockton to Tuolumne, 12 miles beyond Sonora.

The educational opportunities are the best. There are 33 district schools in the county and 2 high schools. Summerville High School at Tuolumne is fully equipped and teaching accredited courses. The Sonora Union High School has the departments of manual training, mechanics, domestic science, art and agriculture, in addition to academic courses. The new \$30,000 gymnasium which is being completed at the high school will be ready to be occupied September, 1922. The county has the state free circulating library system of 14,000 volumes, and covers every portion of the county.*

*H. H. Sherrard, Horticultural Commissioner.

TUOLUMNE COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910.....	386	Honey produced, pounds.....	12,150
Total in 1920.....	363	Wax produced, pounds.....	365
Land and Farm Areas.		Value of honey and wax produced.....	\$2,572
Approximate land, acres.....	1,401,600	Wool—	
Land in farms in 1910.....	193,072	Wool, fleeces shorn.....	1,474
Land in farms in 1920.....	220,730	Mohair and goat hair, fleeces shorn.....	1,381
Improved land in farms in 1910.....	36,407	Value wool and mohair produced.....	\$5,263
Improved land in farms in 1920.....	35,380	Principal Crops.	
Woodland in farms.....	73,117		
Other unimproved land.....	112,233		
Value of All Farm Property.			
Total value in 1910.....	\$2,942,322	Corn.....	Acres 84 Bushels 1,804
Total value in 1920.....	5,015,180	Oats.....	369 8,172
Land in 1910.....	1,779,470	Wheat.....	1,246 16,403
Land in 1920.....	3,236,750	Barley.....	526 6,475
Buildings in 1910.....	451,955	Dry edible beans.....	12 126
Buildings in 1920.....	624,870	Potatoes.....	461 33,630
Implements and machinery in 1910.....	114,830	Hay and forage—	
Implements and machinery in 1920.....	192,308		
Domestic animals, poultry and bees in 1910.....	596,067	Timothy alone.....	Acres 75 Tons 66
Domestic animals, poultry and bees in 1920.....	961,252	Timothy and clover mixed.....	16 25
Domestic Animals on Farms and Ranges.		Clover alone.....	91 166
		Alfalfa.....	492 1,245
Cattle—		Other tame and cultivated grasses.....	120 139
Beef.....	14,185	Wild, salt, or prairie grasses.....	1,542 1,217
Dairy.....	1,337	Grains cut green.....	3,108 3,003
Total.....	15,522	All other hay and forage.....	54 98
Value.....	\$752,485	Totals.....	5,498 5,959
Horses—		Special crops—	
Number.....	1,409	Potatoes, acres.....	461
Value.....	\$98,852	All other vegetables, acres.....	59
Mules—		Orchard fruits—	
Number.....	43		
Value.....	\$3,340	Apples.....	Number 28,491 bearing trees
Asses and burros—		Apricots.....	59
Number.....	25	Peaches and nectarines.....	9,316
Value.....	\$1,170	Pears.....	1,618
Swine—		Prunes and plums.....	821
Number.....	3,690	Total.....	40,305
Value.....	\$47,228	Subtropical fruits—	
Sheep—			
Number.....	2,051	Lemons.....	Number 7 bearing trees
Value.....	\$20,506	Oranges.....	80
Goats—		Grapevines—	
Number.....	2,292	Number in bearing.....	62,427
Value.....	\$13,141	Small fruits—	
Total value all domestic animals.....	\$936,722	Total acres.....	23
Poultry and bees—		Nuts—	
Poultry of all kinds.....	19,438		
Value.....	\$22,456	Almonds.....	Number 118 bearing trees
Colonies of bees.....	280	Walnuts.....	509
Value.....	\$2,074	Total.....	627
Poultry products—		Irrigation.	
Poultry raised, number.....	14,738	Acres irrigated in 1919.....	2,892
Eggs produced, dozen.....	72,209	Acreege enterprises were capable of irrigating in 1920.....	2,943
Value poultry and eggs produced.....	\$46,480	Acreege included in projects.....	25,371

Ventura County.

Date of creation, March 22, 1872.

Land area, 1,858 square miles.	Population.....	1890	1900	1910	1920
County seat, Ventura (city).	Population.....	10,071	14,367	18,347	28,724
Population per square mile, 15.5.	Population.....	2,320	2,470	2,945	4,342

Ojai Valley (Station):		Highest	Lowest		Inches	Inches
Elevation, 900 feet.	1916: Temperature.....	105	25	Rainfall.....	36.25	Snow..... 0
	1917: Temperature.....	119	23	Rainfall.....	11.04	Snow..... 0
	1918: Station discontinued.					

Of Ventura County's 1858 square miles, less than one-fourth is under cultivation. Back from the coast in all directions rise rugged mountain ranges, whose hearts are pierced in every direction with canyons and valleys of varying lengths. The entire northern section of the county is mountainous, but between the ranges here and there are to be found little valleys, whose soil is most productive.

"Ventura County, one of the group of eight of the southernmost counties of the state, lies between Santa Barbara County on the west and Los Angeles County on the east and extends from a 50-mile front on the shores of the Pacific Ocean (Santa Barbara Channel), north to the summit of the Coast Range mountains (Kern County line).

Its southern half is mainly under cultivation. In its northern portion, situated in the foothills of the Coast Range, are many valleys occupied and organized into (four) school districts.

Its principal streams are the Santa Clara River, having its source in the Coast Range and flowing across the county in a westerly direction and entering the sea about five miles south of the county seat; this is fed by large lateral streams of considerable length, known as the San Francisquito, Casitas, Piru, Sespe, and the Santa Paula rivers. The San Buenaventura River, flowing southerly from the foothills, with San Antonio Creek of the Ojai Valley as a feeder, enters the sea at Ventura; also the Cuyama River, with its source and many lateral streams, situated in the northwest quarter of the county, flowing westerly.

Every variety of plant life does well in this county. It produces more lima beans than any other county in the state. There is a large acreage in sugar beets, which supplies the Oxnard sugar factory. Apricots, walnuts, lemons and oranges are some of the principal products of the county."^{*}

^{*}Information supplied by the Chamber of Commerce.

VENTURA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910.....	1,293	Honey produced, pounds.....	105,233
Total in 1920.....	1,543	Wax produced, pounds.....	3,520
Land and Farm Areas.		Value honey and wax produced.....	\$22,420
Approximate land, acres.....	1,189,120	Wool—	
Land in farms in 1910.....	550,199	Wool, fleeces shorn.....	2,899
Land in farms in 1920.....	384,865	Mohair and goat hair, fleeces shorn.....	1,336
Improved land in farms in 1910.....	213,868	Value wool and mohair produced.....	\$10,644
Improved land in farms in 1920.....	109,924	Principal Crops.	
Woodland in farms.....	15,049		
Other unimproved land.....	179,892		
Value of All Farm Property.			
Total value in 1910.....	\$48,262,645	Corn.....	Aces 735 Bushels 10,412
Total value in 1920.....	98,182,960	Oats.....	25 553
Land in 1910.....	41,826,120	Wheat.....	2,685 28,612
Land in 1920.....	85,363,272	Barley.....	3,341 47,463
Buildings in 1910.....	2,365,140	Dry edible beans.....	118,217 1,646,898
Buildings in 1920.....	5,850,929	Potatoes.....	104 4,190
Implements and machinery in 1910.....	1,112,812	Kafir corn, milo maize, etc.....	491 3,999
Implements and machinery in 1920.....	4,473,843	Hay and forage—	
Domestic animals, poultry and bees in 1910.....	2,958,573	Alfalfa.....	Aces 3,304 Tons 8,912
Domestic animals, poultry and bees in 1920.....	2,494,916	Other tame and cultivated grasses.....	44 61
Domestic Animals on Farms and Ranges.		Wild, salt, or prairie grasses.....	123 118
Cattle—		Grains cut green.....	26,838 22,834
Beef.....	8,783	All other hay and forage.....	5,907 4,542
Dairy.....	3,493	Totals.....	36,216 36,467
Total.....	12,276	Special crops—	
Value.....	\$653,815	Potatoes, acres.....	104
Horses—		All other vegetables, acres.....	402
Number.....	8,357	Sugar beets, acres.....	10,024
Value.....	\$996,584	Orchard fruits—	
Mules—		Apples.....	Number 11,659 bearing trees
Number.....	2,612	Apricots.....	343,543
Value.....	\$407,163	Peaches and nectarines.....	20,258
Asses and burros—		Pears.....	2,398
Number.....	37	Prunes and plums.....	10,541
Value.....	\$3,610	Total.....	388,399
Swine—		Subtropical fruits—	
Number.....	8,453	Lemons.....	Number 407,369 bearing trees
Value.....	\$165,125	Oranges.....	229,886
Sheep—		Grapevines—	
Number.....	9,920	Number in bearing.....	59,126
Value.....	\$91,217	Small fruits—	
Goats—		Total acres.....	16
Number.....	2,522	Nuts—	
Value.....	\$28,973	Almonds, etc.....	Number 13,378 bearing trees
Total value all domestic animals.....	\$2,346,487	Walnuts.....	175,375
Poultry and bees—		Total.....	188,753
Poultry of all kinds.....	63,869	Irrigation.	
Value.....	\$84,015	Acres irrigated in 1919.....	31,716
Colonies of bees.....	7,272	Acreege enterprises were capable of irrigating in 1920.....	35,925
Value.....	\$64,414	Acreege included in project.....	50,737
Poultry products—			
Poultry raised, number.....	40,477		
Eggs produced, dozen.....	275,230		
Value poultry and eggs produced.....	\$172,587		

Yolo County.

Date of creation, February 18, 1850.

Land area, 1,014 square miles.	Population	1890	1900	1910	1920
County seat, Woodland (city).	Population	12,684	13,618	13,926	17,105
Population per square mile, 16.9.	Population	3,069	2,886	3,187	4,147

Davis (Station):		Highest	Lowest		Inches	Inches
Elevation, 51 feet.	1917: Temperature.....	111	25	Rainfall.....	9.50	Snow..... 0
	1918: Temperature.....	112	24	Rainfall.....	16.69	Snow..... 0

Yolo County is situated in a delta of the Sacramento River, where it changes from a southerly to a westerly course on its way to the Pacific. About 75 per cent of the county consists of level land, the balance being rolling hills and mountains. The principal industries are farming, stock raising and fruit growing.

Hops are produced along the river bottoms. There is considerable acreage in barley, wheat and rice, and of fruits, apricots, peaches and prunes are the leading crops.

The acreage in rice has increased from 1500 acres in 1915, to 15,000 in 1918, and 20,000 acres in 1921.

In 1916 the county packed 800 tons of Sultanas, 200 tons of Thompson's seedless and 200 tons of Muscat raisins; in 1917, 800 tons of Thompsons, and in 1918 only 300 tons of Thompson's seedless, the rains having damaged most of the crop.

Eucalyptus trees have been planted upon 1790 acres. These trees, of which 320 acres are only a few years old, show a marvelous growth and bid fair to add great value to our forest products. The former value of land where these trees are now planted has increased fivefold. This industry is in its infancy, but is receiving much attention, as an increased acreage will be planted.

The county has a navigable river front of 90 miles along the Sacramento River, which affords at all seasons a cheap and ready means of transportation for the numerous products grown along its banks.

The reclamation of overflowed lands, which are very fertile, grows apace with other developments. Many large tracts have either been reclaimed, or are in course of reclamation.

At Davis, upon 685 acres of very fertile land, is located the State Agricultural Farm, which is affiliated with the State University, and which is presided over by competent professors, who instruct in various branches of agriculture, dairying, etc. This college is very popular, and its courses are being taken advantage of by a large number of students.

Yolo is one of the two counties in California that produces no minerals in commercial quantities, the other being Sutter County.

YOLO COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Honey and wax—	
Total in 1910	1,255	Honey produced, pounds	129,313
Total in 1920	1,613	Wax produced, pounds	2,198
		Value of honey and wax produced	26,720
Land and Farm Areas.		Wool—	
Approximate land, acres	648,960	Wool, fleeces shorn	78,019
Land in farms in 1910	463,383	Value wool and mohair produced	\$265,831
Land in farms in 1920	398,165		
Improved land in farms in 1910	317,268		
Improved land in farms in 1920	300,094		
Woodland in farms	29,805		
Other unimproved land	68,266		
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$31,798,096	Corn	Acres 714 Bushels 16,420
Total value in 1920	66,248,770	Oats	657 15,708
Land in 1910	25,684,710	Wheat	55,520 1,301,555
Land in 1920	54,145,140	Barley	78,308 2,027,053
Buildings in 1910	2,799,277	Kafir corn and milo maize	121 2,680
Buildings in 1920	5,082,115	Dry edible beans	9,444 196,939
Implements and machinery in 1910	795,162	Potatoes	131 12,799
Implements and machinery in 1920	2,712,207	Rice	9,511 469,257
Domestic animals, poultry and bees in 1910	2,518,947		
Domestic animals, poultry and bees in 1920	4,309,308		
Domestic Animals on Farms and Ranges.			
Cattle—		Hay and forage—	Acres Tons
Beef	11,461	Clover alone	78 114
Dairy	11,429	Alfalfa	14,826 44,751
Total	22,890	Other tame and cultivated grasses	432 767
Value	\$1,883,470	Wild, salt, or prairie grasses	1,792 1,738
Horses—		Grains cut green	14,098 17,971
Number	6,388	All other hay and forage	853 5,017
Value	\$579,550	Totals	32,079 70,358
Mules—		Special crops—	
Number	1,758	Potatoes, acres	131
Value	\$195,578	All other vegetables, acres	2,507
Asses and burros—		Sugar beets, acres	120
Number	27	Orchard fruits—	Number bearing trees
Value	\$3,087	Apples	6,093
Swine—		Apricots	89,582
Number	26,196	Peaches	67,718
Value	\$371,343	Pears	55,535
Sheep—		Prunes and plums	152,485
Number	96,598	Total	371,323
Value	\$1,118,881	Subtropical fruits—	Number bearing trees
Goats—		Lemons	156
Number	208	Oranges	1,958
Value	\$4,865	Grapevines—	
Total value all domestic animals	\$4,156,774	Number in bearing	951,063
Poultry and bees—		Nuts—	Number bearing trees
Poultry of all kinds	95,644	Almonds	335,862
Value	\$127,031	Walnuts	1,517
Colonies of bees	3,168	Total	337,379
Value	\$25,503		
Poultry products—		Irrigation.	
Poultry raised, number	67,976	Acres irrigated in 1919	42,273
Eggs produced, dozen	520,829	Acraege enterprises were capable of irrigating in 1920	65,249
Value poultry and eggs produced	\$277,887	Acraege included in projects	104,376

Yuba County.

Date of creation, February 18, 1850.

Land area, 632 square miles.	Population	1890	1900	1910	1920
County seat, Marysville (city).	Population	9,636	8,620	10,042	10,375
Population per square mile, 16.4.	Population	3,991	3,497	5,430	5,461

Elevation, 67 feet.		Highest	Lowest		Inches	Inches	
	1917: Temperature	108	24	Rainfall	10.89	Snow	0
	1918: Temperature	110	25	Rainfall	19.30	Snow	0

“Yuba County is about half valley and half mountainous. In the mountainous portion the industries at present are mining, lumbering, and stock raising. The proposed paved road through the mountainous section will permit the marketing of deciduous fruits, as apples and pears and olives in the foothills, many thousands of acres not now in use being especially adapted for the culture of the fruits mentioned. At Hammonton and Marigold on the Yuba River, dredge mining is carried on extensively, the immense dredge boats operating day and night. Many important quartz mines are in operation. Yuba’s production of gold is \$3,500,000 per annum. The Feather River forms the western boundary of the county and is navigable as far up as Marysville. Bear River is the southern boundary. The Yuba River flows west through the center of the county. These streams are never failing in water supply. Subterranean water is available in most parts of the county. Several irrigation districts take water from the three rivers. Farm crops are abundant, barley formerly having the greatest acreage, now being replaced to a large extent by wheat and rice. In fruit, pears take the lead, with peaches, prunes, olives, figs and citrus fruits following. Much of the desirable area of the county is undeveloped awaiting the advent of paved roads. The Yuba River bottom lands once silted by hydraulic mining are now being cleaned and planted to pear orchards and truck crops. Enormous returns from crops on such lands have been received in the past seasons.”*

YUBA COUNTY SUMMARY.

(Census Figures.)

Number of Farms.		Domestic Animals on Farms and Ranges.	
Total in 1910	436	Cattle—	
Total in 1920	487	Beef	9,966
		Dairy	3,008
		Total	12,974
		Value	\$529,347
		Horses—	
		Number	2,254
		Value	\$164,850
		Mules—	
		Number	328
		Value	\$22,784
		Asses and burros—	
		Number	74
		Value	\$976
		Swine—	
		Number	5,065
		Value	\$66,309
		Sheep—	
		Number	66,606
		Value	\$710,251

Land and Farm Areas.	
Approximate land, acres	408,960
Land in farms in 1910	249,108
Land in farms in 1920	228,797
Improved land in farms in 1910	94,250
Improved land in farms in 1920	98,997
Woodland in farms	65,881
Other unimproved land	63,919

Value of All Farm Property.	
Total value in 1910	\$6,666,211
Total value in 1920	14,274,307
Land in 1910	4,911,611
Land in 1920	10,926,093
Buildings in 1910	688,565
Buildings in 1920	1,116,177
Implements and machinery in 1910	171,735
Implements and machinery in 1920	697,089
Domestic animals, poultry and bees in 1910	894,300
Domestic animals, poultry and bees in 1920	1,534,948

*W. Harrison, Farm Adviser.

PART X

LIST OF EXHIBITORS
AND AWARDS MADE

AT THE

SIXTY-SEVENTH ANNUAL

California State Fair

DIRECTED BY THE

STATE BOARD OF AGRICULTURE
AT SACRAMENTO

SEPTEMBER 3 TO SEPTEMBER 11

1921

THE CALIFORNIA STATE FAIR.

The California State Fair in its infancy was to the people of that day of great importance just as it is today, and as California has progressed with the passing of time so has the State Fair progressed in proportion.

The first State Fair was held in San Francisco in 1854, and its exhibits were limited, although in keeping with the buildings and the period. Each succeeding year has marked a step in its development until the attendance has passed the 200,000 mark, and the premiums to exhibitors and race winners aggregate \$100,000, and today ranks as one of the leading, agricultural, educational and mining exhibits of the United States. The State Fair grounds at Sacramento cover 112 acres, and in its enclosure stand four large permanent exhibit buildings, a dairy products building, a grand stand, horse show arena and numbers of barns for housing the grandest aggregation of pure-bred animals that is ever assembled in the West.

A greater variety of native agricultural and horticultural products is shown than at any other fair held in the United States, due to the fact that California is the most diversified agricultural state in the Union.

The State Fair today stands as a monument to the successive Boards of Directors of the State Agricultural Society, the men who have bountifully given of their energy, experience and time without compensation from the state, to the organization and upbuilding of an institution that is a credit to them and to the great State of California.

STATE BOARD OF AGRICULTURE.

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E. J. DELOREY.....	Speed Events and Track
E. FORREST MITCHELL.....	Poultry
T. H. DUDLEY.....	Horse Show

LIVE STOCK DEPARTMENT

LIST OF EXHIBITORS.

- Ahlers, H. C., 3876 Clay street, San Francisco, California. Light Horses.
Alderson, W. A., Pacific Finance Building, Los Angeles, California. Light Horses.
Alexander & Kellogg (by J. D. Rowe & Sons), Davis, California. Dairy Shorthorn.
Anderson, Mrs. C. B., Box 263, Pleasanton, California. Ponies.
Anderson, Mrs. E. B. D., 407 Corrilo street, Santa Rosa, California. Light Horses.
Anspach, Tim, Thirtieth and R streets, Sacramento, California.
Archer, A. W., Route 4, Box 211, Stockton, California. Milk Goats.
Azavedo, Manuel, Patterson, California. Holstein-Friesian.
- Babington, Mrs. Claire, 407 Corrilo street, Santa Rosa, California. Light Horses.
Baldwin, H. A., Pleasanton, California. Herefords.
Ball, H. G., Tulare, California. Holstein-Friesian.
Barber, Edw. L., Thornton, California. Holstein-Friesian.
Barber, Willis A., Station T, Rose Hill, Los Angeles, California. Shropshires.
Barngrover, H. M., Taylorsville, California. Herefords.
Bassett Bros., Hanford, California. Poland China.
Bastanchury, D. J., Box 276, La Habra (Orange County), California. Berkshires.
Beaver, Lowell J., Route C, Box 397, Fresno, California. Duroc-Jersey.
Beckman, George V., Lodi, California. Poland China.
Belgum, H. N., Box 227, Route 1, Richmond, California. Holstein-Friesian
Bergrund, Harvey M., Dixon, California. Duroc-Jerseys.
Bibens, Smith H., Route 1, Box 307, Modesto, California.
Bishop, Thomas B., Company, San Ramon, California. Shropshires.
Bork, F. J., 1235 Leavenworth street, San Francisco, California. Light Horses.
Boyd, Mrs. M. E., San Francisco, Jno. Keefe, 2321 N street, Sacramento, California. Light Horses.
Brandt, O. H., Shellville, California. Clydesdales.
Brant Rancho, Owensmouth, California. Guernsey and Duroc-Jerseys.
Bridinger, L. A., Box 417, Santa Rosa, California. Goats.
Briggs, William & Son, Dixon, California. Herefords and Rambouillet.
Brown, Alice M., 2015 C street, Sacramento, California. Milk Goats.
Brown, H. D., Fair Grounds, Sacramento, California. Light Horses.
Bruce, John, Galt, California. Jerseys.
Buck, F. W., Box 154, Route 1, Woodland, California. Duroc-Jerseys.
Buckland & McNeil, Box 126, Fresno, California. Poland China.
Bunting, John, Jr., Mission San Jose, California. Herefords.
Burgess, C., Presidio, San Francisco, California. Light Horses.
Butte City Ranch, Butte City, California. Shropshires.
- Caledonia Farms, West Sacramento, California. Shorthorns.
California George Junior Republic, Chino, California. Holstein-Friesian.
California Swine Corporation, Route A, Box 185, Escalon, California. Poland China.
Calla Grove Farm, Manteca, California. Guernseys and Hampshires.
Cannon, H. W., Suisun, California. Berkshires.
Carruthers, W. M., Live Oak, California. Shorthorns and Steers.
Cazier, John H., & Sons, Wells, Nevada. Herefords.
Cecil George Rancho, Spadra, California.
Charters, Edw., 315 Third street, Woodland, California. Holstein-Friesian.
Choisser, W. L., Route 1, Box 161, Turlock, California. Poland China.
Christen, J. M., R. F. D. Martinez, California. Holstein-Friesian and Hampshire.
Clayton, Claud, Fair Grounds, Sacramento, California. Light Horses.
Clayton, Donald, Los Angeles, California.
Clark, Fred A., Capay Rancho, Orland, California. Jerseys.
Coar, Ray G., 677 Morrill avenue, Reno, Nevada. Light Horses.
Coldwell, C. S., 128 Sutter street, San Francisco, California. Light Horses.
Conant, Marg., Box 231, Modesto, California. Jerseys.
Conoly, Anna May, Orland, California.
Cook, J. H., Route 4, Chico, California. Poland China.
Corriedale Sheep Company, Hollister, California. Sheep.
Cox, T. J., Sacramento, California. Horses.
Craig, J. C., Owensmouth, California. Horses.
Cruikshanks, A., Route 2, Box 418, Sacramento, California. Jerseys.
- Dack, Charles E., Route H., Box 196, Fresno, California. Poland China.
Danziger & Spalding, Sawtelle, California. Heavy Horses.
Dean, Margaret, Walnut Creek, California. Milk Goats.
Del Paso Heights S. and S. B. Association, Del Paso Heights, California. Holsteins.
Dibblee, Estate of Thomas B., San Julian Ranch, Lompoc, California. Shorthorns and Clydesdales.
Dimmick, J. N., Galt, California.
Dolcini, V. F., Davis, California. Holsteins, Hampshires and Duroc-Jerseys.
Dos Pueblo Rancho, Naples, California. Percherons and Light Horses.
Duke, W. D., care H. H. Gable, Esparto, California.
Dunning, Walt, La Panza, California. Light Horses.

Eastman, Norman S., Route 1, Box 54, San Fernando, California. Poland China.
 Edinger-Johnston Company, Hood, California. Shorthorns.
 Ehrmann, A., 3212 Jackson street, San Francisco, California.
 Elberg, Henry M., Woodland, California. Shorthorns.
 Ellenwood & Ramsey, 717 Main street, Red Bluff, California. Corriedales.
 Elkhorn Farm, Route 2, Box 82, Watsonville, California. Ayrshires.
 Elliot, A. J., Route Box 45, Tulare, California. Poland China.
 Elmore, Everett, Hornbrook, California.
 Elmwood Farm (Chas. T. Boots), Milpitas, California.
 Emmons, G. W., and Company, Diablo Stock Farm, Danville, California. Herefords.
 English, Revel Lindsay, Chino, California. Light Horses.
 Ewman, T., 3212 Clay street, San Francisco, California. Light Horses.

Farnam, Loring, Rinconado Rancho, Ojai, California. Guernseys.
 Farr, H. Irvin, 178 Loma Alto avenue, Los Gatos, California. Milk Cows.
 Ferguson, William, Fair Grounds, Sacramento, California. Light Horses.
 Foley, Patrick, Fair Grounds, Sacramento, California. Light Horses.
 Forbes, Ernest, Orland, California.
 Fortini, M., Route 4, Orland, California. Jerseys.
 Foster, Evelyn, R. F. D. 4, Box 7, Petaluma, California.

Gable, H. H., Esparto, California. Herefords.
 Gateswood, Charles, Route J, Box 424, Fresno, California. Poland China.
 Gibson, William, Box 257, Galt, California. Jerseys.
 Gleason, E. F., San Juan Bautista, California. Holstein-Friesians.
 Glide, T. S., Davis, California. Shorthorns.
 Glusing, Johnnie, Winton, California. Poland China.
 Greenough, E. E., Merced, California. Holstein-Friesians.
 Gantz, Mrs. B. M., Santa Barbara, California. Goats.

Hammon Estate Company, Elder Creek Ranch, Corning, California. Steers.
 Harder, Mrs. C. K., Route 3, Box 27, North Sacramento, California. Milk Goats.
 Harrison, Thomas, Santa Rosa Stock Farm, Santa Rosa, California. Shorthorns.
 Hart, Mrs. Frank, Modesto, California. Light Horses.
 Hayes & Harter, Grants Pass, Oregon. Hampshires.
 Hayworth, Irvin, Route B, Modesto, California.
 Henry, J. N., Route 1, Box 94E, Denair, California.
 Higdon, W. J., Box 435, Tulare, California. Holstein-Friesians.
 High, Elmo, Route 1, Box 269, Modesto, California.
 Holmes, R. L., Box 536, Modesto, California.
 Homer, R. E., Los Angeles, California. Light Horses.
 Howard, C. S., Willits, California. Herefords.
 Howard, S. L., Box 95, Route 3, Merced, California. Jerseys.
 Humphrey, A. B., Escalon, California. Guernseys and Berkshires.

Italian Vineyard Company, Guasti, California. Berkshires.

Jefferson, T. C., Beverly Hills, California. Light Horses.
 Jobanson, H. A., Box 260, Fresno, California. Poland China.
 Jone Bros. (by J. L. Pierce), Yuma, Arizona. Light Horses.
 Joyce, Kenyon A., Headquarters Ninth Corps Area, Presidio, San Francisco, California. Light Horses.

Kern County Land Company, Bakersfield, California. Steers.
 Knudsen, H. J., Box 24B, Perkins, California. Hampshires.
 Krause, Charley, Box 503, Orland, California.
 Krause, Max, Box 503, Orland, California.

Lathrop Bros., Box 102, Grants Pass, Oregon. Ayrshires.
 Lauch, A., Galt, California. Holstein-Friesians.
 Learned, H. G., Route 4, Box 238, Stockton, California. Percherons.
 Leonard Estate Company, Route 2, Grants Pass, Oregon. Guernseys and Berkshires.
 Lommel, Mrs. L. P., Route 3, Box 66, Napa, California. Milk Goats.
 Long, P. B., Route 1, Box 62, Tulare, California. Poland China.
 Loughbridge, S., Ranch (R. E. Talbot, Mgr.), Grants Pass, Oregon.
 Lucio, Joaquina, Tulare, California. Holstein-Friesian.

Marsh, H. I., Modesto, California. Poland China.
 Marshall, L. C., Vacaville, California. Herefords.
 Marwick, James, Box 551, Santa Barbara, California. Angus, Guernseys and Hampshires.
 Mason, Tom, 301 Chapala street, Santa Barbara, California. Light Horses.
 McCloud River Lumber Company, McCloud, California. Holstein-Friesians.
 McCay, F. B., Cathay, California. Aberdeen-Angus.
 McFarland, E. B., 412C Spreckels Building, San Francisco, California. Ayrshires.
 Melvin, Frank, Fair Grounds, Sacramento, California. Light Horses.
 Merritt, G. N., and Sons, 229 Cross Street, Woodland, California. Rambouillets.
 Merritt-Bowers, Tulare, California. Light and Heavy Horses.
 Meyer, Ruth, Orland, California.
 Miller, Guy H., Route 1, Box 49, Modesto, California. Jerseys.
 Miller, T. T., Hollister, California. Shorthorns.
 Millnick, T. F., Shellville, California. Light Horses.
 Mills, James, Orchard Corporation, Hamilton City, California. Berkshires.
 Minn, A. Mac, Loehinvar Ranch, Phoenix, Arizona. Ayrshires.
 Mission Hereford Farm, Mission San Jose, California. Herefords.
 Mordecai, Ralph, Route 4, Petaluma, California.
 Murphy, H. L. and E. H., Perkins, California. Shorthorns

- Napa State Hospital, Imola, California. Fat Swine.
 Neal, Norman, Route 4, Petaluma, California.
 Noyes, E. A. and Son, Sutter, California. Herefords.
- Ordway & Snyder, Hughson, California. Duroc-Jerseys.
- Pacheco Cattle Company, Hollister, California. Shorthorn.
 Palo Alto Percheron Farm, Stanford University, California. Heavy Horses.
 Palo Alto Stock Farm, Palo Alto, California.
 Payton, Claude, Fair Grounds, Sacramento, California.
 Pearsall, G. H., Los Angeles, California. Light Horses.
 Peterson, Newton M., R. F. D. 3, Sebastopol, California.
 Peterson, Oscar B., R. F. D. 3, Sebastopol, California.
 Peterson, Thelma, Star Route, Petaluma, California.
 Pray, L. W., Durham, California. Light Horses.
- Roberts, W. T., Penngrove, California. Shorthorns.
 Roth, William, San Francisco, California. Light Horses.
 Roth, Mr. W. P., 2251 Jackson street, San Francisco, California. Light Horses.
 Howe, J. D., and Sons, Davis, California. Duroc-Jerseys.
 Rush, B. F., Suisun, California. Shorthorns.
 Richards & Wagner, Montara (San Mateo County), California. Milk Goats.
- Sacramento Goat Farm, 2616 Twenty-eighth street, Sacramento, California. Milk Goats.
 Santa Rosa Stock Farm, Santa Rosa, California. Shorthorns.
 San Julien Ranch, Lompoc, California. Clydesdales.
 San Vicente Rancho, 1023 Investment Building, Los Angeles (Ranch at Sawtelle), California. Light Horses and Short-horns.
- Sawyer, Mac A., Box 41, Galt, California. Jerseys.
 Sawyer, J. H., Box 41, Galt, California. Jerseys.
 Seavy & Son, Box 221, Galt, California. Jerseys.
 Shaw, Margaret, Willows, California.
 Sierra Vista Stock Ranch, Ferris, California. Holstein-Friesians and Duroc-Jerseys.
 Six Brothers Dairy, Box 126, Turlock, California. Holstein-Friesians, Shorthorns, and Duroc-Jerseys.
 Shinker, H. F. and L. I., Route 1, Box 103, Los Angeles, California. Milk Goats.
 Slaek, Cecil, Route 2, Napa, California. Duroc-Jerseys.
 Slocum, H. P., and Son, Willows, California. Duroc-Jerseys.
 Smith, L. D., Hydesville, California. Guernseys.
 Spencer Ranch Company, Cranmore, California. Hampshires.
 Spreckels, Rudolph, First National Bank Building, San Francisco, California. Light Horses.
 Smith, P. H., Florin, California. Jerseys.
 Stammerjohan, Clay, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, George, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, Katie, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, Loney, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, Reuben, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, Stella, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stammerjohan, William, Route 2, Box 126, Turlock, California. Holstein-Friesians.
 Stephens & Gatewood, Box 2, Herndon, California. Poland Chinas.
 Stone, E. G., Route A, Box 313, Ceres, California.
 Straloch Farm (C. Harold Hopkins), Woodland, California. Shorthorns Hampshire and Poland Chinas.
 Summerfield, Dr. J., Santa Rosa, California. Tamworth.
 Swingle, G. K., Davis, California. Range Sheep.
- Teasdale, H. S., Sparks, Nevada. Berkshires.
 Thorp, J. E., Lockeford, California. Duroc-Jersey Swine.
 Thompson, Geo. P., 1703 B street, Bakersfield, California.
 Thompson, J. I., Davis, California. Light Horses.
 Todhunter, L. H., Box 387, Sacramento, California. Light Horses.
 Toomey, Oswald M., 3320 38th street, Sacramento, California. Milk Goats.
 Tribble, Eugene C., Box 87, Route 2, Lodi, California. Romneys.
 True, Gordon H., Jr., Davis, California. Shropshires.
- Van Agnew, R., Lt. Col. V. C. 110, Main Post, Presidio, San Francisco, California. Light Horses.
 Van Pelt, H. G., 809 W. Fourth street, Waterloo, Iowa. Jerseys.
 Van Vlear, Henry, Route 2, Lodi, California. Hampshires.
 Vaughan, Howard, Dixon, California. Herefords and Chester-White.
 Von Gerloff, Eric, 720 West Pico street, Los Angeles, California. Light Horses.
- Ward, Mrs. C. E., 3863 Fourth avenue, Sacramento, California. Milk Goats.
 Warm Creek Land and Live Stock Company, Wells, Nevada. Shorthorns.
 Weldon, Dr. E. J., 1310 O street, Sacramento, California. Holstein-Friesians.
 Wentz, J. H., Fair Oaks, California. Milk Goats.
 Western Laboratories, Route 6, Stockton, California. Duroc-Jerseys.
 Withero & Stafford, Live Oak, California. Duroc-Jerseys.
 Wood, Libbie Mae, R. F. D. 51A, Willows, California.
 Wood, Miss H. A., Route 2, Box 247, Pasadena, California. Milk Goats.
 Woodruff, M. D., Paradise, California. Milk Goats.
 Wyndham, E., Redding, California. Ayrshires.
- Your Duroc Farm (V. Mong), Whittier, California. Duroc-Jerseys.

DRAFT HORSES.

JUDGE—T. E. ROBSON.

Percherons.

Exhibitors:

H. G. Learned, R. F. D. 4, Box 238, Stockton, California.
 Merritt-Bowers Co., Tulare, California.
 Palo Alto Percheron Farm (G. H. Edwards), Stanford University, California.
 Herbert G. Wylie, Dos Pueblo Rancho, Naples, California.

OPEN CLASS. FREE FOR ALL.**Stallions, four years old or over.**

First Ithos 90754-83537. Exhibited by Palo Alto Percheron Farm.
 Second Lit 99478. Exhibited by Merritt-Bowers Co.
 Third Bay Boy 109419. Exhibited by H. G. Learned.

Stallions, three years old and under four.

First Palo Alto Easter Boy 151164. Exhibited by Palo Alto Percheron Farm.

Stallions, two years old and under three.

First Palo Alto Victor 160632. Exhibited by Palo Alto Percheron Farm.
 Second Pink Major; Sire, Albert 105583. Dam, Pink Julia 64414. Exhibited by H. G. Learned.

Mare, four years old or over, with foal at feet.

First Pink Julia 64414. Exhibited by H. G. Learned.
 Second Black Bess. Exhibited by H. G. Learned.

Mare, four years old or over.

First Palo Alto Chlinda 141991. Exhibited by Palo Alto Percheron Farm.

Mare, three years old and under four.

First Palo Alto Easter Girl 151165. Exhibited by Palo Alto Percheron Farm.

Mare, two years old and under three.

First Palo Alto Marigold 160631. Exhibited by Palo Alto Percheron Farm.

Stallion or Filly Foal, under one year.

First Unnamed colt. Sire, Inimitable. Dam, Pink Julia 64414. Exhibited by H. G. Learned.
 Second Unnamed colt. Sire, Inimitable. Dam, Black Bess. Exhibited by H. G. Learned.

Get of Sire.

First Get of Ibidem 86005. Exhibited by Palo Alto Percheron Farm.
 Second Get of Inimitable 71719. Exhibited by H. G. Learned.

Produce of Dam.

First Produce of Julian 63592. Exhibited by Palo Alto Percheron Farm.
 Second Produce of Pink Julia 64414. Exhibited by H. G. Learned.

Best Five Stallions, any age.

First Exhibited by H. G. Learned.

Best Three Mares, any age.

First By Palo Alto Percheron Farm.
 Second By H. G. Learned.

Champion Stallion.

Ithos 90754-83537. Exhibited by Palo Alto Percheron Farm.

Champion Mare.

Palo Alto Marigold 160631. Exhibited by Palo Alto Percheron Farm.

STATE CLASS.**Stallions, four years old and over.**

First Ithos 90754-83537. Exhibited by Palo Alto Percheron Farm.
 Second Lit 99478. Exhibited by Merritt-Bowers Co.
 Third Bay Boy 109419. Exhibited by H. G. Learned.

Stallions, three years old and under four.

First Palo Alto Easter Boy 151164. Exhibited by Palo Alto Percheron Farm.

Stallions, two years old and under three.

First Palo Alto Victor 160632. Exhibited by Palo Alto Percheron Farm.
 Second Pink Major. Sire, Albert 105583. Dam, Pink Julia 64414. Exhibited by H. G. Learned.

Mares, four years old or over, with foal at feet.

First Pink Julia 64414. Exhibited by H. G. Learned.
 Second Black Bess. Exhibited by H. G. Learned.

Mare, four years old or over.

First Palo Alto Chinda 141991. Exhibited by Palo Alto Percheron Farm.

Mare, three years old and under four.

First Palo Alto Easter Girl 151165. Exhibited by Palo Alto Percheron Farm.

Mare, two years old and under three.

First Palo Alto Marigold 160631. Exhibited by Palo Alto Percheron Farm.

Stallion or Filly Foal under one year

First Unnamed colt. Sire, Inimitable. Dam, Pink Julia 64414. Exhibited by H. G. Learned.
 Second Unnamed colt. Sire, Inimitable. Dam, Black Bess. Exhibited by H. G. Learned.

Get of Sire.

First Get of Ibidem 86005. Exhibited by Palo Alto Percheron Farm.
 Second Get of Inimitable. Exhibited by H. G. Learned.

Produce of Dam.

First Produce of Julian 63592. Exhibited by Palo Alto Percheron Farm.
 Second Produce of Pink Julia 64414. Exhibited by H. G. Learned.

Champion Stallion.

Ithos 90754-83537. Exhibited by Palo Alto Percheron Farm.

Champion Mare.

Palo Alto Marigold 160631. Exhibited by Palo Alto Percheron Farm.

Belgians.**Exhibitors:**

Merritt-Bowers Co., Tulare, California.
 G. P. Thompson, Bakersfield, California.

OPEN CLASS. FREE FOR ALL.**Stallions, four years old or over.**

First Stevenot 9260. Exhibited by Merritt-Bowers Co.
 Second King 12546. Exhibited by G. P. Thompson.

Stallions, two years old and under three.

First Prince Leopold. Sire, Brussels 59259. Dam, Mina 1370 Exhibited by Merritt-Bowers Co

Stallions, one year old and under two.

First Augustus. Exhibited by G. P. Thompson.

Mares, four years old or over.

First Nell 3022. Exhibited by G. P. Thompson.
 Second Mina 1370. Exhibited by Merritt-Bowers Co.
 Third Margot de Waere 1369. Exhibited by Merritt-Bowers Co.

Mares, three years old and under four.

First Buster. Exhibited by G. P. Thompson.

Mares, two years old and under three.

First Raby 2d. Exhibited by Merritt-Bowers Co.
 Second Jewell. Exhibited by G. P. Thompson.

Mares, one year old and under two.

First Melisaunde. Sire, Stevenot 9260. Dam, Mina 1370. Exhibited by Merritt-Bowers Co.

Get of Sire.

First King 12546. Exhibited by G. P. Thompson.

Produce of Dam.

First Produce of Mina 1370. Exhibited by Merritt-Bowers Co.
 Second Produce of Queen 3023. Exhibited by G. P. Thompson.

Best Stallion and Three Mares, two years old or over, bred by Exhibitor

First Exhibited by Merritt-Bowers Co.

Best Three Mares, any age.

First Exhibited by Merritt-Bowers Co.

Champion Stallion.

Stevenot 9260. Exhibited by Merritt-Bowers Co.

Champion Mare.

Raby 2d. Dam, Raby 2647. Exhibited by Merritt-Bowers Co.

STATE CLASS.**Stallions, four years old or over.**

First Stevenot 9260. Exhibited by Merritt-Bowers Co.
 Second King 12546. Exhibited by G. P. Thompson.

Stallions, two years old and under three.

First Prince Leopold. Sire, Brussels 59259. Dam, Mina 1370. Exhibited by Merritt-Bowers Co.

Stallions, one year old and under two.

First Augustus. Exhibited by G. P. Thompson.

Mares, four years old or over.

First Nell 3023. Exhibited by G. P. Thompson.
 Second Mina 1370. Exhibited by Merritt-Bowers Co.
 Third Margot de Waere 1369. Exhibited by Merritt-Bowers Co.

Mares, three years old and under four.

First Buster. April 1918. Exhibited by G. P. Thompson.

Mares, two years old and under three.

First Raby 2d. Foaled 1919. Dam, Raby 2647. Exhibited by Merritt-Bowers Co.
 Second Jewell. Foaled 1919. Exhibited by G. P. Thompson.

Mares, one year old and under two.

First Melisaunde. Sire, Stevenot 9260. Dam, Mina 1370. Exhibited by Merritt-Bowers Co.

Get of Sire.

First Get of King. Exhibited by G. P. Thompson.

Produce of Dam.

First Produce of Mina 1370. Exhibited by Merritt-Bowers Co.
 Second Produce of Queen 3023. Exhibited by G. P. Thompson.

Champion Stallion.

Stevenot 9260. Exhibited by Merritt-Bowers Co.

Champion Mare.

Raby 2d. Foaled 1919. Dam, Raby 2647. Exhibited by Merritt-Bowers Co

Clydesdales.**Exhibitors:**

O. H. Brandt, Shellville, California.
 Estate of Thos. B. Dibblee, San Julian Ranch, Lompoc, California.

OPEN CLASS. FREE FOR ALL.**Stallions, four years old or over.**

First Prince Edward 21263. Exhibited by Estate of Thos. B. Dibblee.

Stallions, three years old and under four.

First Royal Wilson 20840. Exhibited by Estate of Thos. B. Dibblee.

Stallions, two years old and under three.

First Fairyland's Pride 21691. Exhibited by O. H. Brandt

Stallions, one year old and under two.

First Prince Rupert 21737. Exhibited by O. H. Brandt.
Second Bonington Linn 21722. Exhibited by O. H. Brandt.

Mares, four years old or over, with foal at feet.

First Lady Marcus 15380. Exhibited By O. H. Brandt.
Second Jessica Derby 20788. Exhibited by O. H. Brandt.
Third Victoria 20180. Exhibited by O. H. Brandt.

Mares, four years old or over.

First Bonnie's Bloom 20839. Exhibited by Estate of Thos. B. Dibblee.
Second Cricket 20181. Exhibited by O. H. Brandt.
Third Miss Modesty 19619. Exhibited by O. H. Brandt.

Mares, three years old and under four.

First Annette Morrison 20789. Exhibited by O. H. Brandt.
Second Bonnie Blossom 20841. Exhibited by Estate of Thos. B. Dibblee.

Mares, one year and under two.

First Cora Linn 21736. Exhibited by O. H. Brandt.
Second Maid Marion 21734. Exhibited by O. H. Brandt.

Stallion or Filly Foal, under one year.

First Prince Derby. Sire, Bay Prince 12494. Dam, Jessica Derby 20788. Exhibited by O. H. Brandt.
Second Lady Marcus Lass. Sire, Bay Prince 12494. Dam, Lady Marcus 15380. Exhibited by O. H. Brandt.

Get of Sire.

First Get of Bonnie Edward (15592)-15445. Exhibited by Estate of Thos. B. Dibblee.
Second Get of Bay Prince 12494. Exhibited by O. H. Brandt.
Third Get of Bay Prince 12494. Exhibited by O. H. Brandt.

Produce of Dam.

First Produce of Lady Marcus 15380. Exhibited by O. H. Brandt.
Second Produce of Victoria 20180. Exhibited by O. H. Brandt.
Third Produce of Jessica Derby 20788. Exhibited by O. H. Brandt.

Best Stallion and Three Mares, two years old or over, bred by exhibitor.

First Exhibited by O. H. Brandt.

Best Five Stallions, any age.

First Exhibited by O. H. Brandt.

Best Three Mares, any age.

First Exhibited by O. H. Brandt.
Second Exhibited by O. H. Brandt.

Champion Stallion.

Prince Edward 21263. Exhibited by Estate of Thos. B. Dibblee.

Champion Mare.

Bonnie's Bloom 20839. Exhibited by Estate of Thos. B. Dibblee.

STATE CLASS.**Stallions, four years old and over.**

First Prince Edward 21263. Exhibited by Estate of Thos. B. Dibblee.

Stallions, three years old and under four.

First Royal Wilson 20840. Exhibited by Estate of Thos. B. Dibblee.

Stallions, two years old and under three.

First Fairland's Pride 21691. Exhibited by O. H. Brandt.

Stallions, one year old and under two.

First Prince Rupert 21737. Exhibited by O. H. Brandt.
Second Bonington Linn 21722. Exhibited by O. H. Brandt.

Mares, four years old or over, with foal at feet.

First	Jessica Derby 20788. Exhibited by O. H. Brandt.
Second	Victoria 20180. Exhibited by O. H. Brandt.
Third	Lady Marcus 15380. Exhibited by O. H. Brandt.

Mares, four years old or over.

First	Bonnie's Bloom 20839. Exhibited by Estate of Thos. B. Dibblee.
Second	Cricket 20181. Exhibited by O. H. Brandt.
Third	Miss Modesty 19619. Exhibited by O. H. Brandt.

Mares, three years old and under four.

First	Annette Morrison 20789. Exhibited by O. H. Brandt.
Second	Bonnie Blossom 20841. Exhibited by Estate of Thos. B. Dibblee.

Mares, one year old and under two.

First	Cora Linn 21736. Exhibited by O. H. Brandt.
Second	Maid Marion 21734. Exhibited by O. H. Brandt.

Stallion or Filly Foal, under one year

First	Prince Derby. Sire, Bay Prince 12494. Dam, Jessica Derby 20788. Exhibited by O. H. Brandt.
Second	Lady Marcus Lass. Sire, Bay Prince 12494. Dam, Lady Marcus 15380. Exhibited by O. H. Brandt.

Get of Sire.

First	Get of Bonnie Edward 15592 (15445). Exhibited by Estate of Thos. B. Dibblee.
Second	Get of Bay Prince 12494. Exhibited by O. H. Brandt.
Third	Get of Bay Prince 12494. Exhibited by O. H. Brandt.

Produce of Dam.

First	Produce of Lady Marcus 15380. Exhibited by O. H. Brandt.
Second	Produce of Victoria 20180. Exhibited by O. H. Brandt.
Third	Produce of Jessica Derby 20788. Exhibited by O. H. Brandt.

Champion Stallion.

Prince Edward 21263. Exhibited by Estate of Thos. B. Dibblee.

Champion Mare.

Bonnie's Bloom 20839. Exhibited by Estate of Thos. B. Dibblee.

Shires.**OPEN CLASS. FREE FOR ALL.****Mares, one year old and under two.**

First	Princess Beauty M. 19070. Exhibited by Merritt-Bowers Co.
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STATE CLASS.**Mares, one year old and under two.**

First	Princess Beauty M. 19070. Exhibited by Merritt-Bowers Co.
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Champion Mare.

Princess Beauty M. 19070. Exhibited by Merritt-Bowers Co.

GRADES AND CROSSES. ANY DRAFT BREEDS.**Geldings, four years old or over.**

First	Diek. Sire, Inquiet 79239. Exhibited by Merritt-Bowers Co.
Second	Jack. Sire, Inquiet 79239. Exhibited by Merritt-Bowers Co.

Mares, three years old and under four.

First	Eloise. Sire, Superior 97190. Exhibited by Merritt-Bowers Co.
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COACH HORSES. OPEN CLASS. FREE FOR ALL.**Stallions, four years old or over.**

First	Seaton Luster 1957. Exhibited by J. M. Danziger and S. M. Spalding.
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Champion Stallion.

Seaton Luster 1957. Exhibited by Danziger and Spalding.

HACKNEY HORSES. OPEN CLASS. FREE FOR ALL.**Stallions, four years old or over.**

First Seaton Luster 1957. Exhibited by Danziger and Spalding.

Champion Stallion.

Seaton Luster 1957. Exhibited by Danziger and Spalding.

Mares, four years old or over.

First Woodeliff Surprise 3410. Exhibited by Danziger and Spalding.

Second Cremona Lady 1236. Exhibited by Miss Ethel B. D. Anderson.

Champion Mare.

Woodeliff Surprise 3410. Exhibited by Danziger and Spalding.

STATE CLASS.**Stallions, four years old or over.**

First Seaton Luster 1957. Exhibited by Danziger and Spalding.

Champion Stallion.

Seaton Luster 1957. Exhibited by Danziger and Spalding.

Mares, four years old or over.

First Woodeliff Surprise 3410. Exhibited by Danziger and Spalding.

Second Cremona Lady 1236. Exhibited by Miss Ethel B. D. Anderson.

Champion Mare.

Woodeliff Surprise 3410. Exhibited by Danziger and Spalding.

Light Horses.

JUDGE—F. W. VAN NATTA.

STANDARD BRED.**Stallions, four years old or over.**

First Silverado. Sire, The Bondsman. Dam, Provileen. Exhibited by Patrick Foley.

Stallions, one year old.

First Dillon Chimes 66525. Exhibited by Wm. Ferguson.

Second Walter A. Keyes. Sire, Sacramento Boy. Dam, Laura A. Keyes. Exhibited by Harry D. Brown.

Mares, four years old or over.

First Lady Grogan. Sire, Nutwood Wilkes. Dam, Lady Granard. Exhibited by Patrick Foley.

Second Ilene McKinney. Sire, McKinney. Dam, Igo. Exhibited by Patrick Foley.

Mares, two years old.

First Helen McKlyo 131151. Exhibited by L. H. Todhunter.

Second Silver Queen. Sire, Silverado. Dam, Ilene McKinney. Exhibited by Patrick Foley.

Get of Sire.

First Get of Silverado. Exhibited by Patrick Foley.

Produce of Dam.

First Produce of Ilene McKinney. Exhibited by Patrick Foley.

Second Produce of Lady Grogan. Exhibited by Patrick Foley.

THOROUGHBRED HORSES.**Stallions, three years old or over.**

First Percival Knight. Sire, F. W. Barrs. Dam, Black Sue. Exhibited by Ray G. Coar.

Second Marse Abe. Foaled 1906. Exhibited by Tom Mason.

Stallions, two years old or under.

First Unnamed 95638. Exhibited by Rudolph Spreckels.

Mares, three years old or over.

First Sweet Water 78484. Exhibited by Frank Melvin.

Second Gertie Wood 86556. Exhibited by Frank Melvin.

Mares, two years old or under.

- First Lady Helen 95636. Exhibited by Elmwood Farm.
 Second Unnamed 95637. Exhibited by Rudolph Spreckels.

AMERICAN SADDLE HORSES (BREEDING CLASS).**Stallions, four years old or over.**

- First The Nobleman 6375. Exhibited by Mrs. Charlotte B. Anderson.
 Second King of the Air 7590. Exhibited by Cedric S. Coldwell.
 Third Head Master 8437. Exhibited by Revel Lindsay English.

Mares, four years old or over, with foal at feet.

- First Angelus Butterfly 7684. Exhibited by Mrs. Charlotte B. Anderson.
 Second Diana Dare 9102. Exhibited by Mrs. Charlotte B. Anderson.

Champion Stallion.

The Nobleman 6375. Exhibited by Mrs. C. B. Anderson.

Champion Mare.

Angelus Butterfly 7684. Exhibited by Mrs. C. B. Anderson.

Mares, four years old or over.

- First Santa Monica 12875. Exhibited by Mrs. Ethel B. D. Anderson.
 Second Celia L. Exhibited by Mrs. W. P. Roth.
 Third Mavis 10469. Exhibited by Mrs. Wm. P. Roth.

Mares, one year old and under two.

- First Butterfly's Wildfire 14807. Exhibited by Mrs. Charlotte B. Anderson.

Stallion or Filly Foal, under one year.

- First Sans Firefly. Sire, San Vicente 6513. Dam, Angelus Butterfly 7684. Exhibited by Mrs. Charlotte B. Anderson.
 Second Helen Orr. Sire, San Vicente 5613. Dam, Diana Dare 9102. Exhibited by Mrs. Charlotte B. Anderson.

Get of Sire.

- First Get of San Vicente 6513. Exhibited by Mrs. Charlotte B. Anderson.

Produce of Dam.

- First Produce of Angelus Butterfly 7684. Exhibited by Mrs. Charlotte B. Anderson.

CROSS BRED HORSES.**Mares, two years old or under.**

- First Worthy of Dixie. Sire, Silken Worthy 58175. Dam, Dixie Queen 281. Exhibited by Mrs. Ethel B. D. Anderson.

Geldings, three years old or over.

- First Kildare. Sire, Squire of Chester 9876. Dam, Nancy Lee 3771. Exhibited by Mrs. Ethel B. D. Anderson.

Ponies.**SHETLAND PONIES.****Stallions, three years old or over.**

- First Prince Albert R 14242. Exhibited by Mrs. M. E. Boyd.

Two years old and under three.

- First Babe. Exhibited by Mrs. Frank Hart.

One year old and under two.

- First Firecracker. Sire, General Boggs 12989. Dam, Iola 4735. Exhibited by J. I. Thompson.
 Second Dandy. Exhibited by Mrs. Frank Hart.

Mares, three years old or over.

- First Beauty. Exhibited by Mrs. Frank Hart.

Champion Stallion.

Firecracker. Sire, General Boggs 12989. Dam, Iola 4735. Exhibited by J. I. Thompson.

Champion Mare.

Beauty. Exhibited by Mrs. Frank Hart.

Grand Display, five animals, any sex, owned by exhibitor.

First Exhibited by Mrs. Frank Hart.

Get of Sire.

First Exhibited by Mrs. Frank Hart.

Produce of Dam.

First Exhibited by Mrs. Frank Hart.

PONIES OTHER THAN REGISTERED SHETLAND.**Ponies under Saddle, not over 48 inches.**

First Beau Brummel. Foaled 1914. Exhibited by Mrs. Wm. P. Roth.
Second Honey Boy. Exhibited by R. E. Homer.

Ponies under Saddle, 48 inches and not over 52 inches.

First Little Boy Blue. Sire, Charmeran Pearine. Dam, Peekie. Exhibited by Mrs. Charlotte B. Anderson.

Ponies under Saddle, 52 inches and not over 56 inches.

First Hassan. Foaled 1910. Exhibited by Mrs. Charlotte B. Anderson.

Pony in harness, not over 48 inches.

First Beau Brummel. Foaled 1914. Exhibited by Mrs. Wm. P. Roth.
Second Honey Boy. Exhibited by R. E. Homer.

Pony in Harness, 48 inches and not over 52 inches.

First Lady. Exhibited by Merritt-Bowers Co.
Second Little Boy Blue. Sire, Charmeran Pearine. Dam, Peekie. Exhibited by Mrs. Charlotte B. Anderson.

Pony in Harness, 52 inches and not over 56 inches.

First Hassan. Exhibited by Mrs. Charlotte B. Anderson.

Jack Stock.**Jacks, four years old or over.**

First Dixie Boy 19172. Exhibited by Merritt-Bowers Co.

Jacks, three years old and under.

First Joe Warrior 24968. Exhibited by Merritt-Bowers Co.

Riding and Driving Horses—Performance Class.**SADDLE HORSES. FIVE GAITED.****Five-Gaited Saddle Stallions, four years old or over.**

First The Nobleman 6375. Exhibited by Mrs. Charlotte B. Anderson.
Second Head Master 8437. Exhibited by Revel Lindsay English.
Third Solano 8003. Exhibited by R. L. English.

Five-Gaited Saddle Mare, four years old or over.

First Betty Dare. Exhibited by San Vicente Rancho.
Second Celia L. Exhibited by Mrs. Wm. P. Roth.
Third Bobbie Lee. Exhibited by H. C. Ahlers.

Five-Gaited Saddle Geldings, four years old or over.

First King Hamilton 4565. Exhibited by Wm. A. Alderson.
Second Marksman. Exhibited by Donald Clayton.
Third Cochise 7031. Exhibited by Dr. T. J. Cox.

Five-Gaited Saddle Mare or Gelding, any age.

First King Hamilton 4565. Exhibited by Wm. A. Alderson.
Second Betty Dare. Exhibited by San Vicente Rancho.
Third Celia L. Exhibited by Mrs. Wm. P. Roth.

Champion Stallion, Mare, or Gelding.

First The Nobleman 6375. Exhibited by Mrs. Charlotte B. Anderson.
Second Celia L. Exhibited by Mrs. Wm. P. Roth.
Third King Hamilton 4565. Exhibited by W. A. Alderson.

Consolation Prizes.

First	Bobbie Lee.	Exhibited by H. C. Ahlers.
Second	Cochise 7031.	Exhibited by Dr. T. J. Cox.

SADDLE HORSES. THREE GAITED.**Three-Gaited Saddle Mare or Gelding, 15.2 hands or over.**

First	Bruce McDonald 6372.	Exhibited by H. C. Ahlers.
Second	Iola Chieftain.	Exhibited by Tom Mason.
Third	Santa Monica 12875.	Exhibited by Mrs. Ethel B. D. Anderson.

Three-Gaited Saddle Mare or Gelding, under 15.2.

First	Confidence.	Exhibited by R. L. English.
Second	Hazel Dean 11218.	Exhibited by T. C. Jefferson.
Third	King Pat.	Exhibited by Major J. A. Joyce.

Three-Gaited Saddle Mare or Gelding, ridden by lady.

First	Bruce McDonald.	Exhibited by H. C. Ahlers.
Second	Betti o a 13208.	Exhibited by R. L. English.
Third	Sunflash.	Exhibited by W. S. Palmer.

Mare or Gelding, 14.2 and not over 15 hands, ridden by girl or boy eighteen years or under.

First	Earl. Sire, Lord Denmark.	Dam, Dixie Queen.	Exhibited by Mrs. Clare Babington.
Second	Arababa.	Exhibited by Captain G. Z. Willing.	
Third	Sure Shot. Sire, Conner.	Exhibited by Tim Anspach.	

Champions.

First	Bruce McDonald.	Exhibited by H. C. Ahlers.
Second	Hazel Dean 11218.	Exhibited by T. C. Jefferson.
Third	Iola Chieftain.	Exhibited by Tom Mason.

Consolation Prize.

First	Redstone.	Exhibited by San Vicente Rancho.
Second	Sunflash.	Exhibited by W. S. Palmer.

Combination Horses—Riding and Driving.**FIVE GAITED.****Stallions, any age.**

First	The Nobleman 6375.	Exhibited by Mrs. Charlotte B. Anderson.
Second	Solano 8003.	Exhibited by R. L. English.
Third	Goldie Rex. Sire, Don Castano 8631.	Dam, Doly Rex. Exhibited by F. J. Bork.

Mare or Gelding, any age.

First	King Hamilton 4565.	Exhibited by Wm. A. Alderson.
Second	Celia L.	Exhibited by Mrs. Wm. P. Roth.
Third	Betty Dare. Sire, My Mayor Dare.	Exhibited by San Vicente Rancho.

THREE GAITED.**Mare or Gelding, any age.**

First	Confidence.	Exhibited by R. L. English.
Second	Bruce McDonald 6372.	Exhibited by H. C. Ahlers.
Third	Iola Chieftain.	Exhibited by Tom Mason.

HIGH SCHOOL SADDLE HORSES.**Stallion, Mare or Gelding, showing all High School Gaits.**

First	Hassan.	Exhibited by Mrs. Charlotte B. Anderson.
Second	Peaches.	Exhibited by Captain G. Z. Willing.

CALIFORNIA STOCK HORSES.**Best California Stock Horse, over 14.3 hands.**

First	Dollie D.	Exhibited by Walter Dunning.
Second	Rex.	Exhibited by Merritt-Bowers Co.
Third	Unnamed.	Exhibited by Merritt-Bowers Co.

Best California Stock Horse, 14.3 hands or under.

First	Chappo.	Exhibited by S. H. Cowell.
Second	Unnamed.	Exhibited by T. F. Millerick.
Third	Sureshot.	Exhibited by Tim Anspach.

NOVELTY HARNESS HORSES.**Best Harness Team, rig and equipment.**

First Prince George 856. Exhibited by Mrs. Ethel B. D. Anderson
 Second Cremona Lady 1236. Exhibited by Mrs. Ethel B. D. Anderson.

Best Novelty Single Horse, rig and equipment.

First Woodcliff Surprise 3410. Exhibited by Danziger and Spalding.
 Second Prince George 856. Exhibited by Mrs. Ethel B. D. Anderson.

Tandem, three years old or over.

First Prince George 856. Exhibited by Mrs. Ethel B. D. Anderson.
 Kildare. Sire, Squire of Chester 9876. Dam, Nancy Lee 3771. Exhibited by Mrs. Ethel B. D. Anderson.

Work Teams.**DRAFT HORSES IN HARNESS.****Four-horse Team.**

First Exhibited by Merritt-Bowers Co.
 Second Exhibited by O. H. Brandt.

Two-horse Team.

First Exhibited by O. H. Brandt.
 Second Exhibited by Merritt-Bowers Co.

Single Horse.

First Exhibited by O. H. Brandt.
 Second Exhibited by Merritt-Bowers Co.

Match Team of Four California-bred Mules, each mule to weigh 1200 pounds or over.

First Exhibited by Merritt-Bowers Co.

Matched Span, California-bred Mules, each to weigh 1200 pounds.

First Exhibited by Merritt-Bowers Co.
 Second Exhibited by Merritt-Bowers Co.

NIGHT HORSE SHOW**PERFORMANCE CLASS.**

JUDGE—H. G. BUCKNER.

Light Hunters, 165 pounds, 4 hurdles. (\$150.)

First San Vicente Rancho, Sawtelle,
 Second Los Angeles Riding Academy
 Third R. L. English, Chino,

Nancy Parker.
 Fly.
 Altadena.

Musical Chairs. (\$80.)

First R. L. Williams, Tulare.
 Second Jack Marsh, Livermore.
 Third Tim Anspach, Sacramento.

Polo Pony. (\$90.)

First Los Angeles Riding Academy,
 Second Jim Anspach, Sacramento,
 Third Mrs. C. Babington, San Francisco,

Fly.
 Sure Shot.
 Earl.

Ladies' Hunters, 4 hurdles. (\$150.)

First Major C. S. Caldwell,
 Second Major K. A. Joyce,
 Third R. L. English,

King of Air.
 Bugs.
 Altadena.

Three-Gaited, ridden in pairs. (\$225.)

First H. C. Ahlers and W. J. Palmer.
 Second San Vicente Rancho,
 Third Cecil George Rancho,

Bruce McDonald and Mate.
 Peg-O-Neil and Mate.
 Hazeldean and Tommy Lad.

High Jumps. (\$150.)

Tie	J. Voigt, Shannon,	King.
Tie	R. L. English,	Altadena.
Tie	Major C. S. Caldwell,	King of Air.

Ponies, Driving Class. (\$50.)

Driven by boy or girl, 16 years old or younger.

First	Miss M. Anderson,	Little Boy Blue.
Second	Merritt-Bowers,	Lady.
Third	Mrs. Wm. Roth.	

Light Horse—Heavy Harness Class. (\$125.)

First	Mrs. Ethel Anderson,	Prince George and Lady Cremona.
Second	Mrs. Ethel Anderson,	Kildare and Santa Monica.

Heavy Hunter up to 200 pounds, 4 hurdles. (\$150.)

First	R. L. English,	Boulder.
Second	Major C. S. Caldwell,	King of Air.
Third	Major K. A. Joyce,	Bugs.

Polo Novice Class. (\$90.)

First,	Tim Anspach,	Sure Shot
Second	Los Angeles Riding Academy.	
Third	Los Angeles Riding Academy.	

State Fair Special—Three Gaited Saddle Class. (\$275.)

First	H. C. Ahlers,	Bruce McDonald.
Second	R. L. English,	Confidence.
Third	Thos. Jefferson,	Hazel Dean.

Musical Chairs. Ladies. (\$90.)

First	A. W. Pike,	Goldie Rex.
Second	Geraldine Bowers.	
Third	Mrs. E. Cox.	

State Fair Special—Five Gaited. (\$350.)

First	Mrs. C. B. Anderson,	Nobleman.
Second	W. A. Alderson,	King Hamilton.
Third	Mrs. W. P. Roth,	Celia L.

Roadster Driving Class. Single. (\$105.)

First	R. L. English,	Carlona.
Second	R. L. English,	Senator Flint.
Third	Thos. Mason,	Oala-Chieftain.

Jumping in pairs, 4 hurdles. (\$150.)

First	Major K. A. Joyce and Mrs. E. Cox,	Bugs and Monterey.
Second	Major K. A. Joyce and Lt. Col. A. McClure,	Smoke Creek and King Pat.
Third	San Vicente Rancho,	Nancy Parker and Robin Hood.

Officers' Chargers. (\$100.)

First	Major K. A. Joyce,	Bugs.
Second	Col. Van Agnew,	Monterey.
Third	Lt. Col. A. McClure,	Smoke Creek.

Riding in pairs, Five Gaited.

First	Mr. Fately and R. L. English.	Betty Dave and Cochise.
Second	San Vicente Rancho,	The Nobleman and Bobbie Lee.
Third	H. C. Ahlers,	

Officers' Jumping Contest. (\$55.)

First	Lt. Col. A. McClure,	Smoke Creek.
Second	Major K. A. Joyce,	Bugs.
Third	Major C. S. Caldwell,	

Artillery Horses. Matched Team. (\$40.)

First	Col. R. Van Agnew,	Sunset and Sunrise.
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Musical Chairs. (\$30.)

First	Thos. Mason.
Second	Tim Anspach.
Third	F. Bork.

Champion Polo Pony. (\$225.)

First Los Angeles Riding Academy,
 Second Los Angeles Riding Academy,
 Third Tim Anspach,

Fly.
 Lala.
 Sure Shot

Musical Chairs. Ladies. \$30.)

First Miss Geraldine Bowers.
 Second Miss Pike.
 Third Miss A. Morris.

General Utility Riding Horse. (\$80.)

First Major K. A. Joyce,
 Second Lt. Col. McClure,
 Third Major K. A. Joyce,

Bugs.
 Smoke Creek.
 King Pat.

Army Riding Cavalry Horse. (\$100.)

First Lt. Col. A. McClure,
 Second Major K. A. Joyce,
 Third Major K. A. Joyce,

Smoke Creek.
 Bugs.
 King Pat.

Jumping. Open Class. (\$75.)

First Capt. G. Z. Willing,
 Second Los Angeles Riding Academy,
 Third Major K. A. Joyce,

Peaches.
 Shannon King.
 King Pat.

Musical Chairs. Children. (\$17.50.)

First J. Keefe.
 Second E. Hart.
 Third Miss M. Anderson.

BEEF CATTLE.

JUDGE—T. E. ROBSON.

Exhibitors:

Caledonia Farms, West Sacramento, California.
 W. M. Carruthers, Live Oak, California.
 Thos. B. Dibblee, Lompoc, California.
 Edinger-Johnston Co., Hood, California.
 Henry M. Elberg, Woodland, California.
 T. S. Glide, Davis, California.
 Thomas T. Miller, Hollister, California.
 H. L. and E. H. Murphy, Perkins, California.
 Pacheco Cattle Co., Hollister, California.
 B. F. Rush, Suisun, California.
 Straloch Farm, Woodland, California.
 Howard Vaughn, Dixon, California.
 Warm Creek Land and Livestock Co., Wells, Nevada.

Shorthorns.**Bulls, three years old or over.**

First Corston Masher (Imp.) 988642. Exhibited by Warm Creek Livestock and Land Co.
 Second Scottish Lord 776030. Exhibited by T. S. Glide.
 Third Right Sort Jr. 830864. Exhibited by Howard Vaughn.
 Fourth Dalmeny Count 723901. Exhibited by Pacheco Cattle Co.

Bulls, two years old and under three.

First Cheerful Count 779893. Exhibited by T. S. Glide.
 Second Malmr Matchless 826763. Exhibited by Thos. T. Miller.
 Third Count's Baron 837538. Exhibited by W. M. Carruthers.

Senior Yearling Bulls.

First Pacheco Lad 215th 882537. Exhibited by Pacheco Cattle Co.
 Second Pine Grove King 21st 965868. Exhibited by Caledonia Farms.
 Third King's Count 929148. Exhibited by T. S. Glide.
 Fourth Roan Champion 848742. Exhibited by Henry M. Elberg.

Junior Yearling Bulls.

First Caledonia King 2d 965856. Exhibited by Caledonia Farms.
 Second Straloch Adjutant 1020069. Exhibited by Straloch Farm.
 Third Missie's Parkdale 926384. Exhibited by Henry M. Elberg.
 Fourth Star of Cluny 967665. Exhibited by Estate of Thos. B. Dibblee.
 Fifth Knight Avon 967662. Exhibited by Estate of Thos. B. Dibblee.
 Sixth Victoria's Gallant 951812. Exhibited by Warm Creek Land and Livestock Co.

Senior Bull Calf.

First	The Caledonia. Sire, Imp. Caledonia 648263. Dam, Rosa Cumberland 2d 723143. Exhibited by Caledonia Farms.
Second	Caledonia Marshall. Sire, Imp. Caledonia 648263. Dam, Elmendorf Heiress. Exhibited by Caledonia Farms.
Third	Rosie's Champion 1018308. Exhibited by Henry M. Elberg.
Fourth	Hillcrest Lord 996436. Exhibited by T. S. Glide.
Fifth	Royal Crescent 967663. Exhibited by Estate of Thos. B. Dibblee.
Sixth	Stamp of Milmar. Sire, Imp. Secret Stamp 680762. Dam, Queen of Scots 764801. Exhibited by Thos. T. Miller.

Junior Bull Calf.

First	Helmsman. Sire, Sultan Mayflower 402251. Dam, Village Pride 2d 206777. Exhibited by Straloch Farm.
Second	Matchless King. Sire, Gainford Matchless 814439. Dam, Pine Grove Duchess 2d 697735. Exhibited by Caledonia Farms.
Third	Unnamed calf. Sire, Milmar Stamp 680762. Dam, Danseuse of Paicines 64570. Exhibited by Edinger-Johnston Co.
Fourth	Missie's Masher. Sire, Corston Masher (Imp.) 988635. Dam, Missie Lass 628030. Exhibited by Warm Creek Land and Livestock Co.
Fifth	Missie's Masher 2d. Sire, Corston Masher (Imp.) 988635. Dam, Missie Lass 2d 801100. Exhibited by Warm Creek Land and Livestock Co.
Sixth	Unnamed Calf. Sire, Milmar Stamp 680762. Dam, Roan Cloverleaf 726270. Exhibited by Edinger-Johnston Co.

Cows, three years old or over, with calf.

First	Little Sweetheart 578263. Exhibited by T. S. Glide.
Second	Pacheco Lass 118th 596230. Exhibited by Pacheco Cattle Co.
Third	Hope (Imp.) 988641. Exhibited by Warm Creek Land and Livestock Co.

Cows, three years old or over, without calf.

First	Glenbessie 3d 627348. Exhibited by Caledonia Farms.
Second	Village Lassie 779923. Exhibited by T. S. Glide.
Third	Sweet Rose 665202. Exhibited by Warm Creek Land and Livestock Co.

Cows, two years old and under three.

First	White Pacheco 800461. Exhibited by Pacheco Cattle Co.
Second	Pacheco Doris 800459. Exhibited by Pacheco Cattle Co.
Third	Village Rose 817890. Exhibited by T. S. Glide.
Fourth	California Orange 814180. Exhibited by H. L. and E. H. Murphy.

Senior Yearling Heifer.

First	Crescent Lady 848744. Exhibited by Henry M. Elberg.
Second	Sultan's Dale 756207. Exhibited by Pacheco Cattle Co.
Third	King's Honour 965901. Exhibited by Caledonia Farms.
Fourth	Oakdale Beauty 926118. Exhibited by Straloch Farm.

Junior Yearling Heifer.

First	Nevada Hope 988643. Exhibited by Warm Creek Land and Livestock Co.
Second	Pacheco Doris 2d 940833. Exhibited by Pacheco Cattle Co.
Third	Glenbrook's Memory 43d 965895. Exhibited by Caledonia Farms.
Fourth	Sultan's Bessie 965914. Exhibited by Caledonia Farms.
Fifth	Princess Royal 892803. Exhibited by Estate of Thos. B. Dibblee.
Sixth	Silver Rosebud 1016795. Exhibited by Straloch Farm.

Senior Heifer Calf.

First	Lady Ruberta 2d. Sire, Hallwood Villager 495521. Dam, Lady Ruberta 562992. Exhibited by Wm. M. Carruthers.
Second	Caledonia Queen. Sire, Imp. Caledonia 648263. Dam, Herdsman's Queen 127355. Exhibited by Caledonia Farms.
Third	Caledonia Bud. Sire, Imp. Caledonia 648263. Dam, Pine Grove Bud 697733. Exhibited by Caledonia Farms.
Fourth	Straloch Maria. Sire, California Model 635776. Dam, Mistress Maria 555332. Exhibited by Straloch Farm.
Fifth	Sweet Golden Rose 951825. Exhibited by Warm Creek Land and Livestock Co.
Sixth	White Wilmar 967698. Exhibited by Thos. T. Miller.

Junior Heifer Calf.

First	Caledonia Mischief 2d. Sire, Imp. Caledonia 648263. Dam, Mischief E. 3d 139495. Exhibited by Caledonia Farms.
Second	Village Rose 2d. Sire, Scottish Lord 776030. Dam, Village Rose 817890. Exhibited by T. S. Glide.
Third	Marchy's Lass. Sire, Pacheco Lad 58th 492754. Dam, Pacheco Lass 65th 206336. Exhibited by Pacheco Cattle Co.
Fourth	Roan Lady 2d. Sire, Royal Knight 731449. Dam, Live Oak Roan Lady 837357. Exhibited by W.M. Carruthers.
Fifth	Village Lassie 2d. Sire, Scottish Lord 776030. Dam, Village Lassie 779923. Exhibited by T. S. Glide.
Sixth	Mayfield Ury 2d. Sire, Hallwood Villager 496621. Dam, Mayfield Ury 59850. Exhibited by W. M. Carruthers.

Aged Herd.

First Exhibited by T. S. Glide.
 Second Exhibited by Pacheco Cattle Co.

Breeder's Young Herd.

First Exhibited by Pacheco Cattle Co.
 Second Exhibited by Caledonia Farms.
 Third Exhibited by T. S. Glide.
 Fourth Exhibited by Estate of Thos. B. Dibblee.

Calf Herd.

First Exhibited by Caledonia Farms.
 Second Exhibited by Caledonia Farms.
 Third Exhibited by T. S. Glide.
 Fourth Exhibited by Estate of Thos. B. Dibblee.

Get of Sire.

First Get of Count Amaranth 516030. Exhibited by T. S. Glide.
 Second Get of Pacheco Lad 58th 429754. Exhibited by Pacheco Cattle Co.
 Third Get of Imp. Caledonia 648263. Exhibited by Caledonia Farms.
 Fourth Get of Imp. Caledonia 648263. Exhibited by Caledonia Farms.

Produce of Dam.

First Produce of Pine Grove Duchess 2d 697735. Exhibited by Caledonia Farms.
 Second Produce of Pacheco Lass 65th 206336. Exhibited by Pacheco Cattle Co.
 Third Produce of Princess Royal 697782. Exhibited by Estate of Thos. B. Dibblee.
 Fourth Produce of Pacheco Lass 43d 179929. Exhibited by Pacheco Cattle Co.

Senior Champion Bull.

Corston Masher (Imp.) 988635. Exhibited by Warm Creek Land and Livestock Co.

Junior Champion Bull.

Pacheco Lad 215th 882537. Exhibited by Pacheco Cattle Co.

Senior Champion Cow.

Little Sweetheart 578263. Exhibited by T. S. Glide.

Junior Champion Cow.

Caledonia Mischief 2d. Sire, Imp. Caledonia 648263. Dam, Mischief E. 3d 139495. Exhibited by Caledonia Farms.

Grand Champion Bull.

Pacheco Lad 215th 882537. Exhibited by Pacheco Cattle Co.

Grand Champion Cow.

Little Sweetheart 578263. Exhibited by T. S. Glide.

Herefords.**Exhibitors:**

H. A. Baldwin, Pleasanton, California.
 H. M. Barngrover, Taylorsville, California.
 William Briggs and Son, Dixon, California.
 John Bunting, Jr., Mission San Jose, California.
 John H. Cazier and Sons Company, Wells, Nevada.
 W. D. Duke, care H. H. Gable, Esparto, California.
 G. W. Emmons, Danville, California.
 H. H. Gable, Esparto, California.
 C. S. Howard, Willits, California.
 L. C. Marshall, Vaeaville, California.
 Mission Hereford Farm, Mission San Jose, California.
 E. A. Noyes and Son, Sutter, California.
 R. C. Jacks, Monterey, California.

Bulls, three years or over.

First Pacific Corker 638823. Exhibited by E. A. Noyes and Son.
 Second Woodford 34th 720742. Exhibited by Ronnie C. Jacks.
 Third Junior Grove 697794. Exhibited by G. W. Emmons.

Bulls, two years old and under three.

First The Peer 970000. Exhibited by Mission Hereford Farm.
 Second Lincoln Domino 818449. Exhibited by Wm. Briggs and Son.
 Third Yolo Fairfax 829459. Exhibited by W. D. Duke.
 Fourth Bar N. King 789188. Exhibited by E. A. Noyes and Son.
 Fifth Beau Blanchard 94th 847606. Exhibited by H. M. Barngrover.

Senior Yearling Bulls.

First Louis Fairfax 859094. Exhibited by H. H. Gable.
 Second The Anxiety 3d 868899. Exhibited by H. A. Baldwin.
 Third Crimean 1st 869779. Exhibited by Ronnie C. Jacks.

Junior Yearling Bulls.

First Blanchard 1st 922197. Exhibited by John H. Cazier and Sons Co.
 Second Don Domino 977616. Exhibited by H. A. Baldwin.
 Third Colorado Fairfax 914516. Exhibited by C. S. Howard.
 Fourth Sir Blanchard 2d 948932. Exhibited by John H. Cazier and Sons Co.
 Fifth Milo Corker 952507. Exhibited by E. A. Noyes and Son.

Senior Bull Calf.

First Blanchard 4th 991869. Exhibited by John H. Cazier and Sons Co.
 Second Blanchard 6th 991870. Exhibited by John H. Cazier and Sons Co.
 Third Mission Wing 975661. Exhibited by John Bunting, Jr.
 Fourth Glenwood. Exhibited by Ronnie C. Jacks.
 Fifth Solano Prince. Dam, Lassen Queen. Exhibited by L. C. Marshall.

Junior Bull Calf.

First Mission Van 1013210. Exhibited by Mission Hereford Farm.
 Second Red Rupert 1004565. Exhibited by Wm. Briggs and Son.
 Third Blanchard 10th 1016200. Exhibited by John H. Cazier and Sons Co.
 Fourth Dominant 1004563. Exhibited by Wm. Briggs and Son.
 Fifth Marvel Pride 15th 987169. Exhibited by G. W. Emmons.

Cows, three years old or over.

First Bocaldo Beauty 720837. Exhibited by R. C. Jacks.
 Second Beauty 2d 473259. Exhibited by E. A. Noyes and Son.
 Third Normalene 774015. Exhibited by H. H. Gable.
 Fourth Anxiety Fairfax 514904. Exhibited by H. H. Gable.

Cows, two years old and under three.

First Belle Donald 21st 784586. Exhibited by C. S. Howard.
 Second Ruth Domino 814903. Exhibited by R. C. Jacks.
 Third Miss Rupert 8th 820631. Exhibited by R. C. Jacks.
 Fourth Miss Era 14th 788227. Exhibited by Wm. Briggs and Son.
 Fifth Belle Grove 828217. Exhibited by R. C. Jacks.

Senior Yearling Heifers.

First Carnation 4th 888713. Exhibited by John H. Cazier and Sons.
 Second Miss Donald 33d 893320. Exhibited by Wm. Briggs and Son.
 Third Pansy Domino 886138. Exhibited by H. A. Baldwin
 Fourth Miss C 32d 868141. Exhibited by Mission Hereford Farm.
 Fifth Miss Mansell 159th 883856. Exhibited by C. S. Howard.

Junior Yearling Heifers.

First Standard Eyes 4th 922204. Exhibited by John H. Cazier and Sons Co.
 Second Aurora 2d 959909. Exhibited by John H. Cazier and Sons Co.
 Third Miss Donald 34th 893329. Exhibited by Wm. Briggs and Son.
 Fourth Lady Fairfax 20th 903306. Exhibited by C. S. Howard
 Fifth Jennie Disturber 952504. Exhibited by E. A. Noyes and Son.

Senior Heifer Calf.

First Aloha 2d 986087. Exhibited by John H. Cazier and Sons Co.
 Second Miss Defiance 7th 991884. Exhibited by John H. Cazier and Sons Co.
 Third Miss Dare 20th 972534. Exhibited by Wm. Briggs and Son.
 Fourth Lucille Domino 972533. Exhibited by Wm. Briggs and Son.
 Fifth Oneida 4th 969158. Exhibited by H. A. Baldwin

Junior Heifer Calf.

First Bonnie 3d 991876. Exhibited by John H. Cazier and Sons Co.
 Second I. B. A. Mischief 1014345. Exhibited by E. A. Noyes and Son.
 Third Nevada 6th 1016208. Exhibited by John H. Cazier and Sons Co.
 Fourth Mission Fleda 1013205. Exhibited by Mission Hereford Farm.
 Fifth Domino Princess 1004562. Exhibited by Wm. Briggs and Son.

Aged Herd.

First Exhibited by R. C. Jacks.
 Second Exhibited by E. A. Noyes and Son.

Breeder's Young Herd.

First Exhibited by John H. Cazier and Sons Co.

Calf Herd.

First	Exhibited by John H. Cazier and Sons Co.
Second	Exhibited by John H. Cazier and Sons Co.
Third	Exhibited by Mission Hereford Farm.
Fourth	Exhibited by R. D. Jacks.

Get of Sire.

First	Get of Blanchard 76th 685487.	Exhibited by John H. Cazier and Sons Co.
Second	Get of Anxiety Fairfax 686631.	Exhibited by Mission Hereford Farm.
Third	Get of Pacific Corker 638823.	Exhibited by E. A. Noyes and Son.
Fourth	Get of Woodford 34th 720742.	Exhibited by R. C. Jacks.

Produce of Dam.

First	Produce of Standard Eyes 645535.	Exhibited by John H. Cazier and Sons.
Second	Produce of Miss Hattie 473834.	Exhibited by E. A. Noyes and Son.
Third	Produce of Bernice 461110.	Exhibited by Mission Hereford Farm.
Fourth	Produce of Patricia Splawn 565896.	Exhibited by H. H. Gable.
Fifth	Produce of Rose Donald 546227.	Exhibited by R. C. Jacks.

Senior Champion Bull.

The Peer 970000. Exhibited by Mission Hereford Farm.

Junior Champion Bull.

Blanchard 1st 922197. Exhibited by John H. Cazier and Sons Co.

Senior Champion Cow.

Bocaldo Beauty 720837. Exhibited by R. C. Jacks.

Junior Champion Cow.

Standard Eyes 4th 922209. Exhibited by John H. Cazier and Sons Co.

Grand Champion Bull.

Blanchard 1st 922197. Exhibited by John H. Cazier and Sons Co.

Grand Champion Cow.

Bocaldo Beauty 720837. Exhibited by R. C. Jacks.

Aberdeen Angus.

JUDGE—F. W. VAN NATTA

Bulls, two years old and under three

First Electo 317954. Exhibited by Jas. Marwick.

Bulls, Senior Calf.

First Ellwood of Braemar 338765. Exhibited by Jas. Marwick.

Second Eugene of Braemar 338766. Exhibited by Jas. Marwick.

Bulls, Junior Calf.

First Mariposa Eric. Sire, Plato Pride 2d 174068. Exhibited by Fred B. McCay

Cows, three years old or over.

First Belinda of Doonholm 317953. Exhibited by Jas. Marwick.

Second Energica 317951. Exhibited by Jas. Marwick.

Third Equatora 317952. Exhibited by Jas. Marwick.

Senior Champion Bull.

Electo 317954. Exhibited by Jas. Marwick.

Junior Champion Bull.

Mariposa Eric. Sire, Plato Pride 2d 174068. Exhibited by Fred B. McCay

Senior Champion Cow.

Belinda of Doonholm 317953. Exhibited by Jas. Marwick.

Grand Champion Bull.

Electo 317954. Exhibited by Jas. Marwick.

Grand Champion Cow.

Belinda of Doonholm 317953. Exhibited by Jas. Marwick

FAT CATTLE.**STEERS—ANY BREED, PUREBRED OR GRADE.****One year and under two.**

First	Count's Lass. Exhibited by W. M. Carruthers.
Second	One entry. Exhibited by G. W. Emmons.
Third	Heather Boy. Exhibited by Fred B. McCay.

Under one year.

First	Villager's Success. Exhibited by W. M. Carruthers.
Second	One entry. Exhibited by Straloch Farm.
Third	Mission Bill 975655. Exhibited by Mission Hereford Farm.
Fourth	Warm Creek Lad. Exhibited by Warm Creek Land and Livestock Company.

Champion Steer.

Villager's Success. Exhibited by W. M. Carruthers.

Car Lot Steers.

First	Exhibited by Elder Creek Ranch.
Second	Exhibited by Kern County Land Company. Three-year-olds.
Third	Exhibited by Kern County Land Company. Yearlings.

DAIRY CATTLE.**HOLSTEIN-FRIESIAN.**

JUDGE—H. H. KILDEE.

Exhibitors:

Manuel Azavedo & Sons, Patterson, California.
 H. G. Ball, Tulare, California.
 Dr. H. N. Belgium, Richmond, California.
 Smith H. Bibens, R. F. D. Box 307, Modesto, California.
 California George Junior Republic, Chino, California.
 Edward Charters, Woodland, California.
 J. M. Christen, Martinez, California.
 Del Paso Heights Stock and Swine Breeders' Association, Del Paso Heights, California.
 V. F. Dolcini, Davis, California.
 Evelyn Foster, Petaluma, California.
 E. F. Gleason, San Juan Bautista, California.
 W. J. Higdon, Tulare, California.
 R. L. Holmes, Box 536, Modesto, California.
 August Lauchert, Galt, California.
 Jouquia Lucio, Tulare, California.
 Palo Alto Stock Farm, Palo Alto, California.
 Thelma Peterson, Petaluma, California.
 The McCloud River Lumber Company, McCloud, California.
 Sierra Vista Stock Ranch, Perris, California.
 Six Brothers Dairy, Turlock, California.
 Clay Stammerjohan, Turlock, California.
 Katie Stammerjohan, Turlock, California.
 Loney Stammerjohan, Turlock, California.
 Reuben Stammerjohan, Turlock, California.
 Stella Stammerjohan, Turlock, California.
 William Stammerjohan, Turlock, California.
 D. E. J. Weldon, Sacramento, California.

Bulls, three years old or over.

First	Dichter Spofford Korndyke Lad 5th 201546. Exhibited by California George Junior Republic.
Second	Bonita Sir Cornucopia Glista 256830. Exhibited by Del Paso Heights Stock and Swine Breeders' Association.
Third	Inkon Fraski De Kol 222391. Exhibited by H. A. Stammerjohan.

Bulls, two years old and under three.

First	Prince Bonnie Walker 276787. Exhibited by Joaquia Lucio.
Second	Sir Ormsby-Skylark Rauwerd 273665. Exhibited by Sierra Vista Stock Farm.

Senior Yearling Bulls.

First	Colonel Pride Walker 333632. Exhibited by H. G. Ball.
Second	King Tora Pontiac Prilly 301060. Exhibited by Manuel Azavedo & Sons.
Third	Sir Wase De Kol. Sire, Sir Imperial Snowball 133247. Dam, June Acres De Kol. Exhibited by V. F. Dolcini.
Fourth	McCloud Jewel Ormsby Canary 330791. Exhibited by The McCloud River Lumber Company.

Junior Yearling Bulls.

- First Dichter Spofford Korndyke Lad 6th. Sire, Dichter Spofford Korndyke Lad 5th 201456. Dam, Geneva. Sadie Vale Pontiac 416417. Exhibited by California George Junior Republic.
- Second King Korndyke Leda Pontiac 316443. Exhibited by W. J. Higdon.
- Third Sir June Acres Aaggie Mead. Sire, Sir Aaggie De Kol Mead. Dam, Tagus Korndyke Sadie Vale Della 406785. Exhibited by V. F. Dolcini.
- Fourth Unnamed calf. Sire, King Korndyke Pontiac 20th 188174. Dam, Prilly Luce Meadmore Segis 485442. Exhibited by H. G. Ball.
- Fifth Prince Walker Alcartra 321261. Exhibited by J. M. Christen.

Senior Bull Calf.

- First Republic Spofford Ida Lyons. Exhibited by California George Junior Republic.
- Second Unnamed. R. L. Holmes.
- Third Sir June Acres Aaggie Mercedes. Exhibited by V. F. Dolcini.
- Fourth S. V. Ormsby Pontiac Goldrop. Exhibited by Sierra Vista Stock Farm.
- Fifth Palo Pontiac Farolica. Exhibited by Palo Alto Stock Farm.

Junior Bull Calf.

- First San Juan Ignaro Burke. Exhibited by E. F. Gleason.
- Second S. V. Ormsby Aralia Walker. Exhibited by Sierra Stock Ranch.
- Third Sir June Acres Alcartra Contentment. Exhibited by V. F. Dolcini.
- Fourth Sir June Acres Alcartra Netherland. Exhibited by V. F. Dolcini.
- Fifth Unnamed calf. Exhibited by R. L. Holmes.

Cow, four years old or over.

- First Ida Lotta Winnifred Burke 346266. Exhibited by R. L. Holmes.
- Second Yama Princess Alcartra Lass 236726. Exhibited by Manuel Azavedo and Son.
- Third Juliana Darington of Rock 337396. Exhibited by California George Junior Republic.
- Fourth Snowflake Juliana Fobes of Rock 574562. Exhibited by California George Junior Republic.
- Fifth Clothilde Korndyke 296907. Exhibited by Manuel Azavedo and Sons.

Cow, three years and under four.

- First Ida De Kol Pearl Lyons 471032. Exhibited by California George Junior Republic.
- Second Prilly Luce Meadmore Segis 485442. Exhibited by H. G. Ball.
- Third Talima De Kol Ormsby 453350. Exhibited by J. M. Christen.
- Fourth Stena Alta Pietertje Posch 534712. Exhibited by E. F. Gleason.
- Fifth McCloud Parthena Bonheur 543286. Exhibited by The McCloud River Lumber Company.

Cow, two years and under three.

- First Colina Snowflake Korndyke. Sire, Dichter Spofford Korndyke Lad 5th 201546. Dam, Snowflake Juliana Fobes of Rock 574562. Exhibited by California George Junior Republic.
- Second Queen Korndyke Prilly 571158. Exhibited by W. J. Higdon.
- Third Lady Dichter Juliana 471030. Exhibited by California George Junior Republic.
- Fourth McCloud Bess Bonheur 542948. Exhibited by The McCloud River Lumber Company.
- Fifth Bos Butter Girl De Kol Pledge 546385. Exhibited by Manuel Azavedo and Sons.

Senior Yearling Heifer.

- First Lady Pontiac Walker Zenobia 628618. Exhibited by H. G. Ball.
- Second Charlotte Bonnie Pontiac 599042. Exhibited by W. J. Higdon.
- Third Ida Lotta Winifred Burke 2d 599039. Exhibited by W. J. Higdon.
- Fourth Hughson Jane Aaggie De Kol 587464. Exhibited by Six Brothers Dairy.
- Fifth Lady Attica Rag Apple Prilly 546388. Exhibited by Manuel Azavedo and Sons.

Junior Yearling Heifer.

- First Juliana Dichter Fobes of Rock. Exhibited by California George Junior Republic.
- Second Dame Korndyke Pontiac Lillith 599043. Exhibited by W. J. Higdon.
- Third Pieterje. Exhibited by Katie Stammerjohan.
- Fourth Rag Apple Aaggie Acme 590934. Exhibited by Wm. Stammerjohan.
- Fifth Talima Hengerveld Giista 579741. Exhibited by J. M. Christen.

Senior Heifer Calf.

- First Doris Nephela Pontiac. Exhibited by California George Junior Republic.
- Second Unnamed calf. Sire, King Mead Aralia Burke 253808. Dam, Pauline Piet Ormsby Maid 489707. Exhibited by Smith H. Bibens.
- Third Unnamed calf. Sire, Hiske Senorita 232084. Dam, Erna Wietske Maid 515500. Exhibited by Stella Stammerjohan.
- Fourth June Acres Aaggie. Exhibited by V. F. Dolcini.
- Fifth Alta Carnation Pride 630844. Exhibited by Palo Alto Stock Farm.

Junior Heifer Calf.

- First Unnamed calf. Exhibited by R. L. Holmes.
- Second Unnamed calf. Sire, Lone Oak Terzool Korn 222168. Dam, Ferne Pontiac Ruby Burke 388939. Exhibited by Loney Stammerjohan.
- Third Unnamed calf. Sire, Sir Aaggie De Kol Acme 2d 221668. Dam, Segis Ormsby Pieterje 2d 153735. Exhibited by H. G. Ball.
- Fourth June Acres Alcartra Orizaba. Exhibited by V. F. Dolcini.
- Fifth Juliana Spofford Korndyke. Exhibited by California George Junior Republic.

Cow having official yearly record (confirmation and record to count).

First Juliana Darington of Rock 337396. Exhibited by California George Junior Republic.

Aged Herd.

First Exhibited by California George Junior Republic.

Breeder's Young Herd.

First Exhibit by California George Junior Republic.

Second Exhibit by Manuel Azavedo and Sons.

Calf Herd.

First Exhibited by V. F. Doleini.

Second Exhibit by Six Brothers Dairy.

Get of Sire.

First Get of Dichter Spofford Korndyke Lad 5th 201546. Exhibited by California George Junior Republic.

Second Get of King Korndyke Pontiac 20th 188174. Exhibited by W. J. Higdon.

Third Get of Sir Aaggie Korndyke Mead 286134. Exhibited by V. F. Dolcini.

Fourth Get of Segis Pontiac Abbekirk. Exhibited by R. L. Holmes.

Produce of Dam.

First Produce of Snowflake Juliana Fobes of Rock 574562. Exhibited by California George Junior Republic.

Second Produce of Model Bonnie Echo 171035. Exhibited by W. J. Higdon.

Third Produce of Meadmore Prilly Queen. Exhibited by H. G. Ball.

Fourth Produce of Lady Pontiac's Zenobia 318034. Exhibited by H. G. Ball.

Senior Champion Bull.

Dichter Spofford Korndyke Lad 5th 201546. Exhibited by California George Junior Republic.

Junior Champion Bull.

San Juan Ignaro Burke. Sire, King Mead Analia Furke 253808. Dam, Princess Ignaro Netherland 47218
Exhibited by E. F. Gleason.

Senior Champion Cow.

Ida Lotta Winnifred Burke 346266. Exhibited by R. L. Holmes.

Junior Champion Cow.

Juliana Dichter Fobes of Rock. Exhibited by California George Junior Republic.

Grand Champion Bull.

Dichter Spofford Korndyke Lad 5th 201546. Exhibited by California George Junior Republic.

Grand Champion Cow.

Ida Lotta Winnifred Burke 346266. Exhibited by R. L. Holmes.

Jerseys.

JUDGE—L. W. WING, JR.

Exhibitors:

John Bruce, Galt, California.
Austin Clark, Orland, California.
Marguerite Conant, Modesto, California.
Anna May Conoly, Orland, California.
A. Cruikshanks, Sacramento, California.
Ernest Forbes, Orland, California.
M. Fortini, Orland, California.
Wm. Gibson, Galt, California.
E. E. Greenough, Merced, California.
S. Leigh Howard, Merced, California.
Charley Krause, Orland, California.
Max Krause, Orland, California.
Guy H. Miller, Modesto, California.
Harold Mordecai, Petaluma, California.
Norman Neal, Petaluma, California.
Newton M. Peterson, Sebastopol, California.
Oscar B. Peterson, Sebastopol, California.
J. H. Sawyer, Galt, California.
Mae A. Sawyer, Galt, California.
Seavy and Son, Galt, California.
Mildred Seavy, Galt, California.
P. N. Smith, Florin, California.
J. E. Thorp, Lockeford, California.
Hugh G. Van Pelt, Waterloo, Iowa (by J. H. Sawyer, Galt, California).

Bulls, three years old or over.

- First Jolly Senator Raleigh 144508. Exhibited by J. E. Thorp.
 Second Jap's Perfection Owl 160572. Exhibited by Guy H. Miller.

Bulls, two years old and under three.

- First Bidy's King of Mossdale 175127. Exhibited by J. E. Thorp.

Senior Yearling Bull.

- First Fairy Boy of Mossdale 187132. Exhibited by J. E. Thorp.
 Second Financial Corrector 186421. Exhibited by Hugh G. Van Pelt.

Junior Yearling Bull.

- First Sir Lancelet of Tintagel 187002. Exhibited by P. N. Smith.
 Second Ramona's Perfection Owl 186895. Exhibited by Guy H. Miller.
 Third King's Fresno Buttercups King of L. 186978. Exhibited by J. E. Thorp.
 Fourth Noble Dulect King 2d 195469. Exhibited by Max Krause.
 Fifth Jap's Foxy Owl 195580. Exhibited by Guy H. Miller.

Senior Bull Calf.

- First King Mark of Tintzel. Sire, Nobel Dulect King 160581. Dam, Silverine Pearl's Duchess 363607. Exhibited by M. Fortini.
 Second Lora's Undulata. Sire, Algy's Undulata Oxford 160531. Dam, Heroine's Lora 368969. Exhibited by Ernest Forbes.
 Third Orlando of Tintagel. Sire, Dairy Maid's Gay Prince 135705. Dam, Jewel of Tintagel 451901. Exhibited by M. Fortini.
 Fourth King of Mossdale, Jr. Sire, Bidy's King of Mossdale 175127. Dam, Bonnie of Mossdale 423309. Exhibited by J. E. Thorp.
 Fifth Golden Lucy's Belleview Dick 197042. Exhibited by A. Cruikshanks.

Junior Bull Calf.

- First King's Tip of Mossdale 197508. Exhibited by J. E. Thorp.
 Second Blonde Beauty's King. Sire, King's Bo. King of L. 186976. Dam, Blonde Beauty of S. B. 239050. Exhibited by Seavey and Son.
 Third Lucille's Owl. Sire, Jap's Perfection Owl 160572. Dam, Lucile of Venadera 387911. Exhibited by Guy H. Miller.
 Fourth Unnamed calf. Sire, Countess Lad's Chieftain 170848. Dam, Derreen's Empress 431243. Exhibited by J. H. Sawyer.

Cows, four years old or over.

- First Salome of Mossdale 262021. Exhibited by J. E. Thorp.
 Second Valet's Fresno Lemola of L. 295707. Exhibited by J. H. Sawyer
 Third Silvermine Pearl's Duchess 363607. Exhibited by M. Fortini.
 Fourth Nomie of Mossdale 363674. Exhibited by J. E. Thorp
 Fifth Gladys of Venadera 208695. Exhibited by Guy H. Miller.

Cows, three years and under four.

- First Bonnie of Mossdale 423309. Exhibited by J. E. Thorp.
 Second Fair Salome of Mossdale 423308. Exhibited by J. E. Thorp.
 Third Ada of Venadera 418374. Exhibited by Guy H. Miller.
 Fourth Goldie's Nehalem Cowslip 441262. Exhibited by J. E. Thorp.

Cows, two years and under three.

- First Jewel of Tintagel 451901. Exhibited by M. Fortini.
 Second Oxford Nora's Daisy 487161. Exhibited by J. E. Thorp.
 Third Gladys of Mossdale 449405. Exhibited by J. E. Thorp.
 Fourth Diana of Venadera 449226. Exhibited by Guy H. Miller.
 Fifth Laurie of Venadera 465750. Exhibited by Guy H. Miller.

Senior Yearling Heifers.

- First Goldie's Dame Onota 482517. Exhibited by J. H. Sawyer.
 Second Girlie of Mossdale 483541. Exhibited by J. E. Thorp.
 Third Jolly Emerita of Mossdale 483543. Exhibited by J. E. Thorp.
 Fourth Sonny's Blossom of Mossdale 483544. Exhibited by Mildred Seavy.
 Fifth Violet's Betty Fox 494098. Exhibited by J. N. Henry.

Junior Yearling Heifers.

- First Ramona of Mossdale 483545. Exhibited by J. E. Thorp.
 Second Pearl of Willowood 3d 506298. Exhibited by Charley Krause.
 Third Verna of Venadera. Exhibited by Irwin Hayworth.
 Fourth Emblem of Venadera 483016. Exhibited by Guy H. Miller.
 Fifth Fox's Sunshine Betty 492952. Exhibited by Marguerite Conant.

Senior Heifer Calves.

First	Wardress of Mossdale 511659. Exhibited by J. E. Thorp.
Second	The Gay Princess of Tintagel. Sire, Dairy Maid's Gay Prince 135705. Dam, Noble Peer's Jewel 317142. Exhibited by M. Fortini.
Third	The Briar Rose of Tintagel. Sire, Stockwell's Masterpiece 147869. Dam, Croydon's Estelle Fox 268837. Exhibited by M. Fortini.
Fourth	King's Daisy of Mossdale 511657. Exhibited by J. E. Thorp.
Fifth	Carmen of Venadera. Sire, Jap's Perfection Owl 160572. Dam, Gladys of Venadera 293695. Exhibited by Guy H. Miller.

Junior Heifer Calves.

First	King's Miss of Mossdale 511660. Sire, Biddy's King of Mossdale 175127. Exhibited by J. E. Thorp.
Second	Violet's Induction of Waikiki 510516. Exhibited by Oscar B. Peterson.
Third	Waikiki Indiana Girl 510515. Exhibited by Newton M. Peterson.
Fourth	Signet of Venadera. Sire, Jap's Perfection Owl 160572. Dam, Signora of Venadera 314384. Exhibited by Guy H. Miller.
Fifth	Unnamed calf. Sire, King's Bo King of L. 186976. Dam, Valet's Grace Dereen of L. 295703. Exhibited by J. H. Sawyer.

Cow Having Official Yearly Record.

First	Salome of Mossdale 262021. Exhibited by J. E. Thorp.
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Aged Herd.

First	Exhibit by J. E. Thorp.
Second	Exhibit by Guy H. Miller.
Third	Exhibit by J. E. Thorp.

Breeder's Young Herd.

First	Exhibit by J. E. Thorp.
Second	Exhibit by Guy H. Miller.

Calf Herd.

First	Exhibit by J. E. Thorp.
Second	Exhibit by Guy H. Miller.

Get of Sire.

First	Get of Biddy's King of Mossdale 175127. Exhibited by J. E. Thorp.
Second	Get of Jap's Perfection Owl 160572. Exhibited by Guy H. Miller.
Third	Get of Jolly Senator Raleigh 144508. Exhibited by J. E. Thorp.
Fourth	Get of Altama Interest 98466. Exhibited by Guy H. Miller.

Produce of Dam.

First	Produce of Noble Peer's Jewel 317142. Exhibited by M. Fortini.
Second	Produce of Benedito of Venadera. Exhibited by J. E. Thorp.
Third	Produce of Salome of Mossdale. Exhibited by J. E. Thorp.
Fourth	Produce of Gladys of Venadera 293695. Exhibited by Guy H. Miller.

Dairy Herd.

First	Exhibit by J. E. Thorp.
Second	Exhibit by Guy H. Miller.

Senior Champion Bull.

Jolly Senator Raleigh 144508. Exhibited by J. E. Thorp.

Junior Champion Bull

King Mark of Tintagel. Exhibited by M. Fortini.

Senior Champion Cow.

Salome of Mossdale 262021. Exhibited by J. E. Thorp.
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Junior Champion Cow.

Golde's Dame Onota 482517. Exhibited by J. H. Sawyer.

Grand Champion Bull.

Jolly Senator Raleigh 144508. Exhibited by J. E. Thorp.

Grand Champion Cow.

Salome of Mossdale 262021. Exhibited by J. E. Thorp.
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Guernseys.

JUDGE—L. W. WING, JR.

Exhibitors:

Brant Rancho, Owensmouth, California.
 Calla Grove Farm, Manteca, California.
 Loring Farnam, Ojai, California.
 A. B. Humphrey, Escalon, California.
 Leonard Estate Company, Grants Pass, Oregon.
 James Marwick, Santa Barbara, California.
 Palo Alto Stock Ranch, Palo Alto, California.
 L. D. Smith, Hydesville, California.

Bull, three years old or over.

First Nobleman of Maple Hill 54986. Exhibited by A. B. Humphrey.
 Second May King of Fern Ridge 17432. Exhibited by Brant Rancho.
 Third Argie's Prince 41398. Exhibited by Palo Alto Stock Farm.
 Fourth Nella Girl's Diamond of Pencoyd 51592. Exhibited by Leonard Estate Company.
 Fifth Mysie's Lady of Claremont 49832. Exhibited by L. D. Smith.

Bull, two years and under three.

First Itchen Daisy's King of Revada 68466. Exhibited by Brant Rancho.
 Second Babe's Boy of Claremont 60325. Exhibited by L. D. Smith.

Bull, Senior Yearling.

First Claremont's Renown 67727. Exhibited by L. D. Smith.

Bull, Junior Yearling.

First May Day of the Rancho 73860. Exhibited by Brant Rancho.
 Second Escalon Rex 65263. Exhibited by A. B. Humphrey.
 Third Angus King of Hollow Hill Farm 70801. Exhibited by Loring Farnam.
 Fourth Claremont Don 65391. Exhibited by L. D. Smith.

Bull, Senior Calf.

First Escalon Fancy Lad 72940. Exhibited by A. B. Humphrey.
 Second Noble King of the Rancho 73861. Exhibited by Brant Rancho.
 Third Escalon Bopeep's Pride 72941. Exhibited by A. B. Humphrey.
 Fourth Escalon Bullion 72942. Exhibited by A. B. Humphrey.
 Fifth Claremont Chief. Sire, Babe's Boy of Claremont 60325. Dam, Mysie's Moon of Claremont 75834. Exhibited by L. D. Smith.

Bull, Junior Calf.

First Golden Glow of the Rancho 73862. Exhibited by Brant Rancho.
 Second Rube Langdon of Hollow Hill Farm 72277. Exhibited by Jas. Marwick.
 Third Escalon Itchen Prince. Sire, Itchen Daisy Blanch of Revada. Dam, Princess Glynn of Revada 72881. Exhibited by A. B. Humphrey.
 Fourth River Banks Bonny Jay. Sire, Nella Girl's Diamond of Pencoyd 51592. Dam, Sunny Lady of River Banks Farms 99381. Exhibited by Leonard Estate Co.
 Fifth River Banks Jay Lyons. Sire, Nella Girl's Diamond of Pencoyd 51592. Dam, Lady Lyons of Bon Ayre 47660. Exhibited by Leonard Estate Co.

Cows, four years old or over.

First Sylvia of Frankland 64380. Exhibited by Brant Rancho.
 Second Red Lady of Sunnyside Farm 47475. Exhibited by Leonard Estate Co.
 Third Princess of Meadowbrook 25185. Exhibited by Brant Rancho.
 Fourth Golden Anne's Fairy 31904. Exhibited by A. B. Humphrey.
 Fifth Red Lady of River Banks Farms 71652. Exhibited by Leonard Estate Co.

Cows, three years and under four.

First Revada Lily Bell 81707. Exhibited by A. B. Humphrey.
 Second Little Queen of the Rancho 82373. Exhibited by Brant Rancho.
 Third Queen of Claremont 93930. Exhibited by L. D. Smith.

Cows, two years and under three.

First Escalon Lassie 90087. Exhibited by A. B. Humphrey.
 Second Elsie of the Rancho 2d 120790. Exhibited by Brant Rancho.
 Third Sunny Lady of River Banks Farms 99381. Exhibited by Leonard Estate Co.
 Fourth Mysie's Hope of Claremont 2d 98220. Exhibited by L. D. Smith.

Heifers, Senior Yearling.

First Mayhew's Bonnie Lass 102630. Exhibited by A. B. Humphrey.
 Second Imp. River Banks Valentine 115903. Exhibited by Leonard Estate Co.
 Third Jeannie of the Rancho 120791. Exhibited by Brant Rancho.
 Fourth Pet of the Rancho 98780. Exhibited by Brant Rancho.
 Fifth Pearl Souffle of Revada 110497. Exhibited by A. B. Humphrey.

Heifers, Junior Yearling.

First	Imp. Osceola Misty Morn 106196. Exhibited by Leonard Estate Co.
Second	Felois Tungsten Priscilla 106861. Exhibited by Brant Rancho.
Third	Claremont Mollie 106328. Exhibited by L. D. Smith.
Fourth	Escalon Queen 106784. Exhibited by A. B. Humphrey.
Fifth	May of Claremont 104012. Exhibited by L. D. Smith.

Heifers, Senior Calves.

First	Escalon Pearl 119136. Exhibited by A. B. Humphrey.
Second	Imp. Osceola Water Lily 109947. Exhibited by Leonard Estate Co.
Third	Fascination of the Rancho 120786. Exhibited by Brant Rancho.
Fourth	Escalon Marigold. Sire, Nobleman of Maple Hill 54086. Dam, Calla Grove Merry May 85552. Exhibited by A. B. Humphrey.
Fifth	Melissa's Queen of the Rancho 120784. Exhibited by Brant Rancho.

Junior Heifer Calves.

First	Escalon Naomi 119138. Exhibited by A. B. Humphrey.
Second	Fenix of the Rancho 120788. Exhibited by Brant Rancho.
Third	River Banks Nella Girl. Sire, Nella Girl's Diamond of Pencoyd 51592. Dam, Council Grove of Bon Ayre 44614. Exhibited by Leonard Estate Co.
Fourth	May King's Rosemary of the Rancho 120787. Exhibited by Brant Rancho.
Fifth	Escalon Phillis 115813. Exhibited by A. B. Humphrey.

Cow Having Official Yearly Record.

First	Princess of Meadowbrook 25185. Exhibited by Brant Rancho.
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Aged Herd.

First	Exhibit by Brant Rancho.
Second	Exhibit by A. B. Humphrey.
Third	Exhibit by Leonard Estate Co.

Breeder's Young Herd.

First	Exhibit by Brant Rancho.
Second	Exhibit by A. B. Humphrey.
Third	Exhibit by L. D. Smith.

Calf Herd.

First	Exhibit by A. B. Humphrey.
Second	Exhibit by Brant Rancho.
Third	Exhibit by L. D. Smith.

Get of Sire.

First	Get of Nobleman of Maple Hill 54086. Exhibited by A. B. Humphrey.
Second	Get of Bullion of Edgemoor 34510. Exhibited by A. B. Humphrey.
Third	Get of May King of Fernridge 17432. Exhibited by Brant Rancho.
Fourth	Get of Squire of Greenacre 47810. Exhibited by L. D. Smith.

Produce of Dam.

First	Produce of Yeoman's Hayes Felois 24199. Exhibited by Brant Rancho.
Second	Produce of Escalon Bopeep 82204. Exhibited by A. B. Humphrey.
Third	Produce of Red Lady of Sunnyside Farm 47475. Exhibited by Leonard Estate Co.
Fourth	Produce of Mysie's Lady of Claremont 66500. Exhibited by L. D. Smith.

Dairy Herd.

First	Exhibit by Brant Rancho.
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Senior Champion Bull.

Nobleman of Maple Hill 54086. Exhibited by A. B. Humphrey.
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Junior Champion Bull.

Escalon Fancy Lad 72940. Exhibited by A. B. Humphrey.

Senior Champion Cow.

Sylvia of Frankland 64380. Exhibited by Brant Rancho.

Junior Champion Cow.

Escalon Naomi 119138. Exhibited by A. B. Humphrey.
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Grand Champion Bull.

Nobleman of Maple Hill 54086. Exhibited by A. B. Humphrey.
--

Grand Champion Cow.

Sylvia of Frankland 64380. Exhibited by Brant Rancho.

Ayrshires.**OPEN CLASS. FREE FOR ALL.**

JUDGE—H. H. KILDEE.

Exhibitors:

S. Loughbridge Ranch (R. E. Talbot, Mgr.), Grants Pass, Oregon.
 Elkhorn Farm, Watsonville, California.
 Lathrop Bros., Grants Pass, Oregon.
 A. MacMinn, Phoenix, Arizona.
 E. B. McFarland, San Francisco, California.
 E. Wyndham, Redding, California.

Bulls, three years old or over.

First Willowmoor Ben Hur 24th 21246. Exhibited by Lathrop Bros.

Bulls, two years old and under three.

First Elkhorn Masterpiece 22986. Exhibited by Elkhorn Farm.
 Second David of Shasta 25019. Exhibited by E. Wyndham.
 Third Prince Rupert of Grants Pass 26287. Exhibited by S. Loughbridge Ranch.

Bulls, Junior Yearling.

First Elkhorn Pilot 24643. Exhibited by Elkhorn Farm.

Bulls, Senior Calf.

First Elkhorn Ben 25994. Exhibited by Elkhorn Farm.
 Second Sentinel of Shasta 26263. Exhibited by E. Wyndham.
 Third Sunnybrook Jim 25703. Exhibited by Lathrop Bros.

Bulls, Junior Calf.

First Elkhorn Rover 25995. Exhibited by Elkhorn Farm.
 Second Oregon. Sire, Willowmoor Ben Hur 24th 21246. Dam, Lovelock 33944. Exhibited by Lathrop Bros.
 Third Tanglewyl Duke of Ayr 26265. Sire, Sir Colin of Fernbrook 58578. Dam, Tanglewyl Duchess 68027. Exhibited by E. Wyndham.

Cows, four years old or over.

First Highland Ithan 35763. Exhibited by Elkhorn Farm.
 Second Polly Puss 3d 29177. Sire, Finlayston 8882. Dam, Polly Puss 29177. Exhibited by Elkhorn Farm.
 Third Aggie of Darrock 68019. Exhibited by E. Wyndham.
 Fourth Tanglewyl Princess 2d 68022. Exhibited by E. Wyndham.
 Fifth Blossom of Sunny Brook 43528. Exhibited by Lathrop Bros.

Cows, two years and under three.

First Blossom's Mickey of Sunny Brook 58698. Exhibited by Lathrop Bros.

Senior Yearling Heifers.

First Elkhorn Heathflower 2d 60182. Exhibited by Elkhorn Farm.
 Second Elkhorn Princess 58990. Exhibited by Elkhorn Farm.
 Third Ben's Lady of Sunny Brook 63369. Exhibited by Lathrop Bros.
 Fourth Shasta's Dream 63986. Exhibited by E. Wyndham.
 Fifth Maid of Shasta 62987. Exhibited by E. Wyndham.

Junior Yearling Heifer.

First Elkhorn Polly Puss 63697. Exhibited by Elkhorn Farm.
 Second Sunny Brook May 63370. Exhibited by Lathrop Bros.

Senior Heifer Calf.

First Elkhorn Bonnie Queen 65208. Exhibited by Elkhorn Farm.
 Second Elkhorn Bonnie Bell 65209. Exhibited by Elkhorn Farm.
 Third Darling of Shasta 66426. Exhibited by E. Wyndham.
 Fourth Blossom's Mollie of Sunny Brook 66311. Exhibited by Lathrop Bros.
 Fifth Mickey's Lottie of Sunny Brook 66310. Exhibited by Lathrop Bros.

Junior Heifer Calf.

First Elkhorn Thistledown A. Sire, Penhurst Statesman 18721. Dam, Thistledown Hobslan 3d 40585. Exhibited by Elkhorn Farm.
 Second Elkhorn Blue Bell. Sire, Penhurst Statesman 18721. Dam, Barons Blue Bell 49556. Exhibited by Elkhorn Farm.
 Third Judy. Sire, Willowmoor Ben Hur 24th 21246. Dam, Red Beauty of Sunny Brook 58696. Exhibited by Lathrop Bros.
 Fourth Tanglewyl Princess 5th 68030. Exhibited by E. Wyndham.
 Fifth Flo. Sire, Willowmoor Ben Hur 24th 21246. Dam, Helen's Fannie of Sunny Brook 58697. Exhibited by Lathrop Bros.

Cow Having Official Yearly Record.

First Polly Puss 3d 29177. Exhibited by Elkhorn Farm.

Breeder's Young Herd.

First Exhibit by Elkhorn Farm.
 Second Exhibit by E. Wyndham.
 Third Exhibit by Lathrop Bros.

Calf Herd.

First Exhibit by Elkhorn Farm.
 Second Exhibit by Lathrop Bros.

Get of Sire.

First Get of Penhurst Statesman 18721. Exhibited by Elkhorn Farm.
 Second Willowmoor Sentinel 25th 16851. Exhibited by E. Wyndham.
 Third Get of Willowbrook Ben Hur 24th 21246. Exhibited by Lathrop Bros.

Produce of Dam.

First Produce of Netherton Queen 2d 54630. Exhibited by Elkhorn Farm.
 Second Produce of Willowmoor Heathflower D 42931. Exhibited by Elkhorn Farm.
 Third Produce of Blossom of Sunny Brook 43528. Exhibited by Lathrop Bros.
 Fourth Produce of Modiste 2d of Clover Home 22914. Exhibited by E. Wyndham.

Senior Champion Bull.

Elkhorn Masterpiece 22986. Exhibited by Elkhorn Farm.

Junior Champion Bull.

Elkhorn Pilot 24643. Exhibited by Elkhorn Farm.

Senior Champion Cow.

Highland Ithan 35763. Exhibited by Elkhorn Farm.

Junior Champion Cow.

Elkhorn Bonnie Queen 65208. Exhibited by Elkhorn Farm.

Grand Champion Bull.

Elkhorn Pilot 24643. Exhibited by Elkhorn Farm.

Grand Champion Cow.

Highland Ithan 35763. Exhibited by Elkhorn Farm.

Dairy Shorthorn.

JUDGES—R. E. ROBSON, L. E. CARTER.

Exhibitors:

Alexander and Kellogg (by J. D. Rowe & Sons), Davis, California.
 Thos. Harrison, Santa Rosa, California.
 W. T. Roberts, Penngrove, California.

Bulls, two years and under three.

First Count Tickford 738427. Exhibited by Thos. Harrison.
 Second Innisfail Favorite 803321. Exhibited by Alexander and Kellogg.

Junior Yearling Bulls.

First Innisfail Perfecter. Sire, Kelmescott Viscount 19th 592367. Dam, Bellone Daisy 117853. Exhibited by Alexander and Kellogg.
 Second Innisfail Roan 1005513. Exhibited by Alexander and Kellogg.

Senior Bull Calf.

First Snow White. Sire, Westward Ho 615484. Dam, Carperby Dairymaid 2d 594416. Exhibited by Alexander and Kellogg.
 Second Santa Rosa Viscount 971991. Exhibited by Thos. Harrison.
 Third King Viscount 971988. Exhibited by Thos. Harrison.

Junior Bull Calf.

First Count Crystal. Sire, Count Tickford 738427. Dam, Kirklevington Maid 696870. Exhibited by Thos. Harrison.
 Second Count Marshall. Sire, Count Tickford 738427. Dam, Dairy Maid 207104. Exhibited by Thos. Harrison.
 Third Snowdrop. Sire, Glenside Royal 408155. Dam, Glenside Fern 152956. Exhibited by Alexander and Kellogg.
 Fourth Unnamed calf. Sire, Innisfail Favorite 803321. Dam, Betty Clay 775685. Exhibited by Alexander and Kellogg.

Cows, four years old or over.

First	Bellevue Daisy 117853. Exhibited by Alexander and Kellogg.
Second	Princess Clay 172165. Exhibited by Alexander and Kellogg.
Third	Alma 577635. Exhibited by Alexander and Kellogg.
Fourth	Miss Utility 207109. Exhibited by Thos. Harrison.

Cows, three years and under four.

First	Welfare's Belle 712670. Exhibited by Thos. Harrison.
Second	Innisfail Dairymaid 775688. Exhibited by Alexander and Kellogg.

Cows, two years and under three.

First	Frantic Girl 792551. Exhibited by Thos. Harrison.
Second	Gypsy Girl 810368. Exhibited by Alexander and Kellogg.
Third	Valley Belle 6th 775692. Exhibited by Alexander and Kellogg.

Senior Yearling Heifer.

First	Lovely Perfection 927567. Exhibited by Thos. Harrison.
Second	Valley Belle 7th 936285. Exhibited by Alexander and Kellogg.

Junior Yearling Heifer.

First	Roan Bess. Sire, Bond's Gallant 603420. Dam, Clara Belle 701425. Exhibited by W. T. Roberts.
Second	Innisfail Daisy 2d 1003532. Exhibited by Alexander and Kellogg.

Senior Heifer Calf.

First	Innisfail Betty. Sire, Kelmescott Viscount 19th 592367. Dam, Bessborough Blondie 13th 592101. Exhibited by Alexander and Kellogg.
Second	Innisfail Betty Jane. Sire, Kelmescott Viscount 19th 592367. Dam, Greenhill Susan 220999. Exhibited by Alexander and Kellogg.

Junior Heifer Calf.

First	Santa Rosa Butterfly. Sire, Count Tickford 738426. Dam, Frantic Girl 792551. Exhibited by Thos. Harrison.
Second	Santa Rosa Pearl. Sire, Count Tickford 738426. Dam, Welfare's Belle 712670. Exhibited by Thos. Harrison.
Third	Innisfail Evelyn. Sire, Innisfail Favorite 803321. Dam, Buttercups Beauty 683621. Exhibited by Alexander and Kellogg.
Fourth	Innisfail Daisy 3d. Sire, Innisfail Favorite 803321. Dam, Innisfail Daisy 3 83622. Exhibited by Alexander and Kellogg.

Cow Having Official Yearly Record.

First	Bellevue Daisy 117853. Exhibited by Alexander and Kellogg.
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Aged Herd.

First	Exhibit by Thos. Harrison.
Second	Exhibit by Alexander and Kellogg.

Breeder's Young Herd.

First	Exhibit by Alexander and Kellogg.
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Calf Herd.

First	Exhibit by Alexander and Kellogg.
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Get of Sire.

First	Get of Count Tickford 738426. Exhibited by Thos. Harrison.
Second	Get of Westward Ho 615484. Exhibited by Alexander and Kellogg.
Third	Get of Kelmescott Viscount 19th 592367. Exhibited by Alexander and Kellogg.

Produce of Dam.

First	Produce of Laurel Frantic 32d 123926. Exhibited by Thos. Harrison.
Second	Produce of Carperby Dairymaid 2d 594416. Exhibited by Alexander and Kellogg.
Third	Produce of Innisfail Daisy 683622. Exhibited by Alexander and Kellogg.
Fourth	Produce of Valley Belle 5th 574075. Exhibited by Alexander and Kellogg.

Dairy Herd.

First	Exhibit by Alexander and Kellogg.
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Senior Champion Bull.

Count Tickford 738427. Exhibited by Thos. Harrison.

Junior Champion Bull.

Count Crystal. Exhibited by Thos. Harrison.

Senior Champion Cow.

Bellevue Daisy 117853. Exhibited by Alexander and Kellogg.

Junior Champion Cow.

Santa Rosa Butterfly. Exhibited by Thos. Harrison.

Grand Champion Bull.

Count Tickford 738427. Exhibited by Thos. Harrison.

Grand Champion Cow.

Bellevue Daisy 117853. Exhibited by Alexander and Kellogg.

DAIRY CATTLE.**Production Class.****THREE DAYS' BUTTER FAT.**

JUDGE—F. W. WEBB, Superintendent of Dairy Test.

Cows, four years or over.

First Juliana Darington of Rock 337396. Exhibited by California George Junior Republic.
 Second McCloud Reinsechje Korndyke 356213. Exhibited by McCloud River Lumber Co.

Cows, thirty months and under four years.

First Ada of Venadera 418374. Exhibited by Guy H. Miller.
 Second McCloud Parthena Bonheur 543286. Exhibited by McCloud River Lumber Co.
 Third Revada Lily Bell 81707. Exhibited by A. B. Humphrey.
 Fourth Bonnie of Mossdale 423309. Exhibited by J. E. Thorp.

Cows, under thirty months.

First McCloud Bess Bonheur 542498. Exhibited by McCloud River Lumber Co.
 Second New Era of M. 483539. Exhibited by John Bruce.
 Third Laurie of Venadera 465750. Exhibited by Guy H. Miller.
 Fourth Girlie of Mossdale 483541. Exhibited by J. E. Thorp.

Cow Testing.

JUDGE—L. W. WING, JR.

Cows, grade or common, any age or breed.

First Helen. Exhibited by J. N. Dimmich.
 Second Blue Bell. Exhibited by J. N. Dimmich.

Cows, purebred, or registered, any age or breed.

First Sylvia of Frankland 64380. Exhibited by Brant Rancho.
 Second Little Queen of the Rancho 82373. Exhibited by Brant Rancho.
 Third La Vелlette's Katrina of L. 399034. Exhibited by J. H. Sawyer.

GOATS.

JUDGE—CHAS. P. DE LANGLE, M. D.

Milk Goats.**PUREBRED ANGLO-NUBIAN, REGISTERED.****Exhibitors:**

H. Irwin Farr, 178 Loma Alto avenue, Los Gatos, California.
 Mrs. C. E. Ward, 3863 Fourth avenue, Sacramento, California.

Doe, two years old or over.

First San Josie 2d 4167. Exhibited by H. Irwin Farr.

Doe, one year old and under two, not in milk.

First A. B.'s Holly 10576. Exhibited by Mrs. C. E. Ward.
 Second A. B.'s Camellia Pansy 10575. Exhibited by Mrs. C. E. Ward.

Doe, under one year.

- First Gem City Star P. 2166. Exhibited by H. Irwin Farr.
 Second Gem City Beauty P. 2165. Exhibited by H. Irwin Farr.
 Third Gem City Heide. Sire, Scottwood Zorab 2777. Dam, San Josie 2d 4167. Exhibited by H. Irwin Farr.

Two Does, same age, get of same buck.

- First Exhibited by Mrs. C. E. Ward. A. B.'s Holly 10576 and A. B.'s Camellia Pansy 10575.
 Second Exhibited by H. Irwin Farr. Gem City Beauty P. 2165 and Gem City Star P. 2166.

Matured Doe, shown with two of her kids, both since January 1, 1921.

- First San Josie 2d. Exhibited by H. Irwin Farr.

Senior Champion.

San Josie 2d 4167. Exhibited by H. Irwin Farr.

Junior Champion.

Gem City Star P. 2166. Exhibited by H. Irwin Farr.

PUREBRED SAANEN, REGISTERED.**Exhibitors:**

L. A. Bridinger, Santa Rosa, California.
 Alice M. Brown, 2015 C street, Sacramento, California.
 Margaret P. Dean, Walnut Creek, California.
 H. F. Schinker, Route 1, Box 103, Los Angeles, California.
 L. I. Schinker, Los Angeles, California.

Doe, two years old or over.

- First Alba Virginia of Three Oaks 4141. Exhibited by Alice M. Brown.
 Second Bralef Lenore 4836. Exhibited by L. A. Bridinger.
 Third Bralef Herma 4838. Exhibited by H. A. Bridinger.

Doe, one year old and under two, in milk.

- First Bralef Harvest Echo 7886. Exhibited by L. A. Bridinger.
 Second Bralef Sweet Blossom 7888. Exhibited by L. A. Bridinger.

Doe, under one year.

- First Bella of Three Oaks 12121. Exhibited by H. F. Schinker.
 Second Susan of Three Oaks 12119. Exhibited by L. I. Schinker.
 Third Bralef Susan 12344. Exhibited by L. A. Bridinger.

Two Does, same age, get of same buck.

- First Exhibited by H. F. and L. I. Schinker.
 Second Exhibited by L. A. Bridinger.
 Third Exhibited by L. A. Bridinger.

Matured Doe Shown with two of her kids born since January 1, 1921.

- First Bralef Schwanli 1380. Exhibited by L. A. Bridinger.

Senior Champion.

Alba Virginia of Three Oaks 4141. Exhibited by Alice M. Brown.

Junior Champion.

Bella of Three Oaks 12121. Exhibited by H. F. Schinker.

PUREBRED TOGGENBURG REGISTERED.**Exhibitors:**

Alice M. Brown, Sacramento, California.
 Mrs. C. K. Harder, North Sacramento, California.
 Richards and Wagner, San Mateo, California.
 Miss H. A. Wood, Pasadena, California.
 M. D. Woodruff, Paradise, California.
 Mrs. B. M. Gantz, Santa Barbara, California.

Doe, two years old or over.

- First Capella 2d De Las Cabritas 2554. Exhibited by Richards and Wagner.
 Second El Chivar's Fanella 2687. Exhibited by M. D. Woodruff.
 Third Capellita De Las Cabritas 2555. Exhibited by Richards and Wagner.

Doe, one year old and under two, not in milk.

- First Idylwild Fanibell 7254. Exhibited by M. D. Woodruff.
 Second Las Cabritas Benina 7962. Exhibited by Richards and Wagner.
 Third Idylwild Fanette 7253. Exhibited by M. E. Woodruff.

Doe, one year old and under two, in milk.

First Las Cabritas Sorelli III 7957. Exhibited by Richards and Wagner.
 Second Idylwild Jewel 7256. Exhibited by M. D. Woodruff.

Doe under one year.

First Los Cabrilas Iris 12448. Exhibited by Mrs. B. M. Gantz.
 Second Bona Vista Fanette 12504. Exhibited by M. D. Woodruff.
 Third Las Cabritas Quinta 12449. Exhibited by Richards and Wagner.

Two does, same age, get of same buck.

First Exhibited by Richards and Wagner.
 Second Exhibited by Miss H. A. Wood.
 Third Exhibited by M. D. Woodruff.

Matured doe, shown with two of her kids born since January 1, 1921.

First Exhibited by M. D. Woodruff.
 Second Exhibited by Richards and Wagner.

Senior Champion.

Capella 2d De Las Cabritas 2554. Exhibited by Richards and Wagner.

Junior Champion.

Los Cabrilas Iris 12448. Exhibited by Mrs. B. M. Gantz.

GRADES ANGLO-NUBIAN. AMERICAN PUREBREDS, 31/32.**Exhibitors:**

L. A. Bridinger, Santa Rosa, California.
 Margaret P. Dean, Walnut Creek, California.
 Irwin Farr, Los Gatos, California.
 Sacramento Goat Farm, Sacramento, California.
 Oswald M. Toomey, Sacramento, California.
 Mrs. C. E. Ward, Sacramento, California.

Doe, kid.

First Gem City Cleonette P. 2167 I. N. B. A. Exhibited by H. Irwin Farr.

Doe, two years old or over.

First Bralef Mawi 4847. Exhibited by L. A. Bridinger.
 Second Salome of Oakdene 4703. Exhibited by Margaret P. Dean.
 Third Bralef Celia 3206. Exhibited by L. A. Bridinger.

Doe, yearling.

First Camellia Anoka G. 1588 I. N. B. A. Exhibited by Mrs. C. E. Ward.
 Second Scheherezade of Oakdene 11049. Exhibited by Margaret P. Dean.
 Third Thetis of Oakdene 6848. Exhibited by Margaret P. Dean.

Doe, Kid.

First Hemjune of Oakdene. Exhibited by Margaret P. Dean.
 Second Premier Edna 2113. Exhibited by Oswald M. Toomey.
 Third Reads Caro G. 2431. Exhibited by Sacramento Goat Farm.

GRADES SAANEN. AMERICAN PUREBRED 31/32.**Exhibitors:**

L. A. Bridinger, Santa Rosa, California.
 Mrs. L. P. Lommel, Napa, California.

Doe, two years old or over.

First Bralef Pollyana 1798. Exhibited by L. A. Bridinger.
 Second Lady Edelweiss' Gladys. Sire, King Franz 915. Dam, Lady Edelweiss. Exhibited by Mrs. L. P. Lommel.
 Third Bralef Mawi 4847. Exhibited by L. A. Bridinger.

Doe, Yearling.

First Bralef Prunella 7897. Exhibited by L. A. Bridinger.
 Second Lady Genevet's Cynthia 13018. Exhibited by L. P. Lommel.
 Third Bralef Pollyana 7899. Exhibited by L. A. Bridinger.

Doe, Kid.

First Bralef Eleanor 12349. Exhibited by L. A. Bridinger.
 Second Bralef Magnolia 23460. Exhibited by L. A. Bridinger.
 Third Lommel's Biela 13184. Exhibited by Mrs. L. P. Lommel.

GRADES TOGGENBURG. AMERICAN PUREBRED 31/32.

Exhibitors:

A. W. Archer, Stockton, California.
 Alice M. Brown, Sacramento, California.
 Mrs. C. K. Harder, North Sacramento, California.
 Mrs. J. H. Wentz, Fair Oaks, California.
 M. D. Woodruff, Paradise, California.

Doe, yearling.

First Weneeda Toggenburg Unity 9671. Exhibited by Mrs. C. K. Harder.

Doe, Kid.

First Weneeda Toggenburg Willa 11181. Exhibited by Mrs. C. K. Harder.
 Second Weneeda Toggenburg Willette 11182. Exhibited by Mrs. C. K. Harder.
 Third Weneeda Toggenburg Sankey 12337. Exhibited by Mrs. C. K. Harder.

REGISTERED 1/2 TO 31/32.**Doe, two years old or over.**

First Perfection Brun 12555. Exhibited by Alice M. Brown.
 Second Roseveare Dollie 3930. Exhibited by Mrs. C. K. Harder.
 Third Rigatina de Las Cabritas 2584. Exhibited by Mrs. J. H. Wentz.

Doe, yearling.

First Naomi of Lodi 10457. Exhibited by A. W. Archer.
 Second Kathleen Mavourneen of Lodi 10455. Exhibited by A. W. Archer.
 Third Weneeda Toggenburg Mickey 9672. Exhibited by Mrs. C. K. Harder.

Doe, kid.

First Wentzwood Valentine 12151. Exhibited by Mrs. J. H. Wentz.
 Second Bona Vista Trieva 12592. Exhibited by M. D. Woodruff.
 Third Wentzwood Vesta 12150. Exhibited by Mrs. J. H. Wentz.

Champion Registered Grade Doe.

Perfection Brun 12555. Exhibited by Alice M. Brown.

Best Exhibit of Purebred Goats.

Exhibited by M. D. Woodruff.

Best Exhibit of Registered Grade Goats.

Exhibited by L. A. Bridinger.

SHEEP.

JUDGE—ORAN M. NELSON.

Fine Wool Breeds.**RAMBOUILLETS.**

Exhibitors:

Wm. Briggs and Son, Dixon, California.
 G. N. Merritt and Son, Woodland, California.

Rams, two years old or over.

First W. P. and Son No. 832 114212. Exhibited by G. N. Merritt and Son.

Rams, one year and under two.

First G. N. and J. B. Merritt 2 124702. Exhibited by G. N. Merritt and Son.
 Second G. N. M. and Son 14 131403. Exhibited by G. N. Merritt and Son.

Rams, under one year.

First G. N. M. and Son 2 134077. Exhibited by G. N. Merritt and Son.
 Second Briggs 97. Exhibited by Wm. Briggs and Son.
 Third Briggs 86. Exhibited by Wm. Briggs and Son.

Ewes, two years old or over.

First A. A. Wood and Son 2364 98648. Exhibited by G. N. Merritt and Son.
 Second Quealy Sheep Co. 5992 107013. Exhibited by G. N. Merritt and Son.

Ewes, one year and under two.

First G. N. M. and Son 17 127290. Exhibited by G. N. Merritt and Son.
 Second G. N. and J. B. Merritt 7 124704. Exhibited by G. N. Merritt and Son.

Ewes, under one year.

First G. N. M. and Son 35 134080. Exhibited by G. N. Merritt and Son.
 Second Briggs 69. Exhibited by Wm. Briggs and Son.
 Third Briggs 94. Exhibited by Wm. Briggs and Son.

Flock, to consist of one ram, any age; one ewe, two years old or over; one ewe, one year old and under two, and one ewe, under one year old.

First Exhibit by G. N. Merritt and Son.

Pen, to consist of four lambs, either sex, bred and owned by the exhibitor.

First Exhibit by Wm. Briggs and Son.
 Second Exhibit by G. N. Merritt and Son.

Champion Ram.

W. P. and Son 832 114212. Exhibited by G. N. Merritt and Son.

Champion Ewe.

A. A. Wood and Son 2364 98648. Exhibited by G. N. Merritt and Son.

Medium Wool Breeds.**SHROPSHIRE.****Ram, two years old or over.**

First Bishop 700 483298. Exhibited by Thos. B. Bishop Company.
 Second Bishop 966 520638. Exhibited by Thos. B. Bishop Company.

Ram, one year and under two.

First Bishop 997 527932. Exhibited by Thos. B. Bishop Company.
 Second Bishop 996 527931. Exhibited by Thos. B. Bishop Company.
 Third Bishop 1001 528388. Exhibited by Thos. B. Bishop Company.

Ram, under one year.

First Bishop 1112 549477. Exhibited by Thos. B. Bishop Company.
 Second Bishop 1125 549488. Exhibited by Thos. B. Bishop Company.
 Third Bishop 1091 549458. Exhibited by Thos. B. Bishop Company.

Ewe, two years old or over.

First Bishop 834 520532. Exhibited by Thos. B. Bishop Company.
 Second Bishop 873 520562. Exhibited by Thos. B. Bishop Company.

Ewe, one year and under two.

First Bishop 1041 527928. Exhibited by Thos. B. Bishop Company.
 Second Bishop 1039 527926. Exhibited by Thos. B. Bishop Company.
 Third Bishop 1063 528442. Exhibited by Thos. B. Bishop Company.

Ewe, under one year.

First Bishop 1192 549542. Exhibited by Thos. B. Bishop Company.
 Second Bishop 1220 550277. Exhibited by Thos. B. Bishop Company.
 Third Bishop 1263 549602. Exhibited by Thos. B. Bishop Company.

Flock.

First Exhibit by Thos. B. Bishop Company.
 Second Exhibit by Thos. B. Bishop Company.

Pen.

First Exhibit by Thos. B. Bishop Company.
 Second Exhibit by Thos. B. Bishop Company.

Champion Ram.

Bishop 700 483298. Exhibited by Thos. B. Bishop Company.

Champion Ewe.

Bishop 1041 527928. Exhibited by Thos. B. Bishop Company

HAMPSHIRE.

Exhibitors:

Calla Grove Farm, Manteca, California.
 Spencer Ranch Company, Cranmore, California.
 Straloch Farm, Woodland, California.
 Harvey S. Van Vlear, Lodi, California.

Ram, one year and under two.

First Unnamed ram. Exhibited by H. S. Van Vlear.
 Second Van Vlear 76 46135. Exhibited by H. S. Van Vlear.
 Third L-5 38398. Exhibited by Spencer Ranch Company.

Ram, under one year.

First Straloch 6. Exhibited by Straloch Farm.
 Second Straloch 23. Exhibited by Straloch Farm.
 Third S-4. Exhibited by Spencer Ranch Company.

Ewe, two years old or over.

First H 8111 72641. Exhibited by Spencer Ranch Company.
 Second H 8849 72879. Exhibited by Spencer Ranch Company.
 Third H 6323. Exhibited by Straloch Farm.

Ewe, one year and under two.

First A 24 76065. Exhibited by Straloch Farm.
 Second A 20 76061. Exhibited by Straloch Farm.
 Third Calla Grove 53 76002. Exhibited by Calla Grove Farm.

Ewe, under one year.

First Straloch 4. Exhibited by Straloch Farm.
 Second Calla Grove 75 83184. Exhibited by Calla Grove Farm.
 Third Calla Grove 72 83181. Exhibited by Calla Grove Farm.

Flock.

First Exhibit by Straloch Farm.
 Second Exhibit by Calla Grove Farm.
 Third Exhibit by Calla Grove Farm.

Pen.

First Exhibit by Straloch Farm.
 Second Exhibit by Calla Grove Farm.
 Third Exhibit by Harry S. Van Vlear.

Champion Ram.

Unnamed ram. Exhibited by H. S. Van Vlear.

Champion Ewe.

A 24 76065. Exhibited by Straloch Farm.

SOUTHDOWNS.

Ram, two years old or over.

First H. J. Andrews 2. Exhibited by Corriedale Sheep Company.
 Second James Johns 15. Exhibited by Corriedale Sheep Company.

Ram, one year and under two.

First Corriedale Sheep Company S-7. Exhibited by Corriedale Sheep Company.

Ram, under one year.

First Corriedale Sheep Company S-8. Exhibited by Corriedale Sheep Company.
 Second Corriedale Sheep Company S-9. Exhibited by Corriedale Sheep Company.

Ewe, two years old or over.

First James Johns 8. Exhibited by Corriedale Sheep Company.
 Second James Johns 11. Exhibited by Corriedale Sheep Company.
 Third James Johns 9. Exhibited by Corriedale Sheep Company.

Ewe, one year and under two.

First Corriedale Sheep Company 4. Exhibited by Corriedale Sheep Company.
 Second Corriedale Sheep Company S-3. Exhibited by Corriedale Sheep Company.
 Third Corriedale Sheep Company S-5. Exhibited by Corriedale Sheep Company.

Champion Ram.

H. J. Andrews 2. Exhibited by Corriedale Sheep Company.

Champion Ewe.

James Johns 8. Exhibited by Corriedale Sheep Company.

CORRIEDALES.**Ram, two years old or over.**

First C. H. Ensor 2-6. Exhibited by Corriedale Sheep Company.
 Second Hugh Ensor 43. Exhibited by Corriedale Sheep Company.
 Third Hugh Ensor 45. Exhibited by Corriedale Sheep Company.

Ram, one year and under two.

First E and R 1238. Exhibited by Ellenwood and Ramsey.
 Second Corriedale Sheep Company C-20. Exhibited by Corriedale Sheep Company.
 Third Corriedale Sheep Company C-17. Exhibited by Corriedale Sheep Company.

Ram, under one year.

First Corriedale Sheep Company C-52. Exhibited by Corriedale Sheep Company.
 Second Corriedale Sheep Company C-41. Exhibited by Corriedale Sheep Company.
 Third Corriedale Sheep Company C-43. Exhibited by Corriedale Sheep Company.

Ewe, two years old or over.

First H. T. Little 5. Exhibited by Corriedale Sheep Company.
 Second H. T. Little 4. Exhibited by Corriedale Sheep Company.
 Third H. T. Little 7. Exhibited by Corriedale Sheep Company.

Ewe, one year and under two.

First Corriedale Sheep Company C-18. Exhibited by Corriedale Sheep Company.
 Second Corriedale Sheep Company C-16. Exhibited by Corriedale Sheep Company.
 Third Corriedale Sheep Company C-6. Exhibited by Corriedale Sheep Company.

Ewe, under one year.

First Corriedale Sheep Company C-49. Exhibited by Corriedale Sheep Company.
 Second Corriedale Sheep Company C-50. Exhibited by Corriedale Sheep Company.
 Third Corriedale Sheep Company C-34. Exhibited by Corriedale Sheep Company.

Flock.

First Exhibit by Corriedale Sheep Company.
 Second Exhibit by Corriedale Sheep Company.
 Third Exhibit by Corriedale Sheep Company.

Pen.

First Exhibit by Corriedale Sheep Company.
 Second Exhibit by Corriedale Sheep Company.

Champion Ram.

Corriedale Sheep Company C-52. Exhibited by Corriedale Sheep Company.

Champion Ewe.

H. T. Little 5. Exhibited by Corriedale Sheep Company.

LINCOLNS.**Rams, two years old or over.**

First James Johns 20. Exhibited by Corriedale Sheep Company.

Champion Ram.

James Johns 20. Exhibited by Corriedale Sheep Company.

LEICESTERS.**Ram, two years old or over.**

First College Dandy B. L. 22458. Exhibited by Corriedale Sheep Company.

Ram, one year and under two.

First C. S. Co. 4 B. L. 22518. Exhibited by Corriedale Sheep Company.

Ram, under one year.

First C. S. Co. 9 E. L. 22527. Exhibited by Corriedale Sheep Company.
 Second C. S. Co. 11 E. L. 22529. Exhibited by Corriedale Sheep Company.

Ewe, two years old or over.

First	John E. L. Ewe 7 22453.	Exhibited by Corriedale Sheep Company.
Second	John E. L. Ewe 2 22448.	Exhibited by Corriedale Sheep Company.
Third	Johns E. L. Ewe 10 22456.	Exhibited by Corriedale Sheep Company.

Ewe, one year and under two.

First	C. S. Co. 6 E. L. 22524.	Exhibited by Corriedale Sheep Company.
Second	C. S. Co. 3 E. L. 22521.	Exhibited by Corriedale Sheep Company.

Champion Ram.

C. S. Co. 4 B. L. 22518. Exhibited by Corriedale Sheep Company.

Champion Ewe.

Johns E. L. Ewe 722453. Exhibited by Corriedale Sheep Company.

ROMNEYS.**Ram, two years old or over.**

First	Riddell 370 525.	Exhibited by Spencer Ranch Company.
Second	U. of C. 657 A. R. B. 447.	Exhibited by Eugene C. Tribble.
Third	U. of C. 745 A. R. B. 485.	Exhibited by Eugene C. Tribble.

Ram, under one year.

First	Tribble's 1 of 1921 A. R. B. 939.	Exhibited by Eugene C. Tribble.
Second	Tribble's 5 of 1921 A. R. B. 943.	Exhibited by Eugene C. Tribble.

Ewe, two years old or over.

First	Riddell's 358 704.	Exhibited by Spencer Ranch Company.
Second	Riddell 353 696.	Exhibited by Spencer Ranch Company.
Third	Minister Ewe 78 of 1918 A. R. B. 914.	Exhibited by Eugene C. Tribble.

Ewe, one year and under two.

First	Tribble's 10 of 1920 A. R. B. 1038.	Exhibited by Eugene C. Tribble.
Second	Tribble's 20 of 1920 A. R. B. 1040.	Exhibited by Eugene C. Tribble.

Ewe, under one year.

First	Tribble's 6 of 1921 A. R. B. 1300.	Exhibited by Eugene C. Tribble.
Second	Tribble's 4 of 1921 A. R. B. 1308.	Exhibited by Eugene C. Tribble.
Third	Tribble's 2 of 1921 A. R. B. 1306.	Exhibited by Eugene C. Tribble.

Flock.

First	Exhibit by Eugene C. Tribble.
Second	Exhibit by Eugene C. Tribble.

Pen.

First	Exhibit by Eugene C. Tribble.
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Champion Ram.

Riddell 370 525. Exhibited by Spencer Ranch Company.

Champion Ewe.

Riddell's 358 704. Exhibited by Spencer Ranch Company.

Range Sheep.**MERINO TYPE.****Pen of three Rams, one year and under two.**

First	Exhibit by G. N. Merritt and Son.
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Pen of three Rams, under one year.

First	Exhibit by G. N. Merritt and Son.
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Pen of three Ewes, two years old or over.

First	Exhibit by G. N. Merritt and Son.
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Pen of three Ewes, one year and under two.

First	Exhibit by G. N. Merritt and Son.
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Pen of three Ewes, under one year.

First	Exhibit by G. N. Merritt and Son.
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MEDIUM-WOOL TYPE.

Pen of three Rams, under one year.

First Exhibit by G. K. Swingle.

Pen of three Ewes, two years old or over.

First Exhibit by Corriedale Sheep Company.

Pen of three Ewes, under one year.

First Exhibit by G. K. Swingle.

LONG-WOOL TYPE.

Pen of three Rams, one year or over.

First Exhibit by Spencer Ranch Company.

Second Exhibit by Corriedale Sheep Company.

Pen of three Rams, under one year.

First Exhibit by Eugene C. Tribble.

Pen of three Ewes, two years or over.

First Exhibit by Corriedale Sheep Company.

Second Exhibit by Corriedale Sheep Company.

Pen of three Ewes, one year and under two.

First Exhibit by Corriedale Sheep Company.

Second Exhibit by Eugene C. Tribble.

Fat Sheep.**MEDIUM-WOOL BREEDS.**

Wether, one year and under two.

First Exhibit by Butte City Ranch.

Second Exhibit by Butte City Ranch.

Third Exhibit by Butte City Ranch.

Wether, under one year.

First Exhibit by Spencer Ranch Company.

Pen of three Wethers, one year and under two.

First Exhibit by Butte City Ranch.

Pen of three Wethers, under one year.

First Exhibit by Spencer Ranch Company.

Champion Wether.

Won by Butte City Ranch Company.

GRADES AND CROSSES.

Wether, under one year.

First Exhibit by Corriedale Sheep Company.

Second Exhibit by Corriedale Sheep Company.

Third Exhibit by Corriedale Sheep Company.

Pen of three Wethers, under one year.

First Exhibit by Corriedale Sheep Company.

Second Exhibit by Corriedale Sheep Company.

Champion Wether.

Won by Corriedale Sheep Company.

Grand Champion Wether.

Won by Butte City Ranch.

Sheep Dogs.

JUDGES—JOS. LEVY, G. K. SWINGLE, W. S. GUILDORD.

SHEEP DOG TRIALS.

Best Performance by Sheep Dog—\$50, \$30.

First Whinney. Exhibited by John Brims.
Second Whippet. Exhibited by Geo. Phillip.

SHEEP SHEARING CONTEST.

Hand Shearing—\$40, \$25, \$10.

First John Brims of Firebaugh.
Second Wm. Bartlett of Woodland.
Third Jesse Bartlett of San Ramon.

Machine Shearing—\$40, 25, \$10.

First W. W. Bulkly of Davis.
Second H. O. Bernhard of Davis.
Third Geo. Phillip of Davis.

Swine.

JUDGE—J. M. JENKINS.

BERKSHIRES.

Exhibitors:

D. J. Bastanchury, La Habra, California.
H. W. Cannon, Suisun, California.
A. B. Humphrey, Escalon, California.
Italian Vineyard Company, Guasti, California.
Leonard Estate Company, Grants Pass, Oregon.
James Mills Orchard Corporation, Hamilton City, California.
H. S. Teasdale, Elko, Nevada.

Boar, two years old or over.

First Escalon Artful Leader 3d 282698. Exhibited by A. B. Humphrey.
Second Escalon May Star 266976. Exhibited by D. J. Bastanchury.
Third Model Leader 3d 266240. Exhibited by Italian Vineyard Company.
Fourth Laurel's Lustre Boy 267300. Exhibited by Jas. Mills Orchard Corporation.
Fifth Pacific Epochal 262609. Exhibited by Leonard Estate Company.

Boar, senior yearling.

First Grape Wild Leader 4th 287840. Exhibited by A. B. Humphrey.
Second Baron Duke Natomas 293139. Exhibited by Italian Vineyard Company.

Boar, junior yearling.

First Cashier 3d 292163. Exhibited by H. W. Cannon.
Second Matchless Type 2d 292104. Exhibited by Italian Vineyard Company.
Third La Habra May Star 301579. Exhibited by D. J. Bastanchury.
Fourth Grape Wild Champion 291109. Exhibited by A. B. Humphrey.
Fifth River Banks Champion 25th 303317. Exhibited by Leonard Estate Company.

Boar, senior pig.

First Guasti's Leader Champion 22d 302463. Exhibited by Italian Vineyard Company.
Second River Banks Champion 26th 303816. Exhibited by Leonard Estate Company.
Third Grape Wild Emblem 2d 302718. Exhibited by A. B. Humphrey.
Fourth Grape Wild Duke 299022. Exhibited by A. B. Humphrey.
Fifth River Banks Champion 27th 303817. Exhibited by Leonard Estate Company.

Boar, Junior Pig.

First Guasti's Rival. Sire, Mayfield Rookwood 2d 219876. Dam, Rival's Wondress 48th 283333. Exhibited by Italian Vineyard Company.
Second May's Challenger 302716. Exhibited by A. B. Humphrey.
Third Grape Wild Leader 10th 302720. Exhibited by A. B. Humphrey.
Fourth River Banks Champion 28th. Sire, River Banks Champion 24th 296647. Dam, River Banks Laurel 27th 287914. Exhibited by Leonard Estate Company.
Fifth Model Rookwood. Sire, Model Leader 3d 266240. Dam, Rookwood Lady Double 253359. Exhibited by Italian Vineyard Company.

Sow, two years old or over.

First	Violets Festline 264808. Exhibited by Italian Vineyard Company.
Second	Grape Wild Rose 8th 275167. Exhibited by A. B. Humphrey.
Third	Grape Wild Rose 6th 268761. Exhibited by A. B. Humphrey.
Fourth	Escalon Artful Belle 5th 258141. Exhibited by A. B. Humphrey.
Fifth	Meadowview Duchess 6th 283232. Exhibited by Italian Vineyard Company.

Sow, senior yearling.

First	Castleview Royal Duchess 2d 299344. Exhibited by Italian Vineyard Company.
Second	Real Type's Belle 4th 291729. Exhibited by Italian Vineyard Company.
Third	Escalon Belle 6th 287833. Exhibited by A. B. Humphrey.
Fourth	Escalon Princess 8th 295452. Exhibited by A. B. Humphrey.

Sow, junior yearling.

First	Peerless Royal Lady 3d 291311. Exhibited by Italian Vineyard Company.
Second	Matchless Lady Type 292105. Exhibited by Italian Vineyard Company.
Third	Escalon Belle 12th 295449. Exhibited by A. B. Humphrey.
Fourth	Burton's Oregon Lady 2d 290982. Exhibited by Italian Vineyard Company.
Fifth	Grape Wild Bernice 16th 299276. Exhibited by A. B. Humphrey.

Sow, senior pig.

First	Unnamed pig. Sire, Baron Premier 157th 280000. Dam, Lady Premier 217th 220641. Exhibited by D. J. Bastanchury.
Second	Grape Wild Laurel 2d 299020. Exhibited by A. B. Humphrey.
Third	Grape Wild Bernice 13th 299013. Exhibited by A. B. Humphrey.
Fourth	Escalon Ruby 299003. Exhibited by A. B. Humphrey.
Fifth	Riverby Duchess 55th 300611. Exhibited by Italian Vineyard Company.

Sow, junior pig.

First	Lady Winona's Pride 303207. Exhibited by Italian Vineyard Company.
Second	River Banks Laurel 44th. Sire, River Banks Champion 24th 296647. Dam, River Banks Laurel 27th 287914. Exhibited by Leonard Estate Company.
Third	River Banks Laurel 45th. Sire, River Banks Champion 24th, 296647. Dam, River Banks Laurel 26th 287913. Exhibited by Leonard Estate Company.
Fourth	Escalon Artful Princess 2d 302714. Exhibited by A. B. Humphrey.
Fifth	Escalon Artful-Princess 3d 302715. Exhibited by A. B. Humphrey.

Herd, over one year.

First	Exhibited by Italian Vineyard Company.
Second	Exhibited by A. B. Humphrey.
Third	Exhibited by Italian Vineyard Company.

Herd, under one year.

First	Exhibited by A. B. Humphrey.
Second	Exhibited by Italian Vineyard Company.
Third	Exhibited by Italian Vineyard Company.

Herd, bred by Exhibitor.

First	Exhibited by A. B. Humphrey.
Second	Exhibited by A. B. Humphrey.
Third	Exhibited by Italian Vineyard Company.

Get of Sire.

First	Get of Big Leader 253992. Exhibited by A. B. Humphrey.
Second	Get of Real Type 240672. Exhibited by Italian Vineyard Company.
Third	Get of Escalon Artful Leader 3d 282698. Exhibited by A. B. Humphrey.

Produce of Dam.

First	Produce of Onward Princess 2d 266267. Exhibited by A. B. Humphrey.
Second	Produce of River Banks Laurel 27th 287914. Exhibited by Leonard Estate Company.
Third	Produce of Dale's Duchess 5th 202033. Exhibited by H. S. Teasdale.

Fat Barrows, any age.

First	Exhibited by A. B. Humphrey.
Second	Exhibited by A. B. Humphrey.
Third	Exhibited by A. B. Humphrey.

Barrows, pen of three, any age.

First	Exhibited by A. B. Humphrey.
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Senior Champion Boar.

Escalon Artful Leader 3d 282698. Exhibited by A. B. Humphrey.

Junior Champion Boar.

Guaсти's Rival. Sire, Mayfield Rookwood 2d 219876. Dam, Rival's Wondress 48th 283333. Exhibited by Italian Vineyard Company.
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Senior Champion Sow.

Violets Festline 264808. Exhibited by Italian Vineyard Company.

Junior Champion Sow.

Unnamed pig. Sire, Baron Premier 157th 280000. Dam, Lady Premier 220641. Exhibited by D. J. Bastenchury.

Grand Champion Boar.

Escalon Artful Leader 3d 282698. Exhibited by A. B. Humphrey.

Grand Champion Sow.

Violets Festline 264808. Exhibited by Italian Vineyard Company.

CHESTER WHITES.**Boar, senior pig.**

First Mountain View Prince 104041. Exhibited by Howard Vaughn.

Boar, junior pig.

First Mountain View Colonel. Sire, Wildwood Type 53567. Dam, Susie 33174. Exhibited by Howard Vaughn.

Sow, junior yearling.

First Lucy. Sire, Wildwood Type 53567. Dam, Susie 33174. Exhibited by Howard Vaughn.

Sow, senior pig.

First Unnamed. Exhibited by Howard Vaughn.

Junior Champion Boar.

Mountain View Prince 104041. Exhibited by Howard Vaughn.

Senior Champion Sow.

Lucy. Sire, Wildwood Type 53567. Dam, Susie 33174. Exhibited by Howard Vaughn.

Junior Champion Sow.

Unnamed. Exhibited by Howard Vaughn.

Grand Champion Boar.

Mountain View Prince 104041. Exhibited by Howard Vaughn.

Grand Champion Sow.

Lucy. Sire, Wildwood Type 53567. Dam, Susie 33174. Exhibited by Howard Vaughn.

DUROC-JERSEY.**Exhibitors:**

Lowell J. Beaver, Fresno, California.
 Harvey M. Berglund, Dixon, California.
 Fred M. Buck, Woodland, California.
 J. C. Craig, Owensmouth, California.
 William V. Mong, Whittier, California.
 Ordway and Snyder, Hughson, California.
 L. W. Pray, Durham, California.
 J. D. Rowe and Sons, Davis, California.
 Sierra Vista Stock Ranch, Perris, California.
 Cecil Slack, Napa, California.
 H. P. Slocum and Son, Willows, California.
 J. E. Thorp, Lockeford, California.
 The Western Laboratories, Stockton, California.
 Witherow and Stafford, Live Oak, California.

Boar, two years old or over.

First Choice Wonder 3d 310353. Exhibited by V. F. Dolcini.
 Second My Partner 355443. Exhibited by Wm. V. Mong.
 Third King Cherry Orion 305989. Exhibited by Harvey M. Berglund.
 Fourth Western Regulator 106637. Exhibited by The Western Laboratories.
 Fifth Gold Finder 357547. Exhibited by H. P. Slocum and Son.

Boar, senior yearling.

First Royal I Am 355221. Exhibited by Sierra Vista Stock Ranch.

Boar, junior yearling.

First	King Orion Defender 401583. Exhibited by Cecil Slack.
Second	Key of Giant Jr. 411821. Sire, Key of Giant 334509. Dam, Model A 3d 814178. Exhibited by H. P. Slocum and Son.
Third	Orion High Pathfinder 371605. Exhibited by J. C. Craig.
Fourth	Faladale's Sensation 369021. Exhibited by Lowell J. Beaver.
Fifth	Unnamed pig. Sire, Sensation Wonder 1st 246703. Dam, Uneeda Lena 8th 668808. Exhibited by H. P. Slocum and Son.

Boar, senior pig.

First	Prince of Pathfinder 405981. Exhibited by J. C. Craig.
Second	June Acres Mahaska Wonder. Sire, Choice Wonder 3d 310353. Dam, June Acres Wonder Lady 952836. Exhibited by V. F. Dolcini.
Third	Unnamed pig. Sire, Key of Giant 334509. Dam, Uneeda Invincible Lady 3d 791352. Exhibited by H. P. Slocum and Son.
Fourth	Rainbow Pathfinder 405993. Exhibited by J. C. Craig.
Fifth	Unnamed pig. Sire, Key of Giant 334509. Dam, Uneeda Margerite Defender 331174. Exhibited by H. P. Slocum and Son.

Boar, junior pig.

First	Exhibited by Wm. V. Mong.
Second	Exhibited by Wm. V. Mong.
Third	Exhibited by Wm. V. Mong.
Fourth	Exhibited by J. E. Thorp.
Fifth	Unnamed pig. Sire, Orion Cherry Pathfinder 302615. Dam, Grand Lady Sensation 4th 787936. Exhibited by Ordway and Snyder.

Sow, two years old or over.

First	One entry. Exhibited by J. E. Thorp.
Second	Lady Lorraine 1070810. Exhibited by Witherow and Stafford.
Third	Borge's Lucey Wonder 791760. Exhibited by The Western Laboratories.
Fourth	May Rose Blossom 345908. Exhibited by J. C. Craig.

Sow, senior yearling.

First	Col. Pathfinder's Lady 986476. Exhibited by Wm. V. Mong.
Second	Classy Sensation 1065262. Exhibited by Sierra Vista Stock Ranch.
Third	Model Sensation Lady 1st 951406. Exhibited by J. C. Craig.
Fourth	June Acres Defendress 2d 950240. Exhibited by V. F. Dolcini.
Fifth	Wanda Pathfinder 920484. Exhibited by J. C. Craig.

Sow, junior yearling.

First	Exhibited by Wm. V. Mong.
Second	Exhibited by J. E. Thorp.
Third	Sensation's Orion Cherry 981568. Exhibited by The Western Laboratories.
Fourth	One entry. Exhibited by Wm. V. Mong.
Fifth	June Acres Wondress 950250. Exhibited by V. F. Dolcini.

Sow, senior pig.

First	One entry. Exhibited by J. E. Thorp.
Second	Lady Sensation. Sire, Mammoth Sensation Jr. 313169. Dam, Lady Lena 773580. Exhibited by Sierra Vista Stock Ranch.
Third	Wanda 1st 1072118. Exhibited by J. C. Craig.
Fourth	Wanda 2d 1072120. Exhibited by J. C. Craig.
Fifth	June Acres Wonder Lady 2d. Sire, Choice Wonder 3d 310353. Dam, June Acres Wonder Lady 952836. Exhibited by V. F. Dolcini.

Sow, junior pig.

First	One entry. Exhibited by Wm. V. Mong.
Second	Wanda 4th 1072112. Exhibited by J. C. Craig.
Third	One entry. Exhibited by Wm. V. Mong.
Fourth	Unnamed pig. Exhibited by J. E. Thorp.
Fifth	One entry. Exhibited by J. E. Thorp.

Herd, over one year.

First	Exhibited by V. F. Dolcini.
Second	Exhibited by Sierra Vista Stock Ranch.
Third	Exhibited by J. C. Craig.

Herd, under one year.

First	Exhibited by J. C. Craig.
Second	Exhibited by Sierra Vista Stock Ranch.
Third	Exhibited by J. E. Thorp.

Herd, bred by Exhibitor.

First	Exhibited by J. C. Craig.
Second	Exhibited by V. F. Dolcini.
Third	Exhibited by J. C. Craig.

Get of Sire.

First	Get of Choice Wonder 3d 310353. Exhibited by V. F. Dolcini.
Second	Get of Mammoth Sensation Junior. Exhibited by J. E. Thorp.
Third	Get of Pathfinder's Likeness 220343. Exhibited by J. C. Craig.

Produce of Dam.

First	Produce of Wonder Madge. Exhibited by J. E. Thorp.
Second	Produce of Wanda 851200. Exhibited by J. C. Craig.
Third	Produce of Wanda 851200. Exhibited by J. C. Craig.

Fat Barrows, any age of the breed.

First	Exhibited by H. P. Slocum and Son.
Second	Exhibited by H. P. Slocum and Son.
Third	Exhibited by H. P. Slocum and Son.

Pen Three Barrows, any age of the breed.

First	Exhibited by H. P. Slocum and Son.
Second	Exhibited by H. P. Slocum and Son.
Third	Exhibited by V. F. Dolcini.

Senior Champion Boar.

Royal I Am 355221. Exhibited by Sierra Vista Stock Ranch.

Junior Champion Boar.

Exhibited by Wm. V. Mong.

Senior Champion Sow.

Exhibited by Wm. V. Mong.

Junior Champion Sow.

Exhibited by J. E. Thorp.

Grand Champion Boar.

Royal I Am 355221. Exhibited by Sierra Vista Stock Ranch.

Reserve Grand Champion Boar.

Choice Wonder 3d 310353. Exhibited by V. F. Dolcini.

Grand Champion Sow.

Exhibited by Wm. V. Mong

Reserve Grand Champion Sow.

Exhibited by J. E. Thorp.

HAMPSHIRE.

JUDGE—J. M. JENKINS.

Exhibitors:

J. M. Christen, Martinez, California.
 Everett Elmore, Hornbrook, California.
 Hayes and Harter, Grants Pass, Oregon.
 Hans J. Knudsen, Perkins, California.
 James Marwick, Santa Barbara, California.

Boar, two years old or over.

First	Exalted Ruler 52213. Exhibited by Jas. Marwick.
Second	King Sapphire 76411. Exhibited by Everett Elmore.

Boar, senior yearling.

First	Diamond Prince 100331. Exhibited by Everett Elmore.
Second	Siskiyou Lad 100333. Exhibited by Everett Elmore.

Boar, junior yearling.

First	Model's Defender 93201 Exhibited by Hayes and Harter.
Second	Routier 94457. Exhibited by Hans J. Knudsen.
Third	Klamath King 100339. Exhibited by Everett Elmore.
Fourth	Moss-Acote Prince 100329. Exhibited by Everett Elmore.
Fifth	Pilot Rock Duke 100327. Exhibited by Everett Elmore.

Boar, senior pig.

First	Braemar Pershing 102131. Exhibited by Jas. Marwick.
Second	Braemar King 102127. Exhibited by Jas. Marwick.
Third	Silver King. Sire, King Sapphire 76411. Dam, Margaret 5th 135212. Exhibited by Everett Elmore.
Fourth	Sapphire Boy. Sire, King Sapphire 76411. Dam, Margaret 5th 135212. Exhibited by Everett Elmore.
Fifth	Maple Leaf Tommy. Sire, King Sapphire 76411. Dam, Belle Dame 93274. Exhibited by Everett Elmore.

Boar, junior pig.

First	Unnamed pig. Sire, Nehawka Giant 75625. Dam, O. U. R. Comanche 204196. Exhibited by Hayes and Harter.
Second	Unnamed pig. Sire, Nehawka Giant 75625. Dam, O. U. R. Comanche 204196. Exhibited by Hayes and Harter.
Third	Unnamed pig. Sire, O. U. R. Conqueror 88485. Dam, Bonnie Tipton 139596. Exhibited by J. M. Christen
Fourth	Unnamed pig. Sire, Gen. Tipton's Masterpiece 457207. Dam, Sunny Slope's Princess 130470. Exhibited by Hayes and Harter.
Fifth	Diablo King. Sire, Signet of Sierra Llano 86233. Dam, Empress 183072. Exhibited by J. M. Christen.

Sow, two years or over.

First	Sunny Slope's Princess 130470. Exhibited by Hayes and Harter.
Second	Tipton's Maid 2d 93228. Exhibited by Jas. Marwick.
Third	Empress 183072. Exhibited by J. M. Christen.
Fourth	Tarieta 89750. Exhibited by Everett Elmore.
Fifth	Pride of Peace 128042. Exhibited by Everett Elmore.

Sow, senior yearling.

First	Bonnie Lass 212566. Exhibited by Jas. Marwick.
Second	O. U. R. Coronet 204222. Exhibited by Hayes and Harter.
Third	O. U. R. Cornflower 204152. Exhibited by Hayes and Harter.
Fourth	Blossom of Braemar 204826. Exhibited by Jas. Marwick.
Fifth	Snowflake 241652. Exhibited by Everett Elmore.

Sow, junior yearling.

First	Miss Emma 249036. Exhibited by J. M. Christen.
Second	Dixie Queen 241666. Exhibited by Everett Elmore.

Sow, senior pig.

First	Lady Pershing 247500. Exhibited by Jas. Marwick.
Second	California Lady 249038. Exhibited by J. M. Christen.
Third	Braemar Queen 247494. Exhibited by Jas. Marwick.
Fourth	Braemar Princess 247496. Exhibited by Jas. Marwick.
Fifth	Braemar Duchess 247498. Exhibited by Jas. Marwick.

Sow, junior pig.

First	Unnamed pig. Sire, Nehawka Giant 75625. Dam, O. U. R. Comanche 204196. Exhibited by Hayes and Harter.
Second	Unnamed pig. Sire, Gen. Tipton's Masterpiece 45727. Dam, Sunny Slope's Princess 130470. Exhibited by Hayes and Harter.
Third	Directress 253380. Exhibited by Jas. Marwick.
Fourth	Sierra's Beauty 249040. Exhibited by J. M. Christen.
Fifth	Hawthorne. Sire, King Sapphire 76411. Dam, Pride of Peace 128042. Exhibited by Everett Elmore.

Herd, over one year.

First	Exhibited by Hayes and Harter.
Second	Exhibited by Everett Elmore.

Herd, under one year.

First	Exhibited by Hayes and Harter.
Second	Exhibited by Jas. Marwick.
Third	Exhibited by Everett Elmore.

Herd, bred by Exhibitor.

First	Exhibited by Jas. Marwick.
Second	Exhibited by Everett Elmore.
Third	Exhibited by Jas. Marwick.

Get of Sire.

First	Get of De Kalb's King 160th 48685. Exhibited by Jas. Marwick.
Second	Get of Nehawka Giant 75625. Exhibited by Hayes and Harter.
Third	Get of Signet of Sierra Llano 86233. Exhibited by J. M. Christen.

Four swine, any age, produce of same sow.

First	Produce of O. U. R. Annabel 139626. Exhibited by Jas. Marwick.
Second	Produce of O. U. R. Comanche 204196. Exhibited by Hayes and Harter.
Third	Produce of Pride of Peace 128042. Exhibited by Everett Elmore.

Barrows, any age, of the breed.

First	Exhibited by Jas. Marwick.
Second	Exhibited by Jas. Marwick.
Third	Exhibited by Jas. Marwick.

Pen, Three Barrows, any age, of the breed.

First Exhibited by Jas. Marwick.

Senior Champion Boar.

Model's Defender 93201. Exhibited by Hayes and Harter.

Junior Champion Boar.

Unnamed pig. Sire, Nehawka Giant 75625. Dam, O. U. R. Comanche 204196. Exhibited by Hayes and Harter.

Senior Champion Sow.

Sunny Slope's Princess 130470. Exhibited by Hayes and Harter.

Junior Champion Sow.

Lady Pershing 247500. Exhibited by Jas. Marwick.

Grand Champion Boar.

Model's Defender 93201. Exhibited by Hayes and Harter.

Reserve Grand Champion Boar.

Exalted Ruler 52213. Exhibited by Jas. Marwick.

Grand Champion Sow.

Sunny Slope's Princess 130470. Exhibited by Hayes and Harter.

Reserve Grand Champion Sow.

Bonnie Lass 212566. Exhibited by Jas. Marwick.

POLAND CHINA.

JUDGE—J. C. MEESE.

Exhibitors:

Bassett Brothers, Hanford, California.
 Buckland and McNeil, Fresno, California.
 George V. Beckman and Sons, Lodi, California.
 California Swine Corporation, Escalon, California.
 W. L. Choisser, Turlock, California.
 Fred A. Clark, Orland, California.
 J. H. Cook, Chico, California.
 Charles E. Dack, Fresno, California.
 A. J. Elliott, Turlock, California.
 Norman F. Eastman, San Fernando, California.
 Charles Gatewood, Fresno, California.
 Johnnie Glusing, Winton, California.
 H. A. Johansen, Fresno, California.
 P. B. Long, Tulare, California.
 Charles Stephens and Fred Gatewood, Herndon, California.
 Straloch Farm, Woodland, California.

Boar, two years old or over.

First Buster Bob 382851. Exhibited by Norman F. Eastman.

Second Model Giant 341461. Exhibited by Bassett Bros.

Third Orange Grant 407707. Exhibited by J. H. Cook.

Senior Yearling Boar.

First Navy Boy 406241. Exhibited by Stephens and Gatewood.

Second Giant Prospect 398613. Exhibited by Buckland and McNeil.

Third Eastman's Korver 411291. Exhibited by Norman F. Eastman.

Fourth Calvator 404869. Exhibited by Geo. Beckman and Sons.

Fifth El Capitan 408477. Exhibited by Buckland and McNeil.

Boar, junior yearling.

First Western Rainbow 406789. Exhibited by Bassett Brothers.

Second Cal. Rainbow 406785. Exhibited by Bassett Brothers.

Third Orange Yankee 411143. Exhibited by J. H. Cook.

Fourth Model Jones 407751. Exhibited by A. J. Elliott.

Fifth Long James 407749. Exhibited by A. J. Elliott.

Boar, Senior Pig.

First High Spot of Berma 448029. Exhibited by Chas. E. Dack.

Second Fresno Boy Jr. Exhibited by Stephens and Gatewood.

Third Giant Checkers. Sire, Checkers. Dam, Miss Sammie. Exhibited by Buckland and McNeil.

Fourth Fortuna Boy 441429. Exhibited by A. J. Elliott.

Fifth Liberator Buster 2d 443733. Exhibited by Bassett Brothers.

Boar, Junior Pig.

First	Western C. Sire, The Westerner 378097. Dam, Barbary Coast 737450. Exhibited by Straloch Farm.
Second	Topper. Sire, Buster Bob 382851. Dam, Wonder Giantess 709690. Exhibited by Norman B. Eastman.
Third	Peter Jones. Sire, Emancipator 375375. Dam, Janie Jones 109724. Exhibited by Bassett Brothers.
Fourth	Yankee Fashion. Sire, Frisco Boy 411141. Dam, Liberty Girl 3d 800602. Exhibited by Straloch Farm.
Fifth	Unnamed pig. Sire, Iowa Pilot 405345. Dam, Lady Jones 929908. Exhibited by California Swine Corporation.

Sow, two years old or over.

First	Hawkeye Maid 974898. Exhibited by Buckland and McNeil.
Second	Miss Yankee 944156. Exhibited by Straloch Farm.
Third	Lady Jumbo 805784. Exhibited by Fred A. Clark.
Fourth	Polandale Bettie 946370. Exhibited by Buckland and McNeil.
Fifth	Janie Jones, 1090724. Exhibited by Bassett Brothers.

Sow, Senior Yearling.

First	Prospect Mollie 974826. Exhibited by Buckland and McNeil.
Second	Timm's Jumbo Girl 969652. Exhibited by Bassett Brothers.
Third	Big Bone Orange Maid 3d 966148. Exhibited by A. J. Elliott.
Fourth	Iowa Maid 964752. Exhibited by California Swine Corporation.
Fifth	Lady Orphan 913170. Exhibited by Lillie May Wood.

Sow, Junior Yearling.

First	Hazel C 1030058. Exhibited by Bassett Brothers.
Second	Orange Giantess 1076892. Exhibited by Bassett Brothers.
Third	Long Babe 972992. Exhibited by A. J. Elliott.
Fourth	Lakeside Beauty 975876. Exhibited by Geo. V. Beckman and Sons.
Fifth	Lady Defender 975880. Exhibited by Geo. V. Beckman and Sons.

Sow, Senior Pig.

First	Princess Pat 1098678. Exhibited by Bassett Brothers.
Second	Willow's Lady 1073118. Exhibited by A. J. Elliott.
Third	Eastman's Choice. Sire, Buster Bob 382851. Dam, Magnolia 794222. Exhibited by Norman F. Eastman.
Fourth	Golden Beauty 1086184. Exhibited by Buckland and McNeil.
Fifth	Orange Bobbie 1073116. Exhibited by A. J. Elliott.

Sow, Junior Pig.

First	Liberty Girl A. Sire, Frisco Boy 411141. Dam Liberty Girl 3d 800602. Exhibited by Straloch Farm.
Second	Buster's Giantess. Sire, Buster Bob 382851. Dam, Wonder Giantess 709690. Exhibited by Norman F. Eastman.
Third	Lady Victoria Sunland 1st. Sire, Victory Bob 358383. Dam, Sunland Orange Blossom 910068. Exhibited by H. A. Johansen.
Fourth	May Belle 1090866. Exhibited by Buckland and McNeil.
Fifth	Long Maid 1093464. Exhibited by A. J. Elliott.

Herd, over one year.

First	Exhibited by Bassett Brothers.
Second	Exhibited by Buckland and McNeil.
Third	Exhibited by Geo. V. Beckman and Sons.

Herd, under one year.

First	Exhibited by Straloch Farm.
Second	Exhibited by Bassett Brothers.
Third	Exhibited by Norman F. Eastman.

Herd, Bred by Exhibitor.

First	Exhibited by Norman F. Eastman.
Second	Exhibited by Chas. E. Dack.
Third	Exhibited by Geo. V. Beckman and Sons.

Get of Sire.

First	Get of The Rainbow 329731. Exhibited by Bassett Brothers.
Second	Get of Frisco Boy 411141. Exhibited by Straloch Farm.
Third	Get of Big Gertsdale Jones 290249. Exhibited by A. J. Elliott.

Produce of Dam.

First	Produce of Joe's Big Lady 922508. Exhibited by Bassett Brothers.
Second	Produce of Liberty Girl 3d 800602. Exhibited by Straloch Farm.
Third	Produce of Long Girl 868858. Exhibited by A. J. Elliott.

Barrow any age of the Breed.

First	Exhibited by Chas. Gatewood.
Second	Exhibited by Bassett Brothers.
Third	Exhibited by Bassett Brothers.

Pen of Three Barrows, any age of the Breed.

First Exhibited by Bassett Brothers.

Senior Champion Boar.

Navy Boy 406829. Exhibited by Stephens and Gatewood.

Junior Champion Boar.

Western C. Sire The Westerner 378097. Dam, Barbary Coast 737450. Exhibited by Straloch Farm.

Senior Champion Sow.

Hazel C. 1030058. Exhibited by Bassett Brothers.

Junior Champion Sow.

Princess Pat 1098678. Exhibited by Bassett Brothers.

Grand Champion Boar.

Navy Boy 406829. Exhibited by Stephens and Gatewood.

Reserve Grand Champion Boar.

Western Rainbow 406789. Exhibited by Bassett Brothers.

Grand Champion Sow.

Hazel C. 1030058. Exhibited by Bassett Brothers.

Reserve Grand Champion Sow.

Hawkeye Maid 974898. Exhibited by Buckland and McNeil.

TAMWORTH.

JUDGE—J. M. JENKINS.

Boar, two years old or over.

First Ardmore of California 23829. Exhibited by Dr. Jas. J. Summerfield.

Boar, senior yearling.

First Santa Rosa Boy 24617. Exhibited by Dr. Jas. J. Summerfield.

Boar, junior yearling.

First Golden Gate 24609. Exhibited by Dr. Jas. J. Summerfield.

Boar, senior pig.

First Honolulu 25466. Exhibited by Dr. Jas. J. Summerfield.

Boar, junior pig.

First Sonoma Boy 25541. Exhibited by Dr. Jas. J. Summerfield.

Second Sonoma Lad 25442. Exhibited by Dr. Jas. J. Summerfield.

Sow, two years old or over.

First Orange Princess XIII 21901. Exhibited by Dr. Jas. J. Summerfield.

Second Orange Princess XII 21900. Exhibited by Dr. Jas. J. Summerfield.

Sow, junior yearling.

First Santa Rosa Princess 24613. Exhibited by Dr. Jas. J. Summerfield.

Sow, senior pig.

First Hula Dancer 25449. Exhibited by Dr. Jas. J. Summerfield.

Second Hula Girl 25447. Exhibited by Dr. Jas. J. Summerfield.

Third Hula Hula 25448. Exhibited by Dr. Jas. J. Summerfield.

Sow, junior pig.

First Sonoma Girl 25443. Exhibited by Dr. Jas. J. Summerfield.

Second Sonoma Lady 25444. Exhibited by Dr. Jas. J. Summerfield.

Third Sonoma Lass 25445. Exhibited by Dr. Jas. J. Summerfield.

Herd, over one year.

First Exhibited by Dr. Jas. J. Summerfield.

Herd, under one year.

First Exhibited by Dr. Jas. J. Summerfield.
 Second Exhibited by Dr. Jas. J. Summerfield.

Herd, bred by Exhibitor.

First Exhibited by Dr. Jas. J. Summerfield.
 Second Exhibited by Dr. Jas. J. Summerfield.

Get of Sire.

First Get of Orange Prince V 21896. Exhibited by Dr. Jas. J. Summerfield.
 Second Get of Ardmore of California 23829. Exhibited by Dr. Jas. J. Summerfield.

Produce of Dam.

First Produce of Orange Princess XII 21900. Exhibited by Dr. Jas. J. Summerfield.
 Second Produce of Santa Rosa Lassie 23723. Exhibited by Dr. Jas. J. Summerfield.

Fat Barrows, any age of the breed.

First Exhibited by Dr. Jas. J. Summerfield.

Senior Champion Boar.

Golden Gate 24609. Exhibited by Dr. Jas. J. Summerfield.

Junior Champion Boar.

Honolulu 25466. Exhibited by Dr. Jas. J. Summerfield.

Senior Champion Sow.

Orange Princess XIII 21901. Exhibited by Dr. Jas. J. Summerfield.

Junior Champion Sow.

Sonoma Girl 25443. Exhibited by Dr. Jas. J. Summerfield.

Grand Champion Boar.

Golden Gate 24609. Exhibited by Dr. Jas. J. Summerfield.

Grand Champion Sow.

Orange Princess XIII 21901. Exhibited by Dr. Jas. J. Summerfield.

FAT SWINE.**Car Lots, 30 hogs.**

First Exhibited by Napa State Hospital.

Pen Three Barrows, each weighing over 250 pounds.

First Exhibited by Jas. Marwick.
 Second Exhibited by H. P. Slocum and Son.

Pen Three Barrows, each weighing 175 pounds and not over 250 pounds.

First Exhibited by Bassett Brothers.
 Second Exhibited by The Western Laboratories.

Champion Pen Three Barrows.

First Exhibited by Jas. Marwick.

Single Barrows, over 250 pounds.

First Exhibited by Italian Vineyard Company.
 Second Exhibited by The Western Laboratories.

Single Barrows, 175 pounds and not over 250 pounds.

First Exhibited by Italian Vineyard Company.
 Second Exhibited by Bassett Brothers.
 Third Exhibited by Bassett Brothers.

Champion Barrow.

Exhibited by Italian Vineyard Company.

Duroc-Jersey Futurity—\$884.

SENIOR PIG—BOAR.

1	V. F. Dolcini	Davis	June Acres Mahaska Wonder	413571
2	J. C. Craig	Owensmouth	Rainbow Pathfinder	405993
3	Sierra Vista Stock Ranch	Perris	Sensation Ace	
4	V. F. Dolcini	Davis	Straight Wonder	413562
5	H. Berglund	Dixon	Cherry King	413599

SENIOR PIG—SOW.

1	J. E. Thorp	Lockeford		
2	Sierra Vista Stock Ranch	Perris	Lena Sensation	
3	J. C. Craig	Owensmouth	Wanda 1st	1072118
4	J. C. Craig	Owensmouth	Wanda 2d	1032120
5	V. F. Dolcini	Davis	June Acres Wonder Lady 2d	1088876
6	Sierra Vista Stock Ranch	Perris	Lucy Sensation	
7	V. F. Dolcini	Davis	June Acres Wonder Lady 3d	1088878
8	V. F. Dolcini	Davis	June Acres Wonder Lady 4th	1088880

FALL LITTER.

1	J. C. Craig	Owensmouth	Dam Wanda	851200
2	V. F. Dolcini	Davis	Dam June Acres Wonder Lady	952836
3	H. Berglund	Dixon	Dam Bess Orion 2d	797050

SPRING PIG—BOAR.

1	W. V. Mong	Whittier	Highlong Sensation	410255
2	W. V. Mong	Whittier	Anita Sensation	410253
3	J. E. Thorp	Lockeford	Sensation Chief	410251
4	Ordway and Snyder	Hughson	Pathfinder's Grand Sensation 2d	409909
5	V. F. Dolcini	Davis	June Acres Pathfinder	
6	J. C. Craig	Owensmouth	Model King Orion	409011
7	Sierra Vista Stock Ranch	Perris	Model Royal I Am	355221

SPRING PIG—SOW.

1	W. V. Mong	Whittier	Sensation Ellen	1081597
2	J. C. Craig	Owensmouth	Wanda IV	1072112
3	W. V. Mong	Whittier	Sensation Annie	1081590
4	J. E. Thorp	Lockeford	Sensation Madge	
5	J. E. Thorp	Lockeford	Madge 2d	
6	J. C. Craig	Owensmouth	Choice Lady Orion 4th	1072106
7	V. F. Dolcini	Davis	Miss June Acres Pathfinder	1088870
8	V. F. Dolcini	Davis	June Acres Wonder Lady 22	1088886

SPRING LITTER.

1	W. F. Mong	Whittier	Dam Sensation Rose 2d	930108
2	J. E. Thorp	Lockeford	Dam Wonder Madge	856140
3	J. C. Craig	Owensmouth	Dam Wanda	851200
4	Sierra Vista Stock Ranch	Perris	Dam Model Jessie	793682
5	V. F. Dolcini	Davis	Dam June Acres Wonder Lady	952836
6	J. C. Craig	Owensmouth	Dam Choice Lady Orion 1st	889240
7	V. F. Dolcini	Davis	Dam Miss June Acres Col Wonder 3d	1088866
8	Ordway and Snyder	Hughson	Dam Grand Sensation 4th	787936

Poland China Futurity—\$1020.

JUNIOR YEARLING BOARS.

1	Bassett Bros.	Hanford	Western Rainbow	406789
2	Bassett Bros.	Hanford	California Rainbow	406785
3	A. J. Elliot	Tulare	Model Jones	407751
4	A. J. Elliot	Tulare	Long Jones	407749
5	Johannie Glusing	Winton	The Pirate	408985
6	Straloch Farm	Woodland	Frisko Boy	411141

JUNIOR YEARLING SOWS.

1	Bassett Bros.	Hanford	Orange Giantess	1076892
2	A. J. Elliot	Tulare	Long Babe	972992
3	G. V. Beckman	Lodi	Lakeside Beauty	975876
4	G. V. Beckman	Lodi	Lady Defender	975880
5	Bassett Bros.	Hanford	Pilot Lady	976556
6	A. J. Elliot	Tulare	Lady Gertsdale	972990

SENIOR BOAR PIGS.

1	Chas. E. Dack	Fresno	High Spot of Berma	448029
2	F. Gatewood	Fresno	Fresno Boy Jr.	448023
3	A. J. Elliot	Tulare	Fortuna Boy	441429
4	Bassett Bros.	Hanford	Liberator Buster 2d	443733
5	A. J. Elliot	Tulare	Hercules Leader	441663
6	W. L. Choisser	Turlock	King of the West	433479

SENIOR SOW PIGS.

1	Bassett Bros.....	Hanford.....	Princess Pat.....	1098678
2	A. J. Elliot.....	Tulare.....	Willows Lady.....	1073118
3	A. Buckland and Sons.....	Fresno.....	Golden Beauty.....	1086184
4	A. J. Elliot.....	Tulare.....	Orange Bobby.....	1073116
5	Bassett Bros.....	Hanford.....	Miss Sensation.....	1098676
6	Bassett Bros.....	Hanford.....	California Girl.....	1098670

JUNIOR PIGS—BOARS.

1	Straloch Farm.....	Woodland.....	Westerner C.....	449955
2	Bassett Bros.....	Hanford.....	Peter Jones.....	451389
3	Straloch Farm.....	Woodland.....	Yankee Fashion.....	449961
4	G. V. Beckman and Sons.....	Lodi.....	The Nugget.....	451043
5	A. J. Elliot.....	Tulare.....	Big Jones.....	448153
6	A. Buckland and Son.....	Fresno.....	The Flash.....	447125
7	P. B. Long.....	Tulare.....	Sunkist.....	446267
8	A. J. Elliot.....	Tulare.....	Gerstsdale Leader.....	448155

JUNIOR PIGS—SOWS.

1	Straloch Farm.....	Woodland.....	Liberty Girl A.....	1097210
2	H. A. Johansen.....	Fresno.....	Lady Victoria Sunland.....	1104238
3	A. Buckland and Son.....	Fresno.....	May Belle.....	1090866
4	A. J. Elliot.....	Tulare.....	Long Maid.....	1093464
5	G. V. Beckman and Son.....	Lodi.....	Lady Wonder's 1st.....	1099950
6	Straloch Farm.....	Woodland.....	Black Beauty B.....	1097202
7	Bassett Bros.....	Hanford.....	Stella Jones.....	1101028
8	C. E. Dack.....	Fresno.....	Berma's Giantess.....	1093242

JUNIOR PIG LITTERS.

1	Straloch Farm.....	Woodland.....	Liberty Girl 3d.....	800602
2	A. J. Elliot.....	Tulare.....	Big Bone Maid 2d.....	783174
3	A. Buckland and Son.....	Fresno.....	Blue Valley Belle.....	974886
4	Bassett Bros.....	Hanford.....	Janie Jones.....	1090724
5	G. V. Beckman and Son.....	Lodi.....	Lady Wonder.....	737004
6	H. A. Johansen.....	Fresno.....	Sunland Orange Blossom.....	910068
7	P. B. Long.....	Tulare.....	Giant's Queen.....	1076028
8	Straloch Farm.....	Woodland.....	Black Beauty C.....	755660

Grooms' Prizes.

PREMIUMS \$240.

The State Board of Agriculture paid two hundred and forty dollars in prizes to grooms caring for exhibition stock, for keeping stalls or pens in best condition during full time of Fair, September 3 to 11, inclusive.

BEEF CATTLE.

First	R. M. Dunlap, c/o E. A. Noyes and Sons, Sutter.
Second	J. S. Freitas, c/o G. W. Emmons, Danville.

DAIRY CATTLE.

First	E. Simmons, c/o D. O. Brandt, Owensmouth.
Second	H. Marston, c/o A. B. Humphrey, Escalon.

HORSES.

First	F. McNamara, c/o Mrs. W. P. Roth, San Francisco.
Second	F. J. Walton, c/o Merritt-Bowers Company, Tulare.

SHEEP.

First	J. Erie Brooks, c/o Corriedale Sheep Company, Hollister.
Second	J. Bartlett, c/o Thos. B. Bishop Company, San Ramon.

SWINE.

First	A. Sageborn, c/o Italian Vineyard Company, Guasti.
Second	E. N. Whittlemore, c/o D. J. Bastanchury, La Habra.

MILK GOATS.

First	McFall, c/o Richards and Wagner, Montana.
Second	E. Clark, c/o Mrs. C. K. Harder, North Sacramento.

Educational Department.

This department is one of utmost importance, reaching into not only the schools themselves, but into the homes of every family in the state, regardless of whether they reside on the farm, in the mountain districts, or in the cities. The interest taken by the pupils and teachers was demonstrated by the increase of competition and number of entries made at the 1921 California State Fair, and from present indications the number of entries for 1922 will be from three to four times as many as already there have been received applications from schools in 125 different localities in the State.

Everyone is interested in education, no matter what calling they may follow, it being the foundation of success, whether of a nation or an individual. Education means good legislation, good citizenship, good home life, and these combined mean prosperity and a greater and better nation for our future generations.

The authorized expenditures for school buildings in California is \$31,-000,000 of which Sacramento County is expending \$4,264,000 and Los Angeles County \$17,500,000, 65 per cent of which is for construction and expansion of high schools. The school population has increased forty per cent since the war.

The schools of the following cities and towns were represented by exhibits of the pupils' work, which were deserving of great praise and formed a wonderful exhibition of the progress and value of education in California:

- | | |
|--------------------------------|---|
| Anderson, Shasta County | Modesto, Stanislaus County |
| Auburn, Placer County | Mission District, San Bernardino County |
| Applegate, Placer County | North Sacramento, Sacramento County |
| Alder Creek, Sacramento County | Oakland, Alameda County |
| Bakersfield, Kern County | Palo Alto, Santa Clara County |
| Chico, Colusa County | Petaluma, Sonoma County |
| Eureka, Humboldt County | Roseville, Placer County |
| Elk Grove, Sacramento County | Rio Linda, Sacramento County |
| Franklin, Sacramento County | Santa Cruz, Santa Cruz County |
| Florin, Sacramento County | Stockton, San Joaquin County |
| Folsom, Sacramento County | Sacramento, Sacramento County |
| Fruit Ridge, Sacramento County | San Bernardino, San Bernardino County |
| Fair Oaks, Sacramento County | Santa Monica, Los Angeles County |
| Galt, Sacramento County | Weimar, Placer County |
| Lincoln, Placer County | |

There being such a great variety and number of exhibits in this department makes it possible to list only the winners of the most important contests.

EDUCATIONAL DEPARTMENT.

Cash Premiums Offered—\$2,294.

To the supervisor whose pupils make the largest number of individual exhibits at the 1921 State Fair in direct proportion to the total number of pupils under supervision. The work of not less than twenty-five individual exhibitors must be shown to qualify a competitor in this offer.

First	C. Williams, Modesto High School	\$50
Second	H. W. Ward, Shasta Union High School	30
Third	H. G. Clark, Modesto High School	20

To the teacher whose pupils make the largest number of individual exhibits at the 1921 State Fair in direct proportion to the number of pupils under instruction. The work of not less than five individual exhibitors must be shown to qualify a competitor in this offer.

First	P. J. Kramer, Franklin School	\$50
Second	Rena C. Kramer, Franklin School	30
Third	W. E. Van Gilder, Sacramento School	20

Sweepstake.

Best all around drafting exhibit by any school.	
Bakersfield High School	Gold Medal
Modesto High School	Silver Medal

Sweepstake.

Best all around exhibit in cabinet work by any school, not less than five pieces, which must be shown as individual projects in this class by pupils of that school.

Modesto High School..... Gold Medal
Roseville Union High School..... Silver Medal

Best completed school building on which at least 80 per cent of work was done by pupils. To be shown by drawings, plans and photographs, material and cost to be considered.

Roseville Union High School..... Gold Medal

Sweepstake.

Best all around exhibit from school (two graphic art and two commercial designs, which must also be shown as individual entries in this class).

Modesto High School..... Gold Medal

Sweepstake.

Best clothing, millinery and textile exhibit by high school.

Modesto High School..... Gold Medal

Best rural school sewing exhibit.
Franklin Union School..... Sewing Machine
Florin School..... Silver Cup

Special School Prizes.

Best general exhibit by a high school with more than twelve teachers.
Modesto High School..... Trophy

Best general exhibit by an elementary grammar school with special supervisor.
Sacramento Grammar Schools..... Trophy

Best general exhibit by an elementary grammar school without special supervisor.
Franklin Union..... Trophy

Best general exhibit by an elementary primary school.
Franklin Union..... Trophy

SMITH-HUGHES HIGH SCHOOL AGRICULTURAL DEPARTMENT—PREMIUMS \$320**Sweepstake.**

For school making best, largest, most varied and artistically arranged exhibit in one or more of the following departments, viz.: horticultural, small fruits and berries, agricultural and miscellaneous products.

Santa Cruz High School..... Gold Medal
San Juan Union High School..... Silver Medal
Fremont High School, Oakland..... Bronze Medal

Indian Exhibits.

DIRECTOR IN CHARGE: E. FRANKLIN.

ASSISTANT TO DIRECTOR IN CHARGE: F. M. CONSER, Superintendent Sherman Institute, Riverside, California.

PREMIUMS OFFERED. \$155.

This exhibit is made by the United States Government, through the Bureau of Indian Affairs, Washington, D. C.

It is believed that it will furnish an excellent opportunity to all the people of the State to see what the Indians have accomplished during the past year along food production and other industrial lines, as well as something of their wartime activities, and to demonstrate in convincing manner that the Indians are useful and industrious citizens of the State in which they reside.

The prejudice against the Indians is being dispelled, for the reason that those who have been obliged to depend upon them do farm work in many localities have discovered that the Indians as laborers are dependable, reliant, efficient.

The problem of labor in California being one of increasing importance, owing to the development of various activities and industries, it is true that the Indians will be called upon more and more for industrial service, until this demand becomes permanent.

With this point in view, it must be gratifying to everyone to know that the Government maintains a large number of fine schools in the State for educating and training young Indians, and in several schools for giving them instruction along specific vocational lines. The younger Indians who are attending school realize that the old order of things is passing, and that the Indians will in a few years become an important part of a great State.

The following agencies and schools participate: Bishop Agency and Schools (Day), Bishop, Inyo County; Campo Agency and Schools (Day), Campo, San Diego County; Digger Agency, Jackson, Amador County; Fort Bidwell School and Agency, Fort Bidwell, Modoc County; Fort Yuma School and Agency, Fort Yuma, Imperial County; Hoopa Valley Agency and School, Hoopa, Humboldt County; Malki Agency, Banning, Riverside County; Pala Agency, Pala, San Diego County; Round Valley Agency, Covelo, Mendocino County; Sherman Institute, Riverside, Riverside County; Sobobo Agency and Schools (Day), San Jacinto, Riverside County; Tule River Agency and Schools (Day), Porterville, Tulare County; Greenville School, Greenville, Plumas County.

Best general exhibit by Indian boarding school—Sherman Institute, Riverside.

Best "live" feature exhibit, showing vocational training in schools, basket making on reservations or similar exhibit—Sherman Institute, Riverside.

Best display of farm products, school or agency—Sherman Institute, Riverside.

Best general exhibit of native Indian work to contain not less than 10 pieces of basketry, 10 pieces of beadwork, 5 pieces of lace, 10 pieces of miscellaneous material such as bows, arrows, pipes, moccasins, blankets, etc.—Arizona Navajo Indian Rug Company, Long Beach.

Student Judging and Live Stock Raising.

SWINE RAISING CONTEST.

Premiums offered in this class, \$110.

For pigs grown by boys who are members of California Agricultural Clubs, to be of any breed, eligible to registration which must be stated on entry blank, and farrowed after September 1, 1920.

First Rainbow Beauty. Poland China Sow, Willard Beckman, Lodi, California.
 Second Anchorage Star 46th 302126. Berkshire Sow. Miss Ruth Meyer, Orland.

SPECIAL OFFER OF JAMES J. DOTY PUBLISHING COMPANY.

SWINE SHOWING CONTEST.

First Willard Beckman, Lodi..... Sterling Silver Medal
 Second Miss Ruth Meyer, Orland..... Bronze Medal

CALF CLUBS.

For calves owned, developed and shown by Agricultural Club members.

Best Dairy Bull Calf—Jersey.

First Laura's Undulata. Ernest Forbes, Orland.

Best Dairy Bull Calf—Holstein.

First Unnamed. Wm. Stammerjohan, Turlock.

Best Dairy Heifer Calf—Jersey.

First Violet's Induction Waikiki 510516. O. B. Petersen, Sebastopol.
 Second Leonard Farm Irene 503770. Austin Clark, Orland.
 Third Waikiki Indiana Girl 510515. N. M. Petersen, Sebastopol.

Best Dairy Heifer Calf—Holstein.

First Unnamed. Smith H. Bibens, Modesto.
 Second Unnamed. Wm. Stammerjohan, Turlock.
 Third Unnamed. Loney Stammerjohan, Turlock.

Bred Heifer Calf—Jersey.

First Violet's Betty Fox 494098. J. N. Henry, Denair.
 Second Sonny's Blossom of Mossdale 483544. Mildred Seavy, Galt.
 Third Pearl of Willowood 3d 506298. Charley Krause, Orland.

Bred Heifer Calf—Holstein.

First Rag Apple Aggie 590934. Wm. Stammerjohan, Turlock.
 Second Addie Creamcup Burke Pontiac 550497. Clay Stammerjohan, Turlock.
 Third Bessie Forbes Tritomia. E. L. Barber, Thornton.

AGRICULTURAL COLLEGE OR UNIVERSITY FARM STUDENT JUDGING.

Premiums offered in this class, \$250.

Judging Horses.

First B. G. McClelland, Davis.
 Second B. H. Thomas, Davis.
 Third J. H. Connelly, Davis. (Tie).
 Third S. J. Bell, Davis. (Tie).

Judging Beef Cattle.

First C. J. Burnham, Davis.
 Second W. N. Reusser, Davis. (Tie).
 Second R. E. Rider, Davis. (Tie).

Judging Dairy Cattle.

First S. J. Bell, Davis.
 Second C. J. Burnham, Davis.
 Third L. E. Harback, Davis.

Judging Sheep.

First C. R. Reeves, Davis.
 Second C. E. Tegner, Davis.
 Third B. H. Thomas, Davis.

Judging Swine.

First A. Powers, Jr., Davis.
 Second S. J. Bell, Davis.
 Third L. E. Harback, Davis.

High man—all classes: Silver loving cup donated by "California Cultivator"—B. H. Thomas, University Farm, Davis.

STUDENT JUDGING OF DAIRY PRODUCTS.

Premiums offered in this class, \$43.

To student winning highest score in judging market milk, butter and cheese (\$25 value) Silver Trophy—J. H. Woodward, University Farm, Davis.

HIGH SCHOOL VOCATIONAL AGRICULTURAL STUDENT JUDGING CONTEST.

Hogs.

		MEDALS
First	James Bossel, Esparto.....	Gold
Second	Rilford Tutt, Esparto.....	Silver
Third	Louie Howard, San Juan.....	Bronze

Horses.

First	Ernest Clooney, Esparto.....	Gold
Second	H. Hendron, San Juan.....	Silver
Third	H. Ritchey, Colusa.....	Bronze

Beef Cattle.

First	H. Beckman, Lodi.....	Gold
Second	C. Quisenberry, Lodi.....	Silver
Third	W. Tappin, Lodi.....	Bronze

Dairy Cattle.

First	A. Eicker, Napa.....	Gold
Second	H. Fendt, Colusa.....	Silver
Third	H. Hendron, San Juan.....	Bronze

Sheep.

First	L. Chorley, San Juan.....	Gold
Second	P. Tallman, Santa Cruz.....	Silver
Third	B. Starnado, Colusa.....	Bronze

Poultry.

First	E. Dinas, Petaluma.....	Gold
Second	H. Deitz, Fremont High School, Oakland.....	Silver
Third	T. Harris, San Juan.....	Bronze

A trophy cup donated by the California Cattlemen's Association, San Francisco, California, for the best individual judge awarded to Harold Beckman, Lodi High School, Lodi.

The California Jersey Breeders' Association's cup to the High School winning first place in judging Jerseys was awarded to Bakersfield High School.

The California Swine Breeders' Association will give a banner to the winning school. Team and individual rating shall determine the standing of the schools. Awarded to Esparto High School.

SPECIAL COUNTY PRIZES.

For Agricultural, Horticultural, Viticultural, Mineral, Manufactured or Other Industrial Products.

Quality of exhibits, their value as representative of the county's products, and the character of installation, including design, execution, and preparedness on the opening day, to be considered.

CLASS A.

For the largest, best and most complete exhibit of products by any county in California.

First Prize.....	Fresno County.....	\$600
Second Prize.....	Kings County.....	400
Third Prize.....	Yolo County.....	250
Fourth Prize.....	Placer County.....	200
Fifth Prize.....	Stanislaus County.....	150
Sixth Prize.....	San Joaquin County.....	100
Seventh Prize.....	Humboldt County.....	75
Eighth Prize.....	Mendocino County.....	50

CLASS B.

For the largest, best and most complete exhibit exclusively of farm products by any county in California.

First Prize.....	Fresno County.....	\$100
Second Prize.....	Yolo County.....	75
Third Prize.....	Tulare County.....	50

CLASS C.

For the largest, best and most varied exhibit of minerals and mining products by any County in California.

First Prize.....	Calaveras County.....	\$200
Second Prize.....	Placer County.....	150
Third Prize.....	Northern California Counties Association.....	100
Fourth Prize.....	Fresno County.....	50

CLASS D.

For the best feature exhibit by a county, to be judged on originality and execution of design and artistic display.

First Prize.....	Mendocino County.....	\$300
Second Prize.....	Riverside County.....	150

ASSOCIATION EXHIBITS.

For the most meritorious exhibit by a co-operative association showing products of two or more counties, completeness and educational value of exhibit, and character of installation, to be considered.

First Prize.....	Northern California Counties Association.....	\$300
Second Prize.....	California Peach and Fig Growers.....	200
Third Prize.....	Setchel Fruit Company.....	150

PRIZES WON BY COUNTIES.

County	Awards			Medals			Cash
	First...	Second	Third..	Gold...	Silver..	Bronze..	
Alameda.....	7	3					\$80 50
Calaveras.....	12			10			350 00
Colusa.....	8	3		1			101 00
Fresno.....	98	29	7	6	2	2	1,756 50
Humboldt.....	35	1					555 00
Kings.....	72	45	16	5	2		1,368 50
Los Angeles.....	12	3	1	1			171 00
Mendocino.....	13	4	2	2	1	2	484 00
Northern California Counties Association.....	11	1		6			522 50
Placer.....	31	10	6	8			761 00
Riverside.....	7	2					186 00
San Joaquin.....	32	21	8	1			414 00
Stanislaus.....	12	7	1	1			394 50
Tulare.....	6	10	7				150 00
Yolo.....	74	35	13	2	6		1,033 50

Sacramento County was presented by the Board of Directors with a Silver Cup as a token of appreciation for the very meritorious and beautiful display of fruit and other county products, and for their artistic arrangement, Sacramento County having courteously declined to enter in competition. Mr. S. Taylor exhibited in the county booth bees, honey and products and was awarded eight first and three second prizes.

HORTICULTURAL PRODUCTS.

	First	Second	Third	Section
Apples..... Spitzenberg.....	Humboldt.....			1631
Apples..... Gravenstein.....	Humboldt.....	Mendocino.....		1632
Apples..... Jonathan.....	Humboldt.....			1633
Apples..... R. I. Greening.....	Humboldt.....			1640
Apples..... Yellow Bellflower.....	Humboldt.....			1645
Apples..... Delicious.....	Humboldt.....			1648
Apples..... Ben Davis.....	Yolo.....			1651
Apples..... Baldwin.....	Humboldt.....			1654
Apples..... Hoover.....	Humboldt.....			1656
Apples..... Northern Spy.....	Humboldt.....			1657
Apples..... Skinner's Seedling.....	Humboldt.....			1659
Apples..... Tompkins King.....	Humboldt.....			1661
Apples..... Wagener.....	Humboldt.....			1662
Apples..... Wealthy.....	Humboldt.....			1663
Apples..... Winter Banana.....	Humboldt.....			1664
Apples..... Alexander.....	Humboldt.....			1666
Apples..... Fameuse.....	Humboldt.....			1668
Apples..... Gloria Mundi.....	Humboldt.....			1669
Apples..... Oldenburg Duchess.....	Humboldt.....			1672
Apples..... Stark.....	Humboldt.....			1674
Apples..... Swaar.....	Humboldt.....			1675
Apples..... Rambo.....	Humboldt.....			1680
Apples..... Bismarck.....	Humboldt.....			1681
Apples..... Winterstein.....	Humboldt.....			1682
Apples..... On Plates.....	Mendocino.....	Alameda.....		1684
Apples..... Y. Bellflower, 10 boxes.....	Humboldt.....			1685a
Apples..... R. I. Greening, 10 boxes.....	Humboldt.....			1685b
Apples..... R. I. Greening, 5 boxes.....	Humboldt.....			1685c

HORTICULTURAL PRODUCTS—Continued.

		First	Second	Third	Section
Apples	Winter Banana, 5 boxes	Humboldt			1685g
Apples	Gravenstein, 5 boxes	Humboldt	Mendocino		1685c
Apples	Coos River Beauty, 5 boxes	Humboldt			1685j
Apples	Jonathan, 5 boxes	Humboldt			1685k
Apples	Baldwin, 5 boxes	Humboldt			1685m
Apples	Alexander, 5 boxes	Humboldt			1685n
Apples	Sweepstake	Humboldt	Mendocino		1692
Pears	Bartlett		Placer	Mendocino	1695
Pears	Bose	Placer			1696
Pears	Kieffer	Kings			1697
Pears	Beurre Clairgeau	Fresno	Placer	Yolo	1698
Pears	Doyenne du Comice	Placer			1699
Pears	Glout Moreau	Placer			1702
Pears	Beurre Hardy	Placer	Fresno	Yolo	1703
Pears	Howell	Yolo			1704
Pears	Louise B. of Jersey	Fresno	Los Angeles	San Joaquin	1705
Pears	P. Barry	Yolo			1706
Pears	Seckel	Yolo			1707
Pears	White Doyenne	San Joaquin	Yolo		1708
Pears	Winter Bartlett	San Joaquin			1709
Pears	Winter Nclis	Kings	Yolo		1710
Pears	Duchess Angouleme	Fresno	Yolo	San Joaquin	1711
Pears	Beurre d'Anjou	San Joaquin	Placer		1712
Pears	Flemish Beauty	Yolo			1723
Pears	Pound	Placer			1726
Pears	Souvenir de Congress	Fresno			1727
Pears	Vicar of Wakefield	Yolo			1728
Pears	On Plates	Alameda	Fresno		1730
Pears	Bartlett, 5 boxes	Yolo	Placer		1731
Pears	D. du Comice, 5-1/2 boxes	Placer			1732
Pears	Beurre Clairgeau 5-1/2 boxes	Placer	Yolo		1733
Pears	Beurre Hardy, 5-1/2 boxes	Placer	Yolo		1734
Pears	Sweepstakes	Yolo	Placer	Fresno	1736
Peaches	Albright	Yolo			1768
Peaches	Early Crawford	San Joaquin	Yolo	Kings	1739
Peaches	Elberta	Fresno	Kings	San Joaquin	1740
Peaches	Fay's Elberta	Kings	Tulare	Placer	1741
Peaches	Foster	Kings	San Joaquin		1742
Peaches	J. H. Hale	San Joaquin	Fresno	Mendocino	1744
Peaches	Late Crawford	San Joaquin	Fresno	Kings	1746
Peaches	Lovell	Fresno	San Joaquin	Kings	1747
Peaches	Mary's Choice	Kings			1748
Peaches	Muir	Kings	Fresno	Yolo	1749
Peaches	Salway	Kings	Yolo	Placer	1750
Peaches	Susquehanna	Fresno	San Joaquin	Kings	1751
Peaches	Golden Cling	Kings	Fresno		1754
Peaches	George's Late Cling	Fresno	Kings	San Joaquin	1755
Peaches	Heath Cling	Fresno	San Joaquin	Kings	1756
Peaches	Levy's Late	Yolo	Kings		1757
Peaches	McDevitt Cling	Fresno	San Joaquin	Placer	1758
Peaches	Orange Cling	Fresno	Kings	Tulare	1759
Peaches	Phillips Cling	Tulare	Fresno	Kings	1760
Peaches	Tuscan Cling	Kings	Tulare	San Joaquin	1761
Peaches	Strawberry	Fresno	Yolo	Kings	1771
Peaches	Wheatland	Kings	Yolo		1772
Peaches	Indian Blood Cling	Kings	San Joaquin		1776
Peaches	McKevitt Cling	Fresno	San Joaquin	Tulare	1778
Peaches	Persian Cling	Fresno	Tulare		1780
Peaches	Seller's Cling	Fresno	Kings	San Joaquin	1781
Peaches	Strawberry Cling	Kings			1782
Peaches	Libbee Cling	Fresno			1783
Peaches	Selma Cling	Fresno	Kings		1784
Peaches	Haus Cling	Yolo	Kings		1785
Peaches	On Plates	Kings	Fresno		1788
Peaches	Muir, 5 boxes	Kings	Fresno		1789
Peaches	Elberta, 5 boxes	Fresno	Kings		1790
Peaches	Tuscan Cling, 5 boxes	Kings	San Joaquin		1791
Peaches	Phillips Cling, 5 boxes	Fresno	Kings		1792
Peaches	McKevitt Cling, 5 boxes	Fresno	San Joaquin		1793
Peaches	Sweepstake	Kings	Fresno	San Joaquin	1794
Plums	Burbank	Kings	Yolo	Placer	1796
Plums	Climax	Kings			1797
Plums	Diamond	Fresno	San Joaquin		1799
Plums	Grand Duke	San Joaquin	Fresno	Tulare	1800
Plums	Kelsey	Fresno	San Joaquin	Placer	1801
Plums	Wickson	Fresno	Tulare	Kings	1802
Plums	Yellow Egg	Kings	Fresno	Tulare	1803
Plums	Santa Rosa	Placer	Fresno	Kings	1805
Plums	Formosa	Placer	San Joaquin		1806
Plums	Giant	Placer	San Joaquin	Yolo	1807
Plums	President	Placer	Fresno	Yolo	1808
Plums	Gaviota	Placer	Yolo		1809
Plums	Tragedy	Fresno	Tulare	Kings	1812
Plums	Bradshaw	Yolo	Placer		1814

HORTICULTURAL PRODUCTS—Continued.

		First	Second	Third	Section
Plums	Clyman	Kings			1817
Plums	Columbia	Placer			1818
Plums	Purple Duane	Kings	Yolo		1819
Plums	Coe's Golden Drop	Yolo			1820
Plums	Green Gage	Kings	Tulare	Fresno	1821
Plums	Imperial Gage	San Joaquin			1823
Plums	Jefferson	Yolo	Placer		1824
Plums	Maynard	Kings			1825
Plums	Satsuma	Placer	San Joaquin	Kings	1829
Plums	Damson	Tulare	Kings	Fresno	1830
Plums	Washington	Kings			1832
Plums	Quackenboss	Yolo	Placer		1835
Plums	On Plates	Fresno	Alameda		1837
Prunes	American Blue	Yolo	Fresno		1838
Prunes	French	Fresno	Kings	Yolo	1839
Prunes	Italian	Yolo			1840
Prunes	Pond (Hungarian)	Placer	San Joaquin	Kings	1841
Prunes	Robe de Sargent	Yolo	San Joaquin	Kings	1842
Prunes	Silver	Fresno	Kings	Yolo	1843
Prunes	Sugar	Fresno	Tulare	Kings	1844
Prunes	Imperial	Kings	Yolo	San Joaquin	1845
Prunes	Imperial Epineuse	Yolo			1848
Prunes	Standard	Placer	Fresno		1849
Prunes	On Plates	Yolo	Kings		1850
Plums and Prunes	Tragedy, 5 crates	Fresno	Kings		1851
Plums and Prunes	Kelsey Japan, 5 crates	Fresno	San Joaquin		1853
Plums and Prunes	Imp. French, 5 crates	Colusa	Fresno		1854
Plums and Prunes	Hungarian, 5 crates	Placer	Kings		1855
Plums and Prunes	Sweepstake	Fresno	Kings	Placer	1856
Grapes	Muscat	Kings	San Joaquin	Stanislaus	1858
Grapes	Tokay	San Joaquin	Placer	Yolo	1859
Grapes	Black Cornichon	Fresno	Tulare	Kings	1860
Grapes	Thompson	Kings	Tulare	Fresno	1861
Grapes	Emperor	Tulare	Fresno	Yolo	1862
Grapes	Malaga	Fresno	Kings	Tulare	1863
Grapes	Rose of Peru	San Joaquin	Fresno	Kings	1864
Grapes	Black Morocco	Fresno			1865
Grapes	Verdal	Kings			1866
Grapes	Sultana	Fresno	Kings	Yolo	1867
Grapes	Gros Colman	Fresno	Kings		1869
Grapes	Lady Finger	Yolo			1870
Grapes	Mission	Kings	Fresno		1871
Grapes	Concord	Kings			1875
Grapes	Pink Thompson	Fresno			1879
Grapes	Maraville de Malaga	Fresno			1881
Grapes	Olivette Blanche	Fresno			1882
Grapes	White Sweetwater	Fresno	Kings		1883
Grapes	Purple Damascus	Kings	Yolo		1884
Grapes	Zante Currant	Fresno			1885
Grapes	Black Monukka	Fresno			1886
Grapes	Olivette de Vendemain	Fresno			1887
Grapes	Imp. Thompson	Kings	Fresno	Yolo	1888
Grapes	Emperor, in drum	Kings			1900
Grapes	Malaga, in drum	Kings			1901
Grapes	On Plates	Yolo	Kings		1902
Grapes	Tokay, 5 crates	San Joaquin	Yolo		1903
Grapes	P. Cornichon, 5 crates	Fresno	Kings		1904
Grapes	Muscat, 5 crates	Kings	San Joaquin		1905
Grapes	Maraville de Malaga, 5 crates	Fresno			1906
Grapes	Malaga, 5 crates	Fresno	Kings		1907
Grapes	Sweepstake	Kings	Fresno	Yolo	1908
Apricots	Moorpark	Kings			1909
Apricots	Blenheim	Kings			1909a
Apricots	Royal	Yolo	Kings		1909b
Apricots	Peach	Kings			1909c
Apricots	Tilton	Kings			1909d
Apricots	Hemskirk	Kings			1909e
Apricots	On Plates	Kings	Yolo		1900
Nectarines	Advance	San Joaquin			1901
Nectarines	Humboldt	Kings			1902
Nectarines	Downton	Kings			1903
Nectarines	Stanwick	San Joaquin	Kings	Fresno	1904
Nectarines	New White	Fresno	Kings		1905
Nectarines	Victoria	San Joaquin	Kings		1906
Nectarines	On Plates	Kings	Stanislaus		1907
Figs	Calimyrna	Stanislaus	Kings	Fresno	1908
Figs	White Adriatic	Kings			1909
Figs	Mission	Fresno	Kings		1910
Figs	Kadota	Fresno			1912
Figs	On Plates	Placer	Fresno		1913
Oranges	Valencia Late	Tulare	Los Angeles		1919
Oranges	Valencia Late, 5 boxes	Tulare	Los Angeles		1928
Lemons	Eureka	Los Angeles	Colusa	Tulare	1930
Lemons	Lisbon	Los Angeles			1931

HORTICULTURAL PRODUCTS—Continued.

		First	Second	Third	Section
Pomeloes	Marsh Seedless, 5 boxes	Los Angeles			1933
Citrus Fruits	Sweepstake	Los Angeles			1934
Crab Apple	Display	Kings	Yolo	Los Angeles	1942
Quinces	Best Exhibit	Yolo	Fresno		1946
Pomegranates	Best Exhibit	Fresno	Kings		1947
Dates	Fresh	Riverside	Yolo		1951
Medlars	Best Exhibit	Alameda			1952
Avocados	5 varieties	Los Angeles			1953
Persimmons	5 varieties	Fresno	Kings		1959
Rare Fruits	Exhibit of	Fresno			1959a
Olives	Pickled, Best Exhibit	Placer	Fresno		1960
Olives	Pickled, Ripe	Placer			1961
Olives	Pickled, Green	Fresno	Yolo		1962
Walnuts	5 varieties	Alameda	Fresno		1964
Almonds	5 varieties	Yolo	Alameda		1965
Chestnuts	Best Exhibit	Fresno	Kings		1966
Peanuts	Best Exhibit	Tulare	Yolo		1967
Pecans	5 varieties	Fresno	San Joaquin		1968
Hazelnuts	Best Exhibit	Fresno			1969
Dried Fruit	Apples	Mendocino			1971
Dried Fruit	Pears	Mendocino	Fresno		1972
Dried Fruit	Peaches	Fresno	Kings		1973
Dried Fruit	Prunes	Yolo	Fresno		1975
Dried Fruit	Apricots	Fresno	Yolo		1976
Dried Fruit	Nectarines	Kings	Fresno		1977
Dried Fruit	Prunes, Best Exhibit	Kings			1978
Dried Fruit	California Figs, Retail Packages	Fresno	Yolo		1979
Dried Fruit	Sweepstake	Fresno	Kings	Yolo	1981
Raisins	Best Display	Fresno	Kings		1982
Raisins	Best Packed Box	Fresno			1983
Raisins	Seedless	Fresno	Kings		1984
Raisins	Seeded (by factory)	Fresno			1985
Melons	Watermelons	San Joaquin			1986
Melons	Cantaloupes	Yolo			1987
Melons	Casabas	Stanislaus			1989
Melons	Sweepstake	Stanislaus			1990

FACTORY PRODUCTS.

Preserves	By Factory, Best Display	Fresno			1991
Preserves	By Factory, Canned Fruit	Fresno			1992
Preserves	By Factory, Canned Vegetables	Kings			1993
Preserves	By Factory, Canned Fish	Los Angeles			1994
Preserves	By Factory, Pickles	Fresno			1995
Preserves	Best Display in Glass	Kings			1997
Olive Oil	5 cases	Placer			2016

FLORICULTURE AND FORESTRY.

Flowers	Plants in Bloom	Yolo	Humboldt		2041
Flowers	Cut—Best Display	Mendocino	Stanislaus		2042
Flowers	Roses in Bloom	Yolo			2043
Flowers	Fuchsias in Bloom	Yolo			2044
Flowers	Dahlias	Yolo	Stanislaus		2047
Plants	Rooted Begonias	Humboldt			2048
Plants	Ornamental Foliage	Humboldt			2049
Plants	Coleus	Placer			2051
Plants	Ferns	Placer			2052
Plants	Conservatory	Placer			2053
Plants	Hanging Baskets	Yolo			2054
Seed	Flower	Yolo			2055
Bulbs	Best Display	San Joaquin			2056
Forestry	California Hardwoods	Placer			2061
Forestry	California Woods	Placer			2062
Forestry	Best Exhibit	Mendocino			2063
Forestry	Burled Redwood	Mendocino			2064

AGRICULTURAL PRODUCTS.

Agricultural	Best General Exhibit	Stanislaus	Kings	Fresno	2100
Agricultural	Product of One Farm	Northern Cal. Co. Ass'n			2101
Cereals	In Grain and Head	Stanislaus	Kings		2102
Wheat	California No. 1 Red	Yolo	Northern Cal. Co. Ass'n		2103
Wheat	California No. 1 White	Yolo			2104
Wheat	California No. 1 White Club	Yolo			2105
Wheat	California No. 1 White Sonora	Kings			2106
Barley	Brewing	Kings			2107
Barley	Feed	San Joaquin			2108
Barley	Chevalier	Yolo			2109
Rye	Grain or Head	Northern Cal. Co. Ass'n			2110
Oats	Black	Mendocino			2111
Oats	White	Yolo			2112
Oats	Red	Kings			2113

AGRICULTURAL PRODUCTS—Continued.

		First	Second	Third	Section
Buckwheat	Grain or Head	Stanislaus			2114
Corn	Yellow	Fresno	Kings		2115
Corn	White	Kings	Stanislaus		2116
Corn	Sweet	Fresno			2117
Corn	On Stalk	Colusa	Stanislaus		2118
Corn	Forage Sorghum	Stanislaus	Kings		2119
Corn	Egyptian	Colusa	Stanislaus		2120
Corn	Milo Maize	Fresno	Kings		2121
Corn	Seed	Kings			2122
Potatoes	Burbanks	Kings	San Joaquin		2123
Potatoes	British Queen	Los Angeles			2125
Potatoes	White Rose	Los Angeles			2126
Potatoes	Sweet	Stanislaus	Tulare		2128
Potatoes	Sweepstake	Stanislaus	Yolo		2129
Beans	Lady Washington	Fresno			2130
Beans	Navy	Fresno			2131
Beans	Blue Pod	Fresno			2132
Beans	Pink	Yolo			2133
Beans	Mexican Red	Fresno			2134
Beans	Red Kidney	Yolo			2135
Beans	Blackeye	Stanislaus			2136
Beans	Tepary	Fresno			2137
Beans	Bayo	Yolo			2138
Beans	Lima	Yolo			2139
Beans	Cranberry	Fresno			2140
Beans	Garbanzo	Kings			2141
Beans	Horse	Fresno			2142
Beans	Sweepstake	Fresno	Yolo		2143
Castor Beans	10 Spikes—One Plant	Kings	Stanislaus		2144
Castor Beans	Oil Content	Fresno			2145
Beans	Best Single Plant	Kings			2147
Beans	Sweepstake	Kings			2148
Onions	Red	Mendocino			2149
Onions	White	Fresno			2150
Onions	Yellow	Fresno			2151
Onions	Sweepstake	Fresno			2152
Peas	Dried	Fresno			2154
Peas	Sweepstake	Fresno			2156
Rice	Meritorious Exhibit	Colusa	Yolo		2157
Rice	Rough	Yolo	Colusa		2158
Rice	Hulled	Yolo	Colusa		2159
Rice	Grain and Head	Colusa	Yolo		2160
Rice	10 Varieties	Yolo	Colusa		2160a
Tobacco	Grown in California	Kings	Yolo		2161
Tobacco	Turkish, grown in California	Yolo	Kings		2162
Tobacco	Plants, grown in California	Kings			2164
Alfalfa	Best Display	Nor. Cal. Co. Ass'n. (1st)	Mendocino (2d)		2165
Seeds	Clover	Kings			2166
Seeds	Rye Grass	Kings			2167
Seeds	Sudan Grass	Fresno			2168
Seeds	Orchard Grass	Fresno			2169
Seeds	Alfalfa	Northern Cal. Co. Ass'n.			2170
Seeds	Garden, 25 varieties	Kings	Fresno		2171
Seeds	Sunflower	Fresno			2172
Hops	Best Display	Mendocino	Yolo		2173
Tomatoes	Table	Yolo			2174
Tomatoes	Preserving	Kings			2175
Tomatoes	Commercial	Yolo			2176
Tomatoes	Sweepstake	Yolo			2177
Cabbage	Drumhead	Yolo			2178
Cabbage	Dutch	Yolo			2179
Cabbage	Savoy	Yolo			2180
Cabbage	Globe Head	San Joaquin			2181
Cabbage	Red Head	Yolo			2183
Cauliflower	Best	Yolo			2184
Lettuce	Crisp Head	Yolo			2187
Endives	Best	Yolo			2180
Brussels Sprouts	Best	Yolo			2191
Artichokes	Best	Yolo			2192
Green Vegetables	Sweepstake	San Joaquin			2193
Root Vegetables	Parsnips	San Joaquin			2194
Root Vegetables	Carrots, Long	San Joaquin			2195
Root Vegetables	Carrots, 1/2 Long	San Joaquin			2196
Root Vegetables	Carrots, French	Yolo			2197
Root Vegetables	Turnips	San Joaquin			2198
Root Vegetables	Radishes, Red	San Joaquin			2200
Root Vegetables	Radishes, White	San Joaquin			2201
Root Vegetables	Salsify	Yolo			2202
Root Vegetables	Sweepstake	San Joaquin			2205
Beets	Garden	San Joaquin			2206
Beets	Blood	San Joaquin			2207
Beets	Sugar	San Joaquin	Kings		2209
Beets	Sugar, for Stock	Kings			2210
Beets	Mangel Wurzel	Kings			2211

AGRICULTURAL PRODUCTS—Continued.

		First	Second	Third	Section
Beets	Yellow Mangel	Yolo			2212
Beets	Sweepstake	San Joaquin			2213
Pumpkins	Field	Kings			2214
Pumpkins	Table	Fresno			2215
Squash	Best Keeping	Kings			2216
Squash	Hubbard	Stanislaus			2218
Squash	Summer	Yolo			2219
Squash	Stock	Yolo			2220
Squash	Sweepstake	Kings			2221
Misc. Vegetables	Best Celery	Alameda			2222
Misc. Vegetables	Celery, self-blanching	Yolo			2223
Misc. Vegetables	Rhubarb, Strawberry	Alameda			2224
Misc. Vegetables	Rhubarb, Crimson	Alameda			2225
Misc. Vegetables	Cucumbers, Table	Fresno			2226
Misc. Vegetables	Gherkins	San Joaquin			2227
Misc. Vegetables	Egg Plants	Alameda			2228
Misc. Vegetables	Peppers, Table	San Joaquin			2229
Misc. Vegetables	Peppers, Pickling	Fresno			2230
Flour, etc.	Wheat, Bakers	Yolo			2233
Flour, etc.	Wheat, Family	Mendocino			2234
Flour, etc.	Wheat, entire	Mendocino			2235
Flour, etc.	Graham	Fresno			2236
Flour	Rice	Yolo			2237
Flour, etc.	Rye	Yolo			2239
Flour	Oatmeal	Yolo			2243
Flour, etc.	Cornmeal, Yellow	Yolo			2244
Flour, etc.	Cornmeal, White	Fresno			2245
Flour, etc.	Pearl Barley	Yolo			2246
Flour, etc.	Hominy	Yolo			2247
Flour, etc.	Sweepstake	Yolo	Kings		2248
Macaroni, etc.	By Manufacturer	Fresno			2249
Bread, Crackers, etc.	By Manufacturer	Fresno			2250
Syrup	Cane or Beet	Stanislaus			2253
Confectionery		Los Angeles			2254
Fruits	Candied	Los Angeles			2258
Sugars	Artistic Molding	Kings			2259
Meats	By Packing House	Virdeen Packing Co.			2260

BEES AND HONEY.

Honey	Display of Comb	S. Taylor	Yolo		2262
Honey	Specimen Comb	Colusa	Northern Cal. Co. Ass'n.		2263
Honey	Extracted	Riverside	S. Taylor		2264
Honey	Commercial Pack	Riverside	S. Taylor		2265
Beeswax	Display	S. Taylor	Fresno		2266
Beeswax	Specimen	Riverside	S. Taylor		2267
Bees	Italian—nucleus	S. Taylor	Yolo		2268
Bees	Sweepstake	S. Taylor			2272
Honey	Vinegar	S. Taylor			2274
Honey	Producing Plants	Riverside			2275
Bees	Comb Hive	S. Taylor			2276
Bees	Extracting Hive	S. Taylor			2277
Bees and Honey	Sweepstake	S. Taylor	Yolo		2278

TEXTILES.

Cotton	Display	Fresno	Riverside		2281
Cotton	In Bolts	Riverside			2282
Cotton	In Stalks	Riverside	Yolo		2283
Hemp		Yolo			2292
Wool Fleece	American Merino	Mendocino			2297
Wool Fleece	Rambouillet	Corriedale Sheep Co., 1st; G. N. Merritt, 2d			2299
Wool Fleece	Corriedale	Corriedale Sheep Co., 1st and 2d			2300
Wool Fleece	Shropshire	Yolo, 1st; Corriedale Sheep Co., 2d			2301
Wool Fleece	Southdown	Corriedale Sheep Co., 1st; Yolo, 2d			2302
Wool Fleece	Hampshire	Calla Grove Farm, 1st; Yolo, 2d			2303
Wool Fleece	Lincoln	Corriedale Sheep Co.			2306
Wool Fleece	Leicester	Corriedale Sheep Co.			2308
Wool Fleece	Romney	E. C. Tribble, 1st; Yolo, 2d			2309
Wool	Fine Combing	Corriedale Sheep Co., 1st and 2d			2310
Wool	Clothing	Corriedale Sheep Co., 1st and 2d			2311
Wool	1/2 Blood Combing	Corriedale Sheep Co., 1st and 2d			2312
Wool	3/4 Blood Combing	Corriedale Sheep Co., 1st and 2d			2313
Wool	1/4 Blood Combing	Calla Grove Farms, 1st; Corriedale Sheep Co., 2d			2314
Wool	Braid	Corriedale Sheep Co.			2315
Wool	Blanket, California manufacture	Eureka Woolen Mills			2316
Wool	Yarn, California manufacture	Eureka Woolen Mills			2317
Wool	Cloth, California manufacture	Eureka Woolen Mills			2318
Feathers	Ostrich	Los Angeles			2319
Feathers	Ostrich, Finished Product	Los Angeles			2320

California State Agricultural Society Kennel Club. 1921.

DIRECTORS.

DR. A. P. DEACON, PRESIDENT.....	Willows
A. T. MOORE, VICE-PRESIDENT.....	Orland
CHAS. W. PAINE, SECRETARY-TREASURER.....	Sacramento
JOHN H. HOLBROOK.....	Campbell
L. P. OLKER.....	Chico
DR. GEO. A. SPENCER.....	Sacramento

BENCH SHOW COMMITTEE.

DR. A. P. DEACON	A. T. MOORE	CHAS. W. PAINE
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JUDGE.

(All Breeds.)

DANIEL SHUTTLEWORTH.....	Millbrae
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VETERINARIAN.

DAVID F. FOX.....	Sacramento
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JOHN H. HOLBROOK, Superintendent.

Office—State Agricultural Society, State Fair Grounds, Sacramento.

LIST OF EXHIBITORS.*

ALL ADDRESSES IN SAN FRANCISCO, UNLESS SPECIFIED.

Ackerman, Irving C.....	281 O'Farrell st.
Ashcraft, Allen.....	1818 Wellington rd., Los Angeles
Baneroff, Philip.....	Walnut Creek
Behrens, Mrs. Fred.....	2106 W st., Sacramento
Bennett, Mrs. Chas.....	21 N. F st., San Mateo
Bernadas, Mr. and Mrs. Geo. J.....	Roseville
Boro, Mrs. Chas.....	2018 E. Lafayette st., Stockton
Brae Brook Kennels.....	R. F. D. 3, box 359, Santa Rosa
Brown, Mrs. E. F.....	3417 24th st.
Buekhorn Kennels.....	Willows
Cass, Mrs. C. M.....	334 Pierce st.
Colverd, Mrs. Walter.....	R. F. D. 1, Sausalito
Connaught Kennels.....	221 Mason st.
Countryside Kennels.....	1233 Drake av., Burlingame
Davis, Frank E.....	360 Piedmont dr., Altadena
Davenport, Dr. D. D.....	410 Belding bldg., Stockton
Foothills Kennels.....	136 N. Canyon blvd., Monrovia
Frank, R. J.....	1031 G st., Sacramento
Fairoaks Kennels.....	Fairoaks
Harrison, H. L.....	2106 Clement st., Alameda
Heffernan and Dr. D. D. Davenport.....	410 Belding bldg., Stockton
Heremoto, Harry.....	419 L st., Sacramento
Lloyd, W. E.....	University Farm, Davis
Lewis, Mrs. Geo. W.....	3326 Y st., Sacramento
La Bara, Mrs. J.....	2120 K st., Sacramento
McCay, Fred B.....	Cathay
McClatchy, Mrs. Carlos.....	Sacramento Bee, Sacramento
Morgans, L. P.....	2011 University av., Berkeley
Morrison, Mr. and Mrs. C. V.....	Del Paso Heights
Martin, Mrs. F. H.....	3342 Fourth av., Sacramento
Neff, B. J.....	114 N. School st., Lodi
Nelson, H. V.....	Owensmouth
Nicholas, Mr. and Mrs. H. G.....	1639 Grant st., Berkeley
Osborne, W. F.....	2629 Twenty-second st.
Renwick, Edward.....	1520 O st., Sacramento
Straus, Celine.....	1454 Leavenworth st.
Soanos, John.....	4828 Tenth av., Sacramento
Shaw, Palmer H.....	King City
Tokay Kennels.....	105 N. Sacramento st., Lodi
Weinburger, P. L.....	405 Ninth st., Sacramento
White, Jno. R.....	Concord
Zion, E. H.....	Modesto Bank bldg., Modesto

*For principal winners see Medal awards.

Poultry, Pigeon and Pet Stock Show.

Poultry Judges.	
CHAS. G. HINDS	Oakland
ROBT. V. MOORE	San Leandro
Pigeon Judges.	
WM. J. HEAD	Berkeley
ROBT. V. MOORE	San Leandro
Pet Stock Judge.	
ROBT. V. MOORE	San Leandro
Superintendent.	
EMERY F. MITCHELL	Belvedere

POULTRY.

Poultry Exhibitors.

Adderly, A.	3546 Herman av., San Diego, Cal.
Albin, C. R.	1604 South El Dorado st., Stockton, Cal.
Albrecht, Mr. and Mrs. M. C.	R. F. D. No. 4, Box 265, Sacramento, Cal.
Aldinger, Henry P.	Box 1434, Route 4, Sacramento, Cal.
Amos, L. J.	Mountain View, Cal.
Atkinson, J. W.	130 South Willard av., San Jose, Cal.
Aumock, George L.	161 Bryant st., Palo Alto, Cal.
Baxter, R. G.	R. F. D. No. 1, Box 205-B, Whittier, Cal.
Berry, J. J.	Oakdale, Cal.
Bessette, Geo. J.	4210 San Bonita av., Sacramento, Cal.
Blackman & Mumford.	607 East Third st., Los Angeles, Cal.
Blackmar, Chas. A.	523 Rosemont av., Los Angeles, Cal.
Blackwell, Frank.	1323 P st., Sacramento, Cal.
Brown, John King.	1819 U st., Sacramento, Cal.
Browning, Mrs. H. C.	3640 Third av., Sacramento, Cal.
Bryant, P. A.	R. F. D. No. 4, Box 136, Stockton, Cal.
Buhrman, Geo. H.	R. D. No. 5, Box 105, Watsonville, Cal.
California Swine Corporation.	Box 185, Route A, Escalon, Cal.
Cameron Bros.	76 Fourteenth av., Sacramento, Cal.
Chaussee, Mrs. P. H.	R. D. No. 4, S. F. Blvd. 315, Sacramento, Cal.
Coe, A. J.	R. D. No. 2, Box 114, Lodi, Cal.
Coons, Eugene.	209 Linn st., Napa, Cal.
Crabtree, James M.	1836 Fifty-seventh av., Oakland, Cal.
Diets, Henry A.	1051 Bella Vista av., Oakland, Cal.
Dixon, R. S.	440 N. 5th W st., Provo, Utah
Elmhurst Poultry Farm.	5217 T st., Sacramento, Cal.
Ferrogiaro, Louis.	43 B st., Napa, Cal.
Fisher, J. E.	1324 South Sutter st., Stockton, Cal.
Fowler, Joseph.	Duarte, Cal.
French, Wm. A.	545 West Park st., Stockton, Cal.
Gilbean, E. W.	831 South San Joaquin st., Stockton, Cal.
Gregerson, Mrs. C. F.	3306 West st., Oakland, Cal.
Gruhlke, Mrs. Ray C.	Dixon, Cal.
Hammond, Eugene I., Jr.	152 East Prospect av., Riverside, Cal.
Howard's Quality Poultry Farm.	R. D. No. 4, Box 863, Sacramento, Cal.
Huskins, Arthur W.	417 West Ivy st., Glendale, Cal.
Irwin, Geo. H.	Milwaukie, Oregon
Johnson, A. O.	1512 Walnut st., Berkeley, Cal.
Johnston, Mrs. R. G.	R. F. D. No. 1, Box 73, Fair Oaks, Cal.
Jorgensen Exhibition Maltse Loft.	1146 Huff av., San Leandro, Cal.
Jungle Bar-V Poultry & Pigeon Farm.	P. O. Box 204, Altadena, Cal.
Keplinger, Messrs. H. D. and Ray.	1810 West Twelfth st., Los Angeles, Cal.
Kraft, F. D.	4141 Eleventh av., Sacramento, Cal.
Larm, Wm.	3915 Thirty-ninth av., Fruitvale, Cal.
Lloyd, W. E.	401 B st., Davis, Cal.
Lubben, Geo. D.	R. F. D. No. 3, Box 80, Napa, Cal.
Lovett, Miss Anna B.	2916 Thirty-fifth st., Sacramento, Cal.
Lutzi, R. P.	1450 Twenty-third av., San Francisco, Cal.
Marwick, James.	Braemar Ranch, Santa Barbara, Cal.
McGe, Wm.	3995 Third av., Sacramento, Cal.
Mee, John.	San Miguel, Cal.
Meredith, W.	2915 G st., Sacramento, Cal.
Meredith, Mrs. Blanche.	2915 G st., Sacramento, Cal.
Miles, Llewellyn.	Route C, Box 41, Modesto, Cal.
Moore, Jesse.	630 Fifty-eighth st., Oakland, Cal.
Morrill, Jack.	5217 T st., Sacramento, Cal.
Newell, Victor.	437 East Clay st., Stockton, Cal.
O'Connell, Wm.	3811 Thirty-ninth av., Oakland, Cal.
Peralta Pigeon Farm.	Route No. 1, Box 433-A, Oakland, Cal.
Poisal, L. S.	2836 Humboldt av., Oakland, Cal.
Popplewell & Sanders.	P. O. Box 59, Sacramento, Cal.
Poppy Hill Poultry Farm.	4151 Thirty-fifth av., Oakland, Cal.
Pray, L. W.	Durham, Butte County, Cal.
Reay's Royal Ancona Yards.	3142 Ward st., Fruitvale, Cal.

Poultry Exhibitors—Continued

Roberts, A. D.	P. O. Box 146, Ceres, Cal.
Roberts, John D.	3293 Sisson av., East San Diego, Cal.
Roberts, Manuel	Concord, Cal.
Rose Lawn Poultry Yards	Maine st., Manteca, Cal.
Rowe, Wm. E.	Box 983, Roseville, Cal.
Royce, G. Irwin	1103 Kerekhoff bldg., Los Angeles, Cal.
Sanders, Earl E.	R. D. Box 1880, Modesto, Cal.
Sanders, H. R.	P. O. Box 59, Sacramento, Cal.
Schmidt, George	Route No. 3, Box 633, Elk Grove, Cal.
Schuehard, Otio F.	1910 Twenty-ninth st., Sacramento, Cal.
Short, John E.	Sequoia Farm, Box 1018, Sacramento, Cal.
Solano Rabbitry	Suisun, Cal.
Stewart, Charlie	R. F. D. No. 1, Box 486, Sacramento, Cal.
Stuart Poultry Farm	894 Fifty-ninth st., Oakland, Cal.
Verkouteren, I. J.	Paicines, Cal.
Ward's Poultry Farm	39 South Lincoln av., San Jose, Cal.
Washburn, F. M.	R. D. No. 3, Box 74, Sacramento, Cal.
White, Jno. R.	Concord, Cal.
Whyte, James Y.	1630 Twenth-seventh av., Oakland, Cal.
Wilkinson, A. S.	Winton, Cal.
Williams Brothers	Box 26, Fullerton, Cal.
Wittenberg, G. W.	3223 Thirty-fifth av., Oakland, Cal.
Yates, R. J.	Orland, Cal.

WINNERS.

Sweepstake.

Largest and Best Display of Standard Bred Poultry	Geo. H. Irwin
Second Largest and Best Display of Standard Bred Poultry	R. G. Baxter
Third Largest and Best Display of Standard Bred Poultry	P. A. Bryant

Large Classes.

Best Male—Barred Plymouth Rock Cock, 26	P. A. Bryant
Second Best Male—Buff Orpington Cockerel, 48	James Marwick
Best Female—Single Comb Rhode Island Red Pullet, 4	Ward's Poultry Farm
Second Best Female—Dark Brown Leghorn Pullet, 61	Williams Bros.
Best Pen—Buff Orpington	James Marwick
Second Best Pen—Single Comb Leghorn Buff	Manuel Roberts

Bantam Classes.

Best Male, Game—Brown Breasted Red Game Bantam Cock, 25	Geo. Irwin
Second Best Male, Game—Red Pyle Game Bantam Cock, 17	Geo. Irwin
Best Female, Game—Black Breasted Red Game Bantam Hen, 86	R. G. Baxter
Second Best Female, Game—Silver Duckwing Game Bantam	Geo. Irwin
Best Pen, Game—Black Breasted Red Game Bantam	R. G. Baxter
Second Best Pen, Game—Black Breasted Red Game Bantam	R. G. Baxter
Best Male, Ornamental—Black Cochon Bantam Cock, 94730	Blackman & Mumford
Second Best Male, Ornamental—Silver Sebright Cockerel, 18	A. J. Coe
Best Female, Ornamental—Silver Sebright Pullet, 25	A. J. Coe
Second Best Female, Ornamental—Black Cochon Hen	R. S. Dixon
Best Pen, Ornamental—Silver Sebright	A. J. Coe
Second Best Pen, Ornamental—Black Cochon	R. S. Dixon

Turkeys.

Best Pair—Bourbon Reds	J. J. Berry
Second Best Pair—Bronze	J. Mee
Third Best Pair—Bourbon Reds	J. J. Berry

Geese.

Best Pair—Toulouse	A. J. Coe
Second Best Pair—White Embden	J. Mee
Third Best Pair—White Embden	J. Mee

Ducks.

Best Pair—Pekin	Blackman & Mumford
Second Best Pair—Pekin	James Marwick
Third Best Pair—Fawn and White Indian Runner	Wm. McGee

PIGEONS.

Pigeon Exhibitors.

Bierbauer, Arthur	3126 Twelfth av., Sacramento, Cal.
Coe, A. J.	R. D. No. 2, Box 114, Lodi, Cal.
Crawford, Oliver E.	104 Fair Oaks av., Stockton, Cal.
Crook, Messrs. G. and L.	1526 Sixth av., Oakland, Cal.
Fisher, J. E.	1324 South Sutter st., Stockton, Cal.
French, Wm. A.	545 West Park st., Stockton, Cal.
Hoover, R. M.	950 East Franklin st., Pomona, Cal.
Jorgover, R. M. C.	1146 Huff av., San Leandro, Cal.
Kaessing, H. O.	3233 D st., Sacramento, Cal.
Kaessing, O. M.	3233 D st., Sacramento, Cal.
Kraft, F. D.	4141 Eleventh av., Sacramento, Cal.

Pigeon Exhibitors—Continued.

Leefe, Clarence A.	439 Earl st., Santa Rosa, Cal.
Lund, J.	3803 Midvale av., Oakland, Cal.
Peralta Pigeon Farm	Route No. 1, Box 433-A, Oakland, Cal.
Richardson, George W.	2559 Montana st., Oakland, Cal.
Royer, G. E.	4154 East Fourteenth st., Oakland, Cal.
Washburn, F. M.	R. F. D. No. 3, Box 74, Sacramento, Cal.
Sperry Flour Company	102 Clay st., Oakland, Cal.
Van Antwerp, E. M.	2024 Steinway av., Oakland, Cal.

Pigeon Sweepstake Awards.

First Prize	A. J. Coe
Second Prize	F. M. Washburn
Third Prize	Peralta Pigeon Farm
Fourth Prize	Jorgensen Exhibition Maltese Loft

RABBITS.

Rabbit Exhibitors.

Balfour, Robert L.	Hondo, c-o L. A. Co. Farm, Los Angeles, Cal.
Hackett, L. B.	3206 West st., Oakland, Cal.
Holmes, Dr. Walter N.	119 East Colorado st., Pasadena, Cal.
Wagner, Geo. T.	2600 Twenty-seventh st., Sacramento, Cal.

Sweepstake Awards.

Largest and Best Display	Mrs. L. B. Hackett
Second Largest and Best Display	Geo. T. Wagner

Gold Medal Awards.

DAIRY PRODUCTS.

NAME	AWARDED ON
Modesto Milk Company	Butter, 20 pounds or over.
Northern California Milk Producers' Association	Creamery butter.
Hugh Barber, c-o Holstein Creamery Company, Tillamook, Ore.	Cheddar cheese.
Reber & Woodmanzee, Bieber	California cheese
Adhor Stock Farm, Van Nuys	Certified bottled milk.
Brant Rancho, Owensmouth	Guaranteed bottled milk.
Brant Rancho, Owensmouth	Guaranteed bottle cream.
J. Henry, Los Angeles	Grade A, bottled milk.
Sunset Dairy, Palo Alto	Grade A, bottled cream.
F. A. Arnberg, Gilroy	Raw market milk.
Crescent Creamery, Los Angeles	Raw market cream.
Modesto Milk Company	Pasteurized market milk.
Watsonville Creamery Milk Depot	Pasteurized market cream.
United Milk Company, San Francisco	Highest score 5 milk dealers.
J. P. Bushong, Los Angeles	Dairy Inspector.
Model Creamery, Redlands	Best display milk and cream.
Northern California Milk Producers Association	Condensed and powdered milk.
Northern California Milk Producers Association	Best display dairy products.
R. Godwin, Los Angeles	Bottled goat milk.

COUNTIES.

Placer County	Pickled olives.
Fresno County	Factory display preserved fruits.
Fresno County	Factory display canned fruits.
Kings County	Factory display canned vegetables.
Los Angeles County	Factory display canned fish.
Fresno County	Factory display fancy pickles.
Kings County	Factory display fruits and jellies.
San Joaquin County	Bulb display.
Placer County	California hardwoods.
Placer County	California woods.
Mendocino County	Forestry.
Mendocino County	Burled redwood.
Stanislaus County	Cereals in grain and head.
Kings County	Castor beans.
Colusa County	Best exhibit rice.
Northern California Counties Association	Best exhibit alfalfa.
Kings County	Best exhibit garden seeds.
Fresno County	Best exhibit graham flour.
Yolo County	Best exhibit rice flour.
Yolo County	Best exhibit flours and meals.
Fresno County	Best exhibit bread, biscuits, etc.
Kings County	Artistic models, sugars and confections
Los Angeles County	Ostrich feathers, finished product.
Placer County	Placer gold.
Placer County	Lode gold, specimens.
Calaveras County	Lode gold, ores.
Calaveras County	Milk products.

GOLD MEDAL AWARDS—Continued.

Counties—Continued.

NAME	AWARDED ON
Northern California Counties Association	Copper ores.
Calaveras County	Smelter products.
Calaveras County	Iron ores.
Northern California Counties Association	Quicksilver ores.
Northern California Counties Association	Miscellaneous metallic ores.
Calaveras County	Asbestos.
Calaveras County	Coal.
Placer County	Magnetite.
Calaveras County	Mineral paints.
Calaveras County	Soapstone and talc.
Calaveras County	Nonmetallic ores.
Northern California Counties Association	Uncut gems of California.
Northern California Counties Association	Rock salt.
Calaveras County	Slate.
Calaveras County	Polished marble.
Placer County	Polished granite.
Placer County	Clay and clay products.
Eureka Woolen Mills, Humboldt County	Blankets, California manufacture.
Eureka Woolen Mills, Humboldt County	Wool yarn, California manufacture.
Eureka Woolen Mills, Humboldt County	Woolen cloth, California manufacture.
Fresno County	White grape juice.
Mendocino County	Red grape juice.

COMMERCIAL.

Oranco Company of California	Carbonated waters.
Blue Rock Mineral Water Company	Mineral water.
Virden Packing Company	Packing house meats.
York Manufacturing Company, San Francisco	Refrigerator.
Pacific Porcelain Ware Company, San Francisco	Invention bath spout.
Wade Viking	Cream separator.
California Anker-Holth	Cream separator.
International Harvester Company	Cream separator.
G. H. S. Harding, Berkeley	Pictorial photography, miscellaneous.
E. Weston, Glendale	Pictorial photography, portrait and figure.
D. Sheahan, Los Angeles	Pictorial photography, landscape.

HORSES.

R. E. Homer, Los Angeles	Performing horse, "Headlight."
R. E. Homer, Los Angeles	Performing pony, "Honey Boy."
Palo Alto Percheron Farm	Champion Percheron stallion.
Palo Alto Percheron Farm	Champion Percheron mare.
Merritt-Bowers Company	Champion Belgian stallion.
Merritt-Bowers Company	Champion Belgian mare.
Thos. B. Dibblee Estate	Champion Clydesdale stallion.
Thos. B. Dibblee Estate	Champion Clydesdale mare.
Merritt-Bowers Company	Champion Shire mare.
Merritt-Bowers Company	Four horse team.
Danziger & Spalding	Champion coach stallion.
Danziger & Spalding	Champion Hackney stallion, open class.
Danziger & Spalding	Champion Hackney stallion, state class.
Danziger & Spalding	Champion Hackney mare, open class.
Danziger & Spalding	Champion Hackney mare, state class.

CATTLE.

J. Marwick	Senior champion Aberdeen-Angus bull.
F. B. McKay	Junior champion Aberdeen-Angus bull.
J. Marwick	Senior champion Aberdeen-Angus cow.
J. Marwick	Grand champion Aberdeen-Angus bull.
J. Marwick	Grand champion Aberdeen-Angus cow.
W. M. Carruthers	Champion fat steer.
California George Junior Republic	Grand champion Holstein-Friesian bull.
R. L. Holmes	Grand champion Holstein-Friesian cow.
J. E. Thorp	Grand champion Jersey bull.
J. E. Thorp	Grand champion Jersey cow.
A. B. Humphrey	Grand champion Guernsey bull.
Brant Rancho	Grand champion Guernsey cow.
Elkhorn Farm	Grand champion Ayrshire bull.
Elkhorn Farm	Grand champion Ayrshire cow.
T. Harrison	Grand champion Dairy Shorthorn bull.
Alexander & Kellogg	Grand champion Dairy Shorthorn cow.

MILK GOATS

H. Irwin Farr	Senior champion Anglo-Nubian doe.
H. Irwin Farr	Junior champion Anglo-Nubian doe.
Alice M. Brown	Senior champion Saanen doe.
H. F. Shinker	Junior champion Saanen doe.
Richards & Wagner	Senior champion Toggenburg doe.
Mrs. B. M. Gantz	Junior champion Toggenburg doe.
Alice M. Brown	Champion registered grade doe.

GOLD MEDAL AWARDS—Continued.

SHEEP.

NAME	AWARDED ON
G. N. Merritt & Son	Champion Rambouillet ram.
G. N. Merritt & Son	Champion Rambouillet ewe.
Thos. B. Bishop Company	Champion Shropshire ram.
Thos. B. Bishop Company	Champion Shropshire ewe.
H. S. Van Vlear	Champion Hampshire ram.
Straloch Farm	Champion Hampshire ewe.
Corriedale Sheep Company	Champion Southdown ram.
Corriedale Sheep Company	Champion Southdown ewe.
Corriedale Sheep Company	Champion Corriedale ram.
Corriedale Sheep Company	Champion Corriedale ewe.
Corriedale Sheep Company	Champion Lincoln ram.
Corriedale Sheep Company	Champion Leicester ram.
Corriedale Sheep Company	Champion Leicester ewe.
Spencer Ranch Company	Champion Romney ram.
Spencer Ranch Company	Champion Romney ewe.
Butte City Ranch	Champion wether, medium wool breed.
Corriedale Sheep Company	Champion wether, grades and crosses.
Butte City Ranch	Grand champion wether, grades and crosses.

SWINE.

A. B. Humphrey	Grand champion Berkshire boar.
Italian Vineyard Company	Grand champion Berkshire sow.
Howard Vaughn	Grand champion Chester White boar.
Howard Vaughn	Grand champion Chester White sow.
Sierra Vista Stock Ranch	Grand champion Duroc-Jersey boar.
Wm. V. Mong	Grand champion Duroc-Jersey sow.
Hayes & Harter	Grand champion Hampshire boar.
Hayes & Harter	Grand champion Hampshire sow.
Stephens & Gatewood	Grand champion Poland China boar.
Bassett Brothers	Grand champion Poland China sow.
Dr. J. J. Summerfield	Grand champion Tamworth boar.
Dr. J. J. Summerfield	Grand champion Tamworth sow.

SCHOOLS.

Santa Cruz High School	Smith Hughes school exhibit.
Modesto High School	Graphic art and commercial designing.
Modesto High School	Sweepstake—cabinet making.
Bakersfield High School	Drafting.
Bryn Mawr School	Meritorious exhibit.
Sacramento Night School	Meritorious exhibit.
San Bernardino High School	Meritorious exhibit.
Auburn High School	Meritorious exhibit.
Stockton City Schools	Meritorious exhibit.
Santa Monica High School	Meritorious exhibit.
Chico State Teachers College	Meritorious exhibit.
Preston School of Industry	Meritorious exhibit.
Weimar Rural School	Meritorious exhibit.
Applegate Rural School	Meritorious exhibit.
Sacramento City Schools	Meritorious exhibit.
Lincoln High School	Meritorious exhibit.
Modesto High School	Millinery, clothing and textiles.
Roseville High School	Concrete school building.

PIGEONS.

F. M. Washburn, Sacramento	Pigeon sweepstake.
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STUDENT JUDGING.

J. Bosse, Esparto High School	Student judging—hogs.
H. Beckman, Lodi High School	Student judging—beef cattle.
E. Clooney, Esparto High School	Student judging—horses.
A. Eicker, Napa High School	Student judging—dairy cattle.
E. Dinis, Petaluma High School	Student judging—poultry.
L. Chorley, San Juan High School	Student judging—sheep.

DOGS.

Celine Straus, San Francisco	Best in show, cocker spaniel.
E. Renwick, Sacramento	Best sporting dog, pointer.
Mrs. C. Bennett, San Mateo	Best toy dog, Pomeranian.

Silver Medal Awards.

NAME	SCHOOLS.	AWARDED ON
Modesto High School.....		Drafting.
Roseville High School.....		Cabinet making.
San Juan Union High School.....		2d Smith Hughes Sweepstake.

STUDENT JUDGING.		
R. Tutt, Esparto High School.....		2d student judging—hogs.
C. Quisenberry, Lodi High School.....		2d student judging—beef cattle
H. Hen Iron, San Juan Union High School.....		2d student judging—horses.
H. Fendt, Colusa High School.....		2d student judging—dairy cattle..
P. Tallman, Santa Cruz High School.....		2d student judging—sheep.
H. Deitz, Fremont High School.....		2d student judging—poultry.

COUNTIES.		
Fresno County.....		2d best pickled olives.
Kings County.....		2d best cereals and grains.
Mendocino County.....		2d best alfalfa.
Fresno County.....		2d best California garden seeds.
Kings County.....		2d best flours and meals.

DAIRY PRODUCTS.		
Milk Producers Association of Central California.....		Exhibit creamery butter.
Cold Springs Dairy, Pasadena.....		Certified bottled milk.
Home Dairy, Palo Alto.....		Guaranteed bottled milk.
Home Dairy, Palo Alto.....		Guaranteed bottled cream.
D. W. McNair, San Jose.....		Dairy Inspector.
Huffman Dairy, Palo Alto.....		Display milk and cream.
Associated Milk Producers, Holt.....		Display dairy products.

COMMERCIAL.		
T. O. Shekell, Salt Lake City.....		Pictorial photography, miscellaneous.
P. D. Anderson, San Francisco.....		Pictorial photography, landscape.
L. Fleckenstein, Los Angeles.....		Pictorial photography, portrait and figure.

PIGEONS.		
Peralta Pigeon Farm, Oakland.....		Pigeon sweepstake.

DOGS.		
H. V. Nelson, Owensmouth.....		Reserve Dog—Russian Wolfhound.

Bronze Medal Awards.

NAME	SCHOOLS.	AWARDED ON
Harold Sykes, Red Bluff.....		Fish flies, special.
L. Howard, San Juan High School.....		3d student judging—hogs.
W. Tappin, Lodi High School.....		3d student judging—beef cattle.
H. Ritchey, Colusa High School.....		3d student judging—horses.
H. Hendron, San Juan High School.....		3d student judging—dairy cattle.
T. Harris, Santa Cruz High School.....		3d student judging—poultry.
B. Starnado, Colusa High School.....		3d student judging—sheep.
Fremont High School, Oakland.....		3d Smith Hughes sweepstake.

COMMERCIAL.		
H. A. Hussey, Berkeley.....		Pictorial photography, miscellaneous.
C. A. Love, San Francisco.....		Pictorial photography, landscape.
P. Neyman, San Francisco.....		Pictorial photography, portrait and figure.

COUNTIES.		
Fresno County.....		Factory display, seeded raisins.
Yolo County.....		Wheat flour, bakers.
Mendocino County.....		Wheat flour, family.
Mendocino County.....		Entire wheat flour.
Yolo County.....		Rye flour.
Yolo County.....		Oat meal.
Yolo County.....		Yellow corn meal.
Fresno County.....		White corn meal.
Yolo County.....		Pearl barley.
Yolo County.....		Hominy.

BRONZE MEDAL AWARDS—Continued.

DOGS.

NAME	AWARDED ON
H. V. Nelson, Owensmouth	Russian wolfhound.
W. E. Lloyd, Davis	Greyhound.
Fair Oaks Kennels, Fairoaks	American foxhound.
Fair Oaks Kennels, Fairoaks	Pointer.
Fair Oaks Kennels, Fairoaks	English setter.
Dr. D. D. Davenport, Stockton	Irish water spaniel.
Celine Straus, San Francisco	Cocker spaniel.
F. B. McCay, Cathay	Beagle.
Mrs. E. F. Brown, San Francisco	Collie.
A. Ashcraft, Los Angeles	Shepherd.
Mrs. W. Colverd, Sausalito	Old English sheepdog.
Mr. and Mrs. H. G. Nicholas	Bulldog.
Connaught Kennels, San Francisco	Airedale.
B. J. Neff, Lodi	Bull Terrier.
Miss Judy Nicholas	French bulldog.
W. F. Osborne, San Francisco	Boston terrier.
I. C. Ackerman, San Francisco	Fox terrier, smooth.
I. C. Ackerman, San Francisco	Fox terrier, wire.
I. C. Ackerman, San Francisco	Irish setter.
Mrs. C. Bennett, San Mateo	Pomeranian.
P. L. Weinberger, Sacramento	Toy poodle.
Mrs. C. Boro, Stockton	Maltese.
Mrs. J. La Bara, Sacramento	Chihuahua.
E. Renwick, Sacramento	Pointer bitch.

Cash Premiums Offered.

NAME	AMOUNT
Special County Prizes	\$3,025 00
Association Exhibits	650 00
Vocational	2,769 00
Stock Raising and Student Judging	628 00
Grooms' Prizes	240 00
Horses	8,793 00
Beef Cattle	7,335 00
Dairy Cattle	6,893 00
Sheep	3,492 00
Goats	771 00
Swine	4,171 00
Sheep Dogs and Sheep Shearing	250 00
Horticulture Products	5,732 00
Floriculture	215 00
Agriculture Products	1,155 00
Dairy Products	1,081 00
Textiles	888 00
Fine Arts	685 00
Domestic Art and Science	502 00
Minerals and Mining	390 00
Poultry, Pigeons and Pet Stock, estimated	2,350 00
Horse Show Specials	3,500 00
Total	\$55,515 00
Other associations	3,544 00
Grand total	\$59,059 00

Band Contests.

MILITARY, NAVAL AND PROFESSIONAL BANDS.

First prize, Clarke's Sacramento Band, \$400.
 Second prize, Band of Forty-nine, Sacramento \$300.

JUNIOR AMATEUR BANDS.

First prize, Sacramento Boys Band, \$400.
 Second prize, California State Band of Oakland, \$200.
 Third prize, Lockwood Boys Band, Oakland, \$100.

SENIOR AMATEUR BANDS.

First prize, The National's Band, San Francisco, \$400.
 Second Prize, Hollister's Concert Band, Oakland, \$200.
 Third Prize, The Southern Pacific's Band, Sacramento, \$100.

ELEMENTARY OR HIGH SCHOOL BANDS.

First prize, Modesto Boys Band, \$250.
 Second prize, St. Vincent's Orphanage Band, Marin County, \$150.
 Third Prize, Lockwood Junior High School, Oakland, \$100.

Speed Events.

STANFORD OCCIDENT STAKE. 3 YEAR OLD TROT. PURSE \$1,800.

Royal Bond (bt. s.)	Royal McKinney—Lady Bird	Miss Humphreyville, Stockton	1	3	2
Jim Bond (b. g.)	Ben Watts—Winney Bond	E. Montgomery, Davis	3	4	4
Bud Logan (b. g.)	Jim Logan—Beautiful Bird	E. Montgomery, Davis	5	6	7
Hibear (b. g.)	Teddy Bear—Welcome	C. F. Silva, Sacramento	2	2	3
Prairie Girl (b. m.)	Royal McKinney—Princess Dassell	I. L. Borden, San Francisco	8	8	5
Janet McKylo (b. m.)	Peter McKylo—Lavenetto	J. P. Quinn, Stockton	7	1	1
Jan McKylo (br. m.)	Peter McKylo—Janette Bondsman	L. H. Todhunter, Sacramento	6	7	6
E2	Kinney De Lopez—Lady Zombro	M. R. Philp, Los Angeles	4	5	Dr

Time—2.23¼, 2.17¼, 2.18½.

2.09 PACE. 1 MILE. PURSE \$500. ADDED \$185.

Julia M. (b. m.)	El Kergelo—Searchlida	C. F. Silva, Sacramento	3	3	3
Mona Ansel (b. s.)	Monocrat—Decoratio	F. Steinhart, Santa Maria	4	6	5
Derby Dillon (br. g.)	Warren Dillon—Della Derby	H. H. Helman, Salinas	5	5	1
Butt Hale (b. g.)	Senator Hale—Veta	S. H. Cowell, Santa Cruz	8	7	Dr
Leta J. (b. m.)	Royal McKinney—Geraldine	C. C. Jones, Stockton	1	8	6
Tom Clark (s. g.)	Wilbur Lou—Cloe	H. Rohner, Ukiah	2	2	2
Verna Dillon (b. m.)	Vernon McKinney—May Harris	F. H. Kohrs, Newman	7	4	4
Easter Bond (b. g.)	The Bondholder—Mary W.	C. F. Silva, Sacramento	6	1	7

Time—2.07½, 2.08¼, 2.09½.

2.09 TROT. 1 MILE. PURSE \$750. ADDED \$105.

Barbara D. (b. m.)	Carlokin—Honey Healey	W. Murphy, Los Angeles	1	1	1
Columbia T. (b. m.)	Bon Guy—May T.	C. F. Silva, Sacramento	5	Dr	
Raisin Express (b. g.)	Expressive Mac—Raisin Girl	T. J. Ryan, San Francisco	6	5	3
Kitty Bon (b. m.)	Bon Voyage—Hawthorne	W. Murphy, Los Angeles	3	3	5
Surety (b. g.)	Wayland W. by McKinney	A. L. Schwartz, Pleasanton	4	4	2
La Panza (br. g.)	Montbaine—Elizabeth L.	S. H. Cowell, Santa Cruz	2	2	4

Time—2.07¾, 2.09¾, 2.11.

STATE FAIR FUTURITY NO. 10. PACE. 3 YEAR OLDS. PURSE \$1,000.

Little Bear (b. g.)	Teddy Bear—Deemonia	C. F. Silva, Sacramento	1	4	2
Masie Logan (b. m.)	Jim Logan	M. Carpenter, Dixon	5	5	6
J. W. C. (b. g.)	The Angelus—May W.	B. W. Wallis, Los Banos	2	2	4
Monte Logan (b. g.)	Jim Logan—Margaret M.	Mrs. J. E. Montgomery, Davis	6	6	3
George M. (b. g.)	Bondoline—Maxime	Mrs. J. E. Montgomery, Davis	3	1	1
Royal Bond (b. g.)	Royal McKinney—Bell Bon	I. L. Borden, San Francisco	4	3	5

Time—2.21¾, 2.16½, 2.14½.

2.16 TROT. PURSE \$500. ADDED \$240.

Bon McKinney	Bon Voyage—Daphne McK	Collins & Knuckles, San Mateo	8	8	8
Mamie W.	Carlokin	N. L. Phillip, Los Angeles	1	1	1
Dr. S.	Carlokin	A. D. Smith, Los Angeles	3	6	6
Quien Sabe	Peter McKylo—Dione	S. H. Cowell, Santa Cruz	5	7	2
Renetta C.	Carlokin—Lazatua	J. E. Montgomery, Davis	7	2	3
The Expense	The Proof—Nusta	H. C. Keefer, Pleasanton	4	4	5
Little Sunset	Linnwood W.—Sadie S.	H. Rohner, Ukiah	2	3	4
The Hostess	The Bondsman—Maud McAlto	W. J. Ivey, Sacramento	6	5	7

Time—2.09¼, 2.09¾, 2.10½.

2.12 PACE. PURSE \$500. ADDED \$140.

Lady Cal.	Sir John S.—Jennie L.	W. J. Ivey, Sacramento	6	5	5
Little Cub	Teddy Bear	Tony Simas, Hanford	5	6	Dr
Beretta D.	Chosby D.—Beretta	R. S. Irvine, San Francisco	4	3	4
Mona Ansel	Monocrat—Decoratio	F. Steinhart, Santa Maria	3	4	3
Tom Clark	Wilbur Lou—Cloe	H. Rohner, Ukiah	1	1	1
Sinnie C.	Wayland W.	A. Schwartz, Pleasanton	2	2	2

Time—2.09½, 2.09¼, 2.09½.

2.20 PACE. PURSE \$500. ADDED \$300.

Brown Peter	Blue Peter	H. H. Helman, Salinas	3	8	7
Lady Alice T.	G. W. McKinney, Nutwood Wilkes	E. Lavin, Stockton	8	5	1
Miss Nelmonio	Mona Ansel—Nelmonio	W. Mead, Santa Maria	9	6	8
Civilian	Vernon McKinney	F. E. Ward, Hemet	5	3	4
Petrea	Peter the Great—Carietta	S. Christensen, Pleasanton	2	2	3
Beauty Logan	Jim Logan—Beautiful Bird	J. E. Montgomery, Davis	1	4	5
Dago Charley	Dillon Junior—Nin	W. H. Kline, Sacramento	7	9	9
Sacramento Boy	Peter the Great—Pretoria Bingen	S. H. Cowell, Santa Cruz	6	1	2
Peter Kylo	Peter McKylo	A. Schwartz, Pleasanton	4	7	6

Time—2.09¼, 2.09¼, 2.12¼.

STATE FAIR FUTURITY NO. 10. 3 YEAR OLD TROT. PURSE \$1,500.

Janet McKylo (br. g.)	Peter McKylo—Janet Bondsmen	L. H. Todhunter, Sacramento	4	4	3
Jim Bond (b. g.)	Bon Watts—Winnie Bond	Mrs. Montgomery, Davis	6	Dr	
Hibeat (b. g.)	Teddy Bear—Louise	C. F. Silva, Sacramento	2	2	4
Bud Logan (b. g.)	Jim Logan—Beautiful Bird	J. E. Montgomery, Davis	5	5	5
Royal Bond (b. s.)	Royal McKinney—Lady Bon	Mrs. Humfreville, Oakland	3	3	2
Janet McKylo	Peter McKylo—Learnette	J. Quinn, Stockton	1	1	1

Time—2.18 $\frac{3}{4}$, 2.15 $\frac{3}{4}$, 2.19 $\frac{1}{4}$.

2.12 TROT. PURSE \$750. ADDED \$130.

Raisin Express	Expressive Mac—Raisin Girl	T. J. Ryan, San Francisco	5	5	4
June Marie	Zamrect	N. L. Philp, Los Angeles	2	2	2
San Pedro Girl	Carlokin	J. M. Mollie, San Pedro	1	1	3
Sequoia	Wilbur Lou—Eradiate	S. H. Cowell, Santa Cruz	3	3	1
Little Sunset	Linwood W.—Sadie S.	H. Rohner, Ukiah	4	Dr	

Time—2.10 $\frac{1}{4}$, 2.11 $\frac{1}{2}$, 2.13 $\frac{1}{4}$.

FREE FOR ALL PACE. PURSE \$500.

Easter Bond (b. g.)	Bondholder	C. F. Silva, Sacramento	3	1	1
Julia M. (b. m.)	El Angelo—Searchlida	C. F. Silva, Sacramento	1	2	2
Rio Chico (b. g.)	Dick Russell—Babe T.	R. B. Hanks, Pleasanton	2	3	4
Derby Dillon (br. g.)	Warren Dillon—Della Derby	H. H. Helman, Salinas	4	4	3

Time—2.10, 2.09 $\frac{1}{2}$, 2.11.

STANFORD OCCIDENT STAKE. 3 YEAR OLD PACE. PURSE \$1,200.

Monte Logan (b. g.)	Jim Logan—Margaret M.	Mrs. J. E. Montgomery, Davis	6	6	5
J. W. C. (b. g.)	The Angelus—Mary W.	D. W. Wallis, Los Banos	3	3	3
Royal Bond (b. g.)	Royal McKinney—Bell Bond	I. L. Borden, San Francisco	4	4	4
Mazie Logan (b. m.)	Jim Logan	W. Ferguson	5	5	6
George M. (b. g.)	Bandaline—Maxime	J. E. Montgomery, Davis	1	1	1
Little Bear (b. g.)	Teddy Bear—Normona	C. F. Silva, Sacramento	2	2	2

Time—2.12 $\frac{1}{2}$, 2.15, 2.17 $\frac{1}{4}$.

2.20 TROT. PURSE \$500. ADDED \$235.

Anna Con	O. U. Con	N. L. Philp, Los Angeles	2	6	7
Prince Redlack	Alhambra Prince—Cima	W. N. Tiffany, Los Angeles	6	3	2
Sir Guy Borden	Sir Guy Dillon—Cleopatra	I. L. Borden, San Francisco	7	8	5
The Expense	The Proof—Nusta	W. C. Keefer, Pleasanton	1	4	4
Bon McKinney	Bon Voyage—Daphne McK.	Detels & Watson, Stockton	9	9	Dr
Sequoia	Wilbur Lou—Eradiate	S. H. Cowell, Santa Cruz	8	2	3
The Hostess	The Bondsman—Maud McAlto	W. J. Ivey, Sacramento	3	1	1
Dr. S.	Carlokin	A. D. Smith, Los Angeles	5	5	Dr
Sleepy Mac	Guy McKinney—Derby Lass	F. R. Kohrs, Newman	4	7	6

Time—2.13 $\frac{1}{4}$, 2.10, 2.11 $\frac{1}{2}$.

2.25 PACE. PURSE \$500. ADDED \$305.

Petrea	Peter the Great—Carietta	S. Christensen, Pleasanton	1	1	2
Verna Dillon	Vernon McKinney—Miss Harris	F. R. Kohrs, Newman	4	3	4
Civilian	Vernon McKinney	A. D. Smith, Los Angeles	3	5	6
Sacramento Boy	Peter the Great—Pretoria Bingen	S. H. Cowell, Santa Cruz	8	4	5
Beauty Logan	Jim Logan—Beautiful Bird	J. E. Montgomery, Davis	2	2	1
Lady Alice T.	G. W. McKinney	E. Lavin, Stockton	7	6	3
Peter Kylo	Peter McKylo	A. Schwartz, Pleasanton	5	7	7
Caratons Exponent	The Exponent—Cariton	L. L. Cannon, Penngrove	6	8	8

FREE FOR ALL TROT. PURSE \$500. ADDED \$90.

Barbara D.	Carlokin—Honey Healey	W. G. Durfee, Los Angeles	1	1	1
Columbia T.	Bon Guy—May T.	C. F. Silva, Sacramento	4	5	5
Kitty Bond	Bon Voyage—Hawthorne G.	W. G. Durfee, Los Angeles	3	4	4
La Panza	Montbaine—Elizabeth L.	S. H. Cowell, Santa Cruz	2	2	3
Surety	Bondsman	A. Schwartz, Pleasanton	5	3	2

Running Races.

FOUR AND ONE-HALF FURLONGS. PURSE \$200.

Name of Horse	Entered by
1 Miss Mabery.....	G. L. Millenick.
2 Percival Knight.....	R. G. Conn.
3 Jewel City.....	W. P. Perry.
4 Bob White.....	C. Burrell.

ONE-HALF MILE. PURSE \$200.

1 Star of Eve.....	Rudolph Spreckels.
2 Ramona C.....	D. W. Board.
3 Little Romper.....	R. Campbell.
4 Lady Helen.....	Elmwood Farm.

THREE-QUARTER MILE. PURSE \$200.

1 War Cry.....	Elmwood Farm.
2 Katherine Rankin.....	G. L. Palmquest.
3 Ike Harvey.....	A. Jones.
4 Tom.....	B. Lambert.

FIVE-EIGHTH MILE. PURSE \$200.

1 Trained Nurse.....	T. F. Millenick.
2 San Diego White.....	C. Burrell.
3 Caprice.....	Tom Mason.
4 Pandigam.....	B. Carpenter.

THREE-QUARTER MILE. PURSE \$200.

1 Red William.....	L. Mathews.
2 Jewel City.....	W. B. Perry.
3 Roseta.....	B. Lambert.
4 Koun.....	R. Edison.

ONE MILE. PURSE \$200.

1 War Cry.....	Elmwood Farm.
2 Commander.....	L. Mathews.
3 Ike Harvey.....	J. L. Pierce.
4 Margaret W.....	C. Burrell.

FOUR AND ONE-HALF FURLONGS. PURSE \$200.

1 Baben.....	C. Burrell.
2 California Jack.....	W. Powers.
3 Caprice.....	Tom Mason.
4 Montino.....	W. C. Pinkstaff.

FIVE-EIGHTH MILE. PURSE \$200.

1 Perch.....	T. Barnett.
2 Ono Mine.....	L. Mathews.
3 Smiling Annie.....	A. B. Wright.
4 Pera Diggen.....	B. Carpenter.

THREE-QUARTER MILE. PURSE \$200.

1 Ramona.....	B. W. Board.
2 Little Romper.....	R. Campbell.
3 Bob White.....	C. Burrell.
4 Koun.....	R. Edison.

THREE-QUARTER MILE. PURSE \$200.

1 Tours.....	B. Lambert.
2 Mentonio.....	W. C. Pinkstaff.
3 Tom Owens.....	L. Blasingame.
4 Gertie Wood.....	Frank Melvin.

THREE-QUARTER MILE. PURSE \$200.

Name of Horse	Entered by
1 Jewel City.....	W. B. Perry.
2 Lazy Ben.....	L. Mathews.
3 Margaret W.....	C. Burrell.
4 California Jack.....	W. Powers.

FOUR AND ONE-HALF FURLONGS. PURSE \$200.

1 Do Admit.....	O. Brandt.
2 Limerick.....	W. B. Perry.
3 Little Mother.....	C. D. Kenyon.
4 Dr. Kendall.....	C. Barnett.

ONE MILE. PURSE \$200.

1 Ike Harvey.....	A. Jones.
2 Indian Bugade.....	A. B. Wright.
3 Old Homestead.....	C. Barnett.
4 Leo H.....	F. Pierce.

ONE AND ONE-SIXTEENTH MILE HANDICAP. PURSE \$300.

1 War Cry.....	Elmwood Farm.
2 Verdiloon.....	Mrs. J. L. Brennan.
3 Red Williams.....	L. Mathews.
4 Pera Diggen.....	B. Carpenter.

ONE-HALF MILE. PURSE \$200.

1 Louise Last.....	E. E. Curtis.
2 Jewel City.....	W. B. Perry.
3 Bob White.....	C. Burrell.
4 Miss Reseta.....	B. Lambert.

THREE-QUARTER MILE. PURSE \$200.

1 Katherine Rankin.....	G. L. Palmquist.
2 Old Homestead.....	C. Barnett.
3 Indian Bugade.....	A. B. Wright.
4 French Nurse.....	T. F. Millenick.

FIVE-EIGHTH MILE. PURSE \$200.

1 Star of Eye.....	Rudolph Spreckels.
2 Red William.....	L. Mathews.
3 Miss Maben.....	G. L. Millenick.
4 Bob White.....	C. Burrell.

FIVE-EIGHTH MILE. PURSE \$200.

1 San Diego White.....	C. Burrell.
2 California Jack.....	W. Powers.
3 Lazy Ben.....	L. Mathews.
4 Percival Knight.....	R. G. Conn.

ONE MILE. PURSE \$200.

1 Verdiloon.....	Mrs. J. L. Brennan.
2 Margaret W.....	C. Burrell.
3 Pera Diggen.....	B. Carpenter.
4 Leo H.....	F. Pierce.

ONE-HALF MILE. PURSE \$200.

1 Crown.....	C. Thompson.
2 Little Romper.....	R. Campbell.
3 Salvina Probe.....	C. Davis.
4 Lady Helen.....	Elmwood Farm.

List of Commercial Exhibitors.

POWER ON THE FARM—TRACTORS, PUMPS, FARMING IMPLEMENTS, ETC.

- The Avery Company, Sacramento, California.
 Advance-Rumely Company, San Francisco, California.
 Anker Holth Company, Sacramento, California.
 Averill Machinery Company, San Jose, California.
- Bean Spray Pump Company, San Jose, California.
 C. L. Best Manufacturing Company, San Leandro, California.
 Edward R. Bacon Company, San Francisco, California.
 Bowman Hardware & Implement Company, Sacramento, California.
 Butler-Veitch Company, Oakland, California.
 Byron Jackson Iron Works, Berkeley, California.
- J. I. Case Threshing Machine Company, San Francisco, California.
 Cleveland Tractor Company, San Francisco, California.
 Cushman Motor Company, Stockton, California.
 The J. I. Case Plow Works Company, Sacramento, California.
 H. V. Carter Motor Company, San Francisco, California.
 Capital Implement Company, Sacramento, California.
 Commercial Engine Company, Los Angeles, California.
 California Mechanical & Electrical Engineering Company, Sacramento, California.
 The Crane Company, Sacramento, California.
- Does Compensating Hitch, San Francisco, California.
 John Deere Plow Company, San Francisco, California.
- Fordson Tractor Dealers, Sacramento, California.
 The Ford Power Company, Los Angeles, California.
 Friend & Terry Lumber Company, Sacramento, California.
 The Field Force Pump Company, Los Angeles, California.
- Gladiator Tractor Company, Los Angeles, California.
 Goodrich-Ballard & Rouse, Sacramento, California.
- The Henneuse Tractor Company, Sacramento, California.
 Holt Manufacturing Company, Stockton, California.
 Herzog Electrical Works, San Francisco, California.
 Hardie Sprayer Company, Los Angeles, California.
- International Harvester Company, San Francisco, California.
- Junior Monarch Hay Press Company, San Leandro, California.
- The Killifer Company, Los Angeles, California.
 Kroyer Manufacturing Company, Stockton, California.
- Lytle & Patterson, Sacramento, California.
- Mitchell Pate Company, Visalia, California.
 J. J. Merritt Company, Sacramento, California.
- New Britain Manufacturing Company, San Francisco, California.
- Oliver Chilled Plow Company, San Francisco, California.
 Orchard Spray Company, Sacramento, California.
- Pacific Implement Company, San Francisco, California.
 G. W. Price Pump Company, San Francisco, California.
 Pacific Engineering Company, Oakland, California.
 Pacific Mora Pump Company, Grants Pass, Oregon.
- Smeiser Manufacturing Company, Davis, California.
 Solano Iron Works, Berkeley, California.
 The Sacramento Motor Service, Sacramento, California.
 Superior Pump Company, Lodi, California.
- Trundaar Tractor Company, San Francisco, California.
- Union Oil Company, Sacramento, California.
- Valvoline Oil Company, San Francisco, California.
 Vans Manufacturing Company, Lodi, California.
- R. M. Wade Company, Portland, Oregon.
 Western Well Works, San Jose, California.
- Yuba Manufacturing Company, San Francisco, California.

AUTO ACCESSORIES.

Name	Address	Exhibit
Alk-A-Del Mfg. Co.	Chicago	Auto lock.
A-Pache Sales Co.	San Francisco	Auto accessories.
Auto Equipment Sales Co.	Sacramento	Ford auto pump.
Beilby & Gibson	Sacramento	Tires and tubes.
Capital Spark Plug Co.	Sacramento	Spark plugs.
Carmack, P. H.	Chico	Disc wheels.
Carpenter & Jackson	Los Angeles	Piston rings.
C. G. S. Spark Plug Co.	San Francisco	Spark plugs.
Coast Tire & Rubber Co.	Oakland	Cord and fabric tires.
Coburn & Co., C. W.	San Francisco	Auto piston and alta shock absorber
Cooper, Earl B., Inc.	Sacramento	Batteries and generator snubbers.
DeGaston, A. H.	Sacramento	Shock absorber.
Don Lee	Sacramento	Tires.
Double Seal Ring Co.	Sacramento	Piston rings.
E-Z-On Auto Chain Connection Co.	Sacramento	E-Z-On auto chain connection.
Foster, Robert	San Francisco	Vulca patch.
Gore & Sharp	Los Angeles	Tire patches.
Graham & Lamus	Sacramento	Batteries.
Gregor, O. L.	Sacramento	Tire protector.
Harino, Mr.	Sacramento	Radiator No Leak.
Harris Electric Co.	San Francisco	Lighting generator.
Harvey Wheel Products Company	Sacramento	Auto wheels.
Hassler Pacific Co.	San Francisco	Shock absorber.
Henderson Bros.	Sacramento	Monogram oil and auto parts.
Higgins & James	Sacramento	Tires.
Hundeby, O.	Sacramento	Tires.
Justrite Auto Repair Shop	Sacramento	Auto polish.
K. C. B. Electric & Rubber Co.	Sacramento	Batteries.
Kimball-Upson Co.	Sacramento	Auto accessories.
Luthy Battery & Electric Co.	Sacramento	Batteries.
McKays Tire & Leather Co.	Sacramento	Gruss air spring shock absorber.
McNaughton, C. D.	Sacramento	Auto soap.
M. & H. Piston Ring Co.	Oakland	Tension piston rings.
Markin & Bryant Sales Agency	Campbell	Accessories and fuelizer.
Reeder Welding & Machine Shop	Sacramento	Master gears and piston.
Ruckshell Sales & Mfg.	Berkeley	Perfecto and speed axle.
Schaw-Batcher Co.	Sacramento	Tires and tubes.
Schmidt Bros.	Sacramento	Batteries, tires and accessories.
Schubert, J. E.	Sacramento	Wind shield and protector.
Schwab, Mason & Lentz	Sacramento	Tires and cushion wheel.
Siebel Air Spring Co.	Sacramento	Air springs.
Stephens Safety Auto Light Co.	San Francisco	Safety auto light.
Stinger Tire & Rubber Co.	Oakland	Tires.
Superior Auto Top Co.	Sacramento	Auto tops.
Tucker Bros. Mfg. Co.	Sacramento	Tucker's patent spoketite.
Weeks, L. S. Co.	Stockton	De Luxe pistons.

AUTOMOBILES AND TRUCKS.

Name	Address	Exhibit
Benson Co., W. J.	Sacramento	Stephens automobiles.
Big 4 Truck Co.	Sacramento	Big 4 trucks.
Butler-Veitch Co.	Oakland	Dort automobiles.
Crawford Motor Co.	Sacramento	Federal trucks and Lee trailers.
Elliott, W. I.	Sacramento	Chevrolet and Franklin.
Ferguson & Boist	San Francisco	Case automobiles.
G. M. C. Truck Co.	San Francisco	G. M. C. trucks.
Hauger Motors Co., Fred W.	San Francisco	Stearns-Knight automobiles.
J. J. Jacobs Motor Co.	Sacramento	Studebaker automobiles.
Laupe, F. E.	Sacramento	Nash and Lexington automobiles.
Louthain, Guy P.	Sacramento	Oldsmobile automobiles.
McMahon Motor Sales Co.	Sacramento	Peerless automobiles.
Miller Automobile Co.	Sacramento	Dodge automobiles and trucks.
Moreland Sales Corporation	Sacramento	Moreland trucks.
Morgan, John H.	Oakland	Stanley Stearns automobiles.
Paige Motor Car Co.	Sacramento	Paige automobiles.
P. & B. Motor Sales Co.	Sacramento	Chalmers and Maxwell automobiles.
Reo Motor Car Co. of California	San Francisco	Reo autos and speed wagons.
Sacramento Buick Company	Sacramento	Buick automobiles.
Smith-King Motor Co.	Sacramento	Jordan, Locomobiles, Haynes and Meyers.
Spring, Henry	Sacramento	White trucks and Utility trailers.
Steam Automotive Corp.	Oakland	Steam trucks.

MISCELLANEOUS EXHIBITS.

Name	Address	Exhibit
Acme Import & Export Co., Inc.	San Francisco	Can opener.
Ahl Sheet Metal Works, Frank Z.	Sacramento	Furnace.
Animal Food Co.	Oakland	Animal foods and disinfectants.
Atkins, Lou	Sacramento	Baldwin pianos.
Barrett Company, The	Berkeley	Sulphate of ammonia.
Boussum, Chas.	San Francisco	Photography.
Bowman Hardware & Implement Co.	Sacramento	Harness.
Branagata Company	Sacramento	Branagata.
Breuner Co., John	Sacramento	Furniture and household goods.
Brown & Son	Coalinga	Candy by the yard.
Burpee Can Sealer Co.	Oakland	Can sealing.
Business Women's Association	Sacramento	Association activities.
California Anker Holth Separator Co.	Sacramento	Anker Holth cream separators.
California Pump Co.	Sacramento	Filters.
California Mechanical & Electrical Engineering Co.	Sacramento	Electric ranges.
California Peach Growers Assn.	Fresno	Dried peaches.
California Raisin Growers Assn.	Fresno	Raisins.
California Almond Growers Assn.	San Francisco	Almonds.
California Prune & Apricot Growers	San Jose	Dried prunes and apricots.
Capital National Bank	Sacramento	Banking.
Cascade Sales Agency	Oakland	Cascade steam washers and Wizard electric lamps.
Campbell, O. M.	Los Angeles	Pressure cooker.
Chamber of Commerce Home Products Bureau	Sacramento	Sacramento home products.
Crane Co.	Sacramento	Plumbing fixtures.
Clauss & Krauss	Sacramento	Cold meat products.
Chernoff Company	San Francisco	Toilet preparations.
Conow Burner Co., The	San Francisco	Coal oil gas burner.
Crocker Co., H. S.	Sacramento	Office equipment.
Coburn & Co., C. W.	San Francisco	Chemicals.
Dalton Adding Machine Co.	Sacramento	Adding machines.
Davies, Owen	Florin	Dogs.
Don, Ray	San Francisco	Fairy Food products.
Dunn, Russell L.	San Francisco	Soil stimulant, "Floraferro."
Edenhofer, Mrs. J.	Sacramento	Millinery.
Ellas Marx Music Co.	Sacramento	Pianos and phonographs.
Electric Supply Co.	Sacramento	Electrical supplies.
Electric Appliance Co.	Sacramento	Electrical supplies.

MISCELLANEOUS EXHIBITS—Continued.

Name	Address	Exhibit
Finn, S. G., and V. Permiakoff	San Francisco	Russian stones.
Farmers & Mechanics Savings Bank	Sacramento	Banking.
Fryer's Abietene Pine Remedies	Santa Rosa	Pine remedies.
Fuller Brush Co.	Sacramento	Brushes.
Fresno Rug Co., Inc.	Fresno	Rugs.
Frazer, Ida M.	Fairoaks	Toilet articles.
Globe Grain & Milling Co.	Sacramento	Poultry foods.
Golden Pheasant, The	San Francisco	Candy.
Gregory, A. R.	San Francisco	Agricultural sprays, etc.
Gilbert M. C.	Sacramento	Brushes.
Globe Mills	San Francisco	Mill products.
Goldberg, Wm. G.	San Francisco	Mrs. Porter's products.
Germo Mfr Co., rep. by Perkins & Co.	Sacramento	Disinfectant and poultry remedies.
Gibney & Le Sar	San Francisco	Cold cream and bath phosphates.
Hartsok, Fred	Sacramento	Photographs.
Hobrecht & Co., J. C.	Sacramento	Electrical appliances.
Hoosier Cabinet Co.	San Francisco	Built-in fixtures and kitchen equipment.
Heald's Business College	Sacramento	Commercial college.
Howland, Chas. F.	Sacramento	Mops, etc.
Herring, H. J.	Long Beach	The new washer.
Hauschildt Music Co.	Sacramento	Pianos and musical instruments.
Herspring & Co., Joe	Sacramento	Sulphur.
Hale Bros.	Sacramento	Household goods.
International Correspondence School	Sacramento	Correspondence school.
Johnson & Ehrke	Sacramento	Filigree jewelry.
Kuick-Lite Electric Corporation	San Francisco	Quick-lite lantern.
Kresky Brooder Stove Co.	Petaluma	Brooders and chicks.
Krycki, N. C.	Sacramento	Washing machines.
Kimball-Upson Co.	Sacramento	Sporting supplies and phonographs.
Lindley Co.	Sacramento	Household goods and coffee.
Lactein Food Co.	Modesto	Lactein products.
Libera, R. R.	Calistoga	Mineral water.
Manning Gas Maker	San Francisco	Gas makers.
Marshall, Stearns & Co.	Stockton	Wall beds.
Marsh, Dr. C. E.	Sacramento	X-ray and dentistry.
Nicles, J.	San Francisco	Rope machine, etc.
Northern California Milk Producers	Sacramento	Milk products.
Oranco Co. of California	San Francisco	Oranco beverage.
Pacific Porcelain Ware Co. & Pacific Sanitary Mfg. Co.	San Francisco	Plumbing fixtures.
Pacific Asbestos Co.	Stockton	Asbestos products.
Pacific Coast Rattan Co.	Oakland	Furniture and phonographs.
Perfect Gem Kooker Sales Co.	Sacramento	Perfect Gem Kooker.
Puffer Hubbard Mfg. Co.	Corte Madera	Daylight washing machines.
Pure Milk Distributors	Sacramento	Milk products.
Pilas, John	Sacramento	Lawn mower sharpener.
Pearson, Mrs. T. W.	Sacramento	Washing tablets.
Post, Roy S.	Sacramento	Paints and varnishes.
Rosethorn Witchhazel Cream	Berkeley	Toilet preparations.
Sherman Clay Co.	Sacramento	Pianos and phonographs.
Sacramento Appliance Co.	Sacramento	Electrical equipment.
Standard Sanitary Mfg. Co.	San Francisco	Plumbing fixtures.
Smith & Co., F. F.	Sacramento	Poultry feed and supplies.
Standard Oil Co. of California	Sacramento	Service.
Schumacher Wall Board Co.	Los Angeles	Schumacher wall board.
Setchel Fruit Co.	Fresno	Green fruit.
Sperry Flour Co.	Sacramento	Milling products.
Standard Fence Co.	San Francisco	Fencing.
Spencer System	Los Angeles	Tile.
Shellman, Ida	Daly City	Titus darning.
Sacramento Distributor Co.	Sacramento	Washing machine.
Superior Oil Burner Co.	San Francisco	Domestic oil burner.
Virden Packing Co.	Sacramento	Packing house products.
Velvet Soap Co.	Sacramento	Soap.
Wahl Stationery Co.	Sacramento	Office equipment.
Weinstock, Lubin & Co.	Sacramento	Hoover electric sweeper and merchandise.
Wilson Bros.	Sacramento	Furniture.
Worthington Co., Ed.	Sacramento	Household appliances.
York-California Construction Co.	Sacramento	Ice-making and refrigerating machinery.

APPENDIX A.

CALIFORNIA STATE BOARD OF AGRICULTURE.

State Boards of Agriculture and Agricultural Experiment Stations in the United States.

There are 43 official bodies or organizations in the United States charged with the promotion of agriculture. Of these 20 are "State Boards of Agriculture"; 19 are governed by a "Commissioner of agriculture"; 3, California, Georgia and Minnesota have a "State Agricultural Society," and Pennsylvania a "Secretary of Agriculture." Of the above, California is the only one with a dual title, that of the "State Agricultural Society" and "State Board of Agriculture," added in 1863. There are also 60 agricultural experiment stations, conducted, in most cases, under the authority of the state universities.

The first agricultural experiment stations were formed some 45 years ago, one of the pioneers being that of the State University at Berkeley in 1873. They were subsequently reorganized under the Hatch Act of 1887, which largely extended the number of these most valuable institutions.

Stallion Registration Boards.

The first law regulating the registration of stallions was passed by the State of Wisconsin in 1906, since which time 23 other states have taken this important step to improve the breed of their horses. The Stallion Registration in California dates from August 1, 1911.

California State Agricultural Society.

(Incorporated May 13, 1854. State Board of Agriculture appointed March 12, 1863.)

The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.

The first State Fair was held in the Music Hall at San Francisco from the fourth to the twelfth of October, 1854, and the stock show was held on the Pioneer race course. A fair has been held annually ever since—in 1855 at Sacramento, 1856 at San Jose, 1857 at Stockton, 1858 at Marysville, and since then at Sacramento, except in 1915, when it was omitted on account of the Panama-Pacific International Exposition at San Francisco.

Many of the books and records of the Society were destroyed by a disastrous flood on the ninth of December, 1861, and ninth of January, 1862, caused by a break in the levee on the north side of Sacramento, and the Library, together with a complete set of the Annual Reports, was destroyed by fire on the third of September, 1916, when the main building was burned to the ground.

CALIFORNIA STATE FAIRS 1854-1921.

Year	Place	Date	Premiums	Races	Total	Presidents
1854	San Francisco	Oct. 4	\$4,660		\$4,660	F. W. Macondry, San Francisco.
1855	Sacramento	Sept. 25-Oct. 1	6,550		6,550	C. T. Hutchinson, Sacramento.
1856	San Jose	Oct. 7-10	6,746		6,746	E. L. Beard, Alameda.
1857	Stockton	Sept. 29-Oct. 2	7,991		7,991	C. M. Weber,* Stockton.
1858	Marysville	Aug. 23-28	7,435		7,435	John C. Fall, Marysville.
1859	Sacramento	Sept. 13-23	8,139		8,139	C. T. Hutchinson, Sacramento.
1860	Sacramento	Sept. 19-26	8,827		8,827	T. G. Phelps, San Mateo.
1861	Sacramento	Sept. 16-21	7,231		7,231	Jerome C. Davis, Yolo County.
1862	Sacramento	Aug. 31-Sept. 4			5,000	A. Haraszthy, Sonoma.
1863	Sacramento	Sept. 25-Oct. 3	4,894		4,894	Judge Isaac Davis, Yolo County.
1864	Sacramento	Oct. 17-22	6,105		6,105	C. F. Reed, Grafton, Yolo County.
1865	Sacramento	Sept. 18-23	10,658		10,658	C. F. Reed, Grafton, Yolo County.
1866	Sacramento	Sept. 10-15	9,742		9,742	C. F. Reed, Grafton, Yolo County.
1867	Sacramento	Sept. 9-14	9,954		9,954	C. F. Reed, Grafton, Yolo County.
1868	Sacramento	Sept. 15-25			10,000	C. F. Reed, Grafton, Yolo County.
1869	Sacramento	Sept. 6-11				C. F. Reed, Grafton, Yolo County.
1870	Sacramento	Sept. 12-17			30,000	C. F. Reed, Grafton, Yolo County.
1871	Sacramento	Sept. 18-23			40,000	C. F. Reed, Grafton, Yolo County.
1872	Sacramento	Sept. 19-28			20,000	C. F. Reed, Grafton, Yolo County.
1873	Sacramento	Sept. 15-20	8,925	14,200	23,125	R. S. Carey, Yolo.
1874	Sacramento	Sept. 21-28	9,619	15,950	25,569	R. S. Carey, Yolo.
1875	Sacramento	Sept. 15-26	9,214	13,330	22,544	R. S. Carey, Yolo.
1876	Sacramento	Sept. 18-23				R. S. Carey, Yolo.
1877	Sacramento	Sept. 17-22				Marion Biggs, Butte.
1878	Sacramento	Sept. 16-21	10,965	13,775	24,740	Marcus D. Boruck, San Francisco.
1879	Sacramento	Sept. 8-13			12,260	Hugh M. Larue, Sacramento.
1880	Sacramento	Sept. 20-25	6,502	14,885	21,387	Hugh M. Larue, Sacramento.
1881	Sacramento	Sept. 19-24	6,603	12,525	19,128	J. M. McShaffer, San Francisco.
1882	Sacramento	Sept. 11-16	8,651	14,262	22,913	Hugh M. Larue, Sacramento.
1883	Sacramento	Sept. 10-15	8,915	14,005	22,920	P. A. Fingan, Alameda.
1884	Sacramento	Sept. 8-20	11,467	23,165	34,632	P. A. Fingan, Alameda.
1885	Sacramento	Sept. 10-19	13,612	25,145	38,757	Jesse D. Carr, Salinas.
1886	Sacramento	Sept. 9-18	13,370	22,900	36,270	Jesse D. Carr, Salinas.
1887	Sacramento	Sept. 15-24	11,538	23,470	38,008	L. U. Shippee, Stockton.
1888	Sacramento	Sept. 6-15	14,256	25,560	38,816	L. U. Shippee, Stockton.
1889	Sacramento	Sept. 12-21	17,056	30,860	47,916	Christopher Green, Sacramento.
1890	Sacramento	Sept. 11-20	15,761	27,016	42,777	Christopher Green, Sacramento.
1891	Sacramento	Sept. 8-19	17,628	30,081	47,709	Frederick Cox, Sacramento.
1892	Sacramento	Sept. 5-17	17,106	29,950	47,056	Frederick Cox, Sacramento.
1893	Sacramento	Sept. 4-16	13,244	32,715	45,959	John Boggs, Princeton, Colusa Co.
1894	Sacramento	Sept. 3-15	13,447	29,220	42,667	John Boggs, Princeton, Colusa Co.
1895	Sacramento	Sept. 2-14	11,416	32,880	44,296	C. M. Chase, San Francisco.
1896	Sacramento	Sept. 1-19	12,971	47,222	60,193	C. M. Chase, San Francisco.
1897	Sacramento	Sept. 6-18	20,252	35,247	55,499	C. M. Chase, San Francisco.
1898	Sacramento	Sept. 5-17	20,163	28,170	48,333	A. B. Spreckels, San Francisco.
1899	Sacramento	Sept. 4-16	10,529	38,745	49,274	A. B. Spreckels, San Francisco.
1900	Sacramento	Sept. 3-15	9,768	38,745	48,513	A. B. Spreckels, San Francisco.
1901	Sacramento	Sept. 2-14	8,974	30,355	39,329	A. B. Spreckels, San Francisco.
1902	Sacramento	Sept. 8-20	15,000	40,280	55,280	A. B. Spreckels, San Francisco.
1903	Sacramento	Aug. 31-Sept. 12	15,000	31,435	46,435	Benjamin F. Rush, Suisun.
1904	Sacramento	Aug. 22-Sept. 3	15,000	28,597	43,597	Benjamin F. Rush, Suisun.
1905	Sacramento	Sept. 2-9	6,656	24,419	31,075	Benjamin F. Rush, Suisun.
1906	Sacramento	Aug. 25-Sept. 1	7,598	10,640	18,238	Benjamin F. Rush, Suisun.
1907	Sacramento	Sept. 2-14	11,153	14,914	26,067	Benjamin F. Rush, Suisun.
1908	Sacramento	Aug. 29-Sept. 5	11,277	13,410	24,687	H. A. Jastro, Bakersfield.
1909	Sacramento	Aug. 28-Sept. 4	14,183	14,665	28,848	H. A. Jastro, Bakersfield.
1910	Sacramento	Sept. 3-10	14,465	6,930	21,395	H. A. Jastro, Bakersfield.
1911	Sacramento	Aug. 26-Sept. 2	14,750	26,300	41,050	A. L. Scott, San Francisco.
1912	Sacramento	Sept. 14-21	20,090	17,000	37,090	A. L. Scott, San Francisco.
1913	Sacramento	Sept. 13-20	25,090	37,000	62,000	A. L. Scott, San Francisco.
1914	Sacramento	Sept. 12-19	18,609	37,000	55,609	A. L. Scott, San Francisco.
1915	Sacramento	†				John M. Perry, Stockton.
1916	Sacramento	Sept. 2-9	41,536	16,500	58,036	John M. Perry, Stockton.
1917	Sacramento	Sept. 8-15	27,171	20,048	47,219	John M. Perry, Stockton.
1918	Sacramento	Aug. 31-Sept. 8	24,715	21,378	46,094	George C. Roeding, Fresno.
1919	Sacramento	Aug. 30-Sept. 9	29,527	20,244	49,771	George C. Roeding, Fresno.
1920	Sacramento	Sept. 4-12	32,740	15,964	48,704	George C. Roeding, Fresno.
1921	Sacramento	Sept. 3-11	58,000	15,203	73,203	H. A. Jastro, Bakersfield.

*Resigned March 10. Wm. Garrard appointed.

†No fair owing to the Panama-Pacific Exposition at San Francisco.

STATE BOARDS OF AGRICULTURE AND DEPARTMENTS OF AGRICULTURE IN THE UNITED STATES.*

State	Description and location	Organized
Alabama	Commissioner of Agriculture, Montgomery	1888
Arkansas	Commissioner of Agriculture, Little Rock (Society)	1898
California	State Board of Agriculture, Sacramento	1854
California	State Department of Agriculture	1919
Colorado	State Board of Agriculture, Fort Collins	1877
Connecticut	Commissioner of Agriculture, Hartford	1866
Delaware	State Board of Agriculture, Dover	1901
Florida	Commissioner of Agriculture, Tallahassee	1889
Georgia	Georgia State Agricultural Society, Experiment	1816
Georgia	Commissioner of Agriculture, Atlanta	1874
Idaho	Commissioner of Immigration, Labor and Statistics, Boise	1900
Illinois	State Board of Agriculture, Springfield	1853
Indiana	State Board of Agriculture, Indianapolis	1851
Iowa	State Board of Agriculture, Des Moines	1900
Kansas	State Board of Agriculture, Topeka	1862
Kentucky	Commissioner of Agriculture, Frankfort	1892
Louisiana	Commissioner of Agriculture, Baton Rouge	1880
Maine	Commissioner of Agriculture, Augusta	1855
Massachusetts	State Board of Agriculture, Boston	1852
Michigan	State Board of Agriculture, East Lansing	1881
Minnesota	State Agricultural Society, Hamline	1854
Mississippi	Commissioner of Agriculture, Jackson	1907
Missouri	State Board of Agriculture, Columbia	1865
Montana	Commissioner of Agriculture (Bureau of Agriculture, Labor, Industry and Publicity), Helena	1889
Nebraska	State Board of Agriculture, Lincoln	1858
Nevada	State Board of Agriculture, Carson City	
New Hampshire	State Board of Agriculture, Concord	1870
New Jersey	State Board of Agriculture, Trenton	1873
New York	Commissioner of Agriculture, Albany	1893
North Carolina	Commissioner of Agriculture, Raleigh	1877
North Dakota	Commissioner of Agriculture, Bismarck	1889
Ohio	State Board of Agriculture, Columbus	1846
Oklahoma	State Board of Agriculture, Stillwater	1907
Oregon	State Board of Agriculture	1861
Pennsylvania	Secretary of Agriculture, Harrisburg	1895
Rhode Island	State Board of Agriculture, Providence	1892
South Carolina	Commissioner of Agriculture, Columbia	1904
South Dakota	State Board of Agriculture, Huron	1884
Tennessee	Commissioner of Agriculture, Nashville	1875
Texas	Commissioner of Agriculture, Austin	1906
Vermont	Commissioner of Agriculture, Plainfield	1872
Virginia	Commissioner of Agriculture, Richmond	1888
West Virginia	Commissioner of Agriculture, Charleston	1891
Wisconsin	State Board of Agriculture, Madison	1897

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

AGRICULTURAL EXPERIMENT STATIONS.*

State	Description and location	Date of original organization	Organized under Hatch Act of March 2, 1887
Alabama	(College) Auburn	1872	Feb. 24, 1888
Alabama	(Canebrake) Uniontown	1885	April 1, 1888
Alabama	(Tuskegee Institute) Tuskegee	Feb. 15, 1897	
Arizona	(State University) Tucson	1885	1890
Arkansas	Fayetteville		Mar. 7, 1889
California	(State University) Berkeley	1873	Mar., 1888
Colorado	Fort Collins		Feb., 1888
Connecticut	(State) New Haven	Mar. 21, 1877	May 18, 1887
Connecticut	(Storrs) Storrs		May 18, 1887
Delaware	Newark		Feb. 21, 1888
Florida	Gainesville		1888
Georgia	Experiment	1888	July 1, 1889
Idaho	Moscow		Mar. 26, 1892
Illinois	Urbana		Mar. 21, 1888
Indiana	Lafayette		Jan. 1, 1888
Iowa	Ames		Feb. 17, 1888
Kansas	Manhattan		Feb. 8, 1888
Kentucky	Lexington	Sept. 25, 1885	April, 1888
Louisiana	(Sugar) New Orleans	Sept., 1886	
Louisiana	(State) Baton Rouge	April, 1887	1888
Louisiana	(North) Calhoun	May, 1887	
Louisiana	(Rice) Crowley		July 1, 1909
Maine	Orono	Mar., 1885	Oct. 1, 1887
Maryland	College Park		Mar. 9, 1888
Massachusetts	Amherst	1882	Mar. 2, 1888
Michigan	East Lansing		Feb. 26, 1888
Minnesota	(University Farm) St. Paul	Mar. 7, 1885	1888
Mississippi	(Agricultural College)		Jan. 27, 1888
Missouri	(College) Columbia		Jan., 1888
Missouri	(Fruit) Mountain Grove	Feb. 1, 1900	
Montana	Bozeman		Feb. 16, 1893
Nebraska	Lincoln	Dec. 16, 1884	June 14, 1887
Nevada	Reno		Dec., 1887
New Hampshire	Durham		Aug. 4, 1887
New Jersey	(State) New Brunswick	Mar. 10, 1880	
New Jersey	(College) New Brunswick		April 26, 1888
New Mexico	(College of Agriculture) State College		Dec. 14, 1889
New York	(State) Geneva	Mar. 1, 1882	
New York	(Cornell University) Ithaca	1879	April 1, 1888
North Carolina	(College) West Raleigh	Mar. 12, 1877	Mar. 7, 1887
North Carolina	(State) Raleigh	July 1, 1907	
North Dakota	(Agricultural College)		Mar., 1880
Ohio	Wooster	April 25, 1882	April 2, 1888
Oklahoma	Stillwater		1891
Oregon	Corvallis		July, 1888
Pennsylvania	(State College)		June 30, 1887
Pennsylvania	Institute of Animal Nutrition		July 1, 1907
Rhode Island	Kingston		July 30, 1888
South Carolina	(Clemson College)		Jan., 1888
South Dakota	Brookings		Mar. 13, 1887
Tennessee	Knoxville	June 8, 1882	Aug. 4, 1887
Texas	(College Station)		Jan. 25, 1888
Utah	Logan		April, 1890
Vermont	Burlington		Feb. 28, 1888
Virginia	(College) Blackburg		Oct. 16, 1888
Virginia	(Truck) Norfolk	Feb., 1907	
Washington	Pullman		1892
West Virginia	Morgantown		1887
Wisconsin	Madison	1883	1887
Wyoming	(State University) Laramie		Mar. 1, 1891

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

APPENDIX B.

COUNTY COMMISSIONERS OF HORTICULTURE.

County	Horticultural Commissioner	Address
Alameda	Fred Seulberger, 418 Fourteenth st.	Oakland.
Butte	Earle Mills	Oroville.
Calaveras	H. L. Leonard	San Andreas.
Colusa	L. R. Boedefeld	Colusa.
Contra Costa	V. G. Stevens	Concord.
El Dorado	John A. Winkelman	Placerville.
Fresno	Fred P. Roullard	Fresno.
Glenn	H. M. Kingwill	Orland.
Humboldt	John F. Benton	Eureka.
Imperial	F. W. Waite	El Centro.
Inyo	John Wardle Dixon	Independence.
Kern	Harold L. Pomeroy	Bakersfield.
Kings	Laurence O. Haupt	Hanford.
Lake	Sydney J. Stokes	Kelseyville.
Lassen	F. H. Taylor	Susanville.
Los Angeles	H. J. Ryan, 907 Hall of Records	Los Angeles.
Madera	Geo. Marebbank	Madera.
Marin	Thos. P. Redmayne	San Rafael.
Mendocino	E. W. Dutton	Ukiah.
Merced	Arthur E. Beers	Merced.
Modoc	Thos. Briles	Davis Creek.
Monterey	J. B. Hickman	Aromas.
Napa	W. D. Butler	Napa.
Nevada	D. F. Norton 335 E. Main st.	Grass Valley.
Orange	A. A. Brock	Santa Ana.
Placer	C. K. Turner	Auburn.
Riverside	A. E. Bottel	Riverside.
Sacramento	A. E. Morrison, Court House	Sacramento.
San Benito	J. O. McKinney	Hollister.
San Bernardino	John P. Coy	San Bernardino.
San Diego	R. R. McLean	San Diego.
San Francisco	Dudley Moulton, 510 Battery st.	San Francisco.
San Joaquin	Harry H. Ladd, Court House	Stockton.
San Luis Obispo	Edward L. Smith	San Luis Obispo.
San Mateo	A. W. Tate	Redwood City.
Santa Barbara	Eugene S. Kellogg	Santa Barbara.
Santa Clara	L. R. Cody	San Jose.
Santa Cruz	Donald D. Penny	Watsonville.
Shasta	B. F. Stroup	Redding.
Siskiyou	R. O. Gwyn, Court House	Yreka.
Solano	Frank Owen	Suisun.
Sonoma	O. E. Brenner	Santa Rosa.
Stanislaus	A. L. Rutherford	Modesto.
Sutter	Harry P. Stabler	Yuba City.
Tehama	G. H. Fournoy	Red Bluff.
Tulare	Frank R. Brann	Visalia.
Tuolumne	H. H. Sherrard	Sonora.
Ventura	A. H. Call	Santa Paula.
Yolo	Harold M. Van Tassel	Woodland.
Yuba	G. W. Harney	Marysville.

FARM ADVISERS AND ASSISTANTS IN CALIFORNIA.

County	Adviser and Assistant	Address
Alameda	R. T. Robinson, J. B. Hammon, asst.	574 Castro st., Hayward.
Butte	H. E. Drobish	609 Bird st., Oroville.
Contra Costa	A. M. Burton	Concord.
El Dorado	Prof. B. J. Jones	Placerville.
Fresno	Dr. J. P. Benson; Homer R. Keller and Frank T. Murphy, assts.	Chamber of Commerce Bldg., Fresno.
Glenn	G. A. Goatley	Federal Bldg., Willows.
Humboldt	Dr. J. W. Logan	432 H st., Eureka.
Imperial	E. L. Garthwaite; Raymond Ellis and Vern Detar, assts.	645 Main st., El Centro.
Inyo	J. P. Hertel	Court House, Independence
Kern	M. A. Rice; R. H. Klamt, asst.	Court House, Bakersfield.
Kings	Wallace Sullivan; Henry T. Anderson, asst.	Hanford.
Lassen	M. D. Collins	Chamber of Commerce, Susanville.
Los Angeles	R. W. Hodgson; G. R. Gordon, L. D. Holmes, V. F. Blanchard, K. A. Ryerson, assts.	202 N. Broadway, Los Angeles.
Madera	T. O. Morrison	Court House, Madera.
Marin	M. B. Boissevain	Freitas Bldg., San Rafael.
Mendocino	Prof. C. S. Myska	Ukiah.
Merced	J. F. Grass, Jr.; J. L. Quail, asst.	Farm Bureau Office, Merced.
Monterey	T. C. Mayhew; E. D. O'Brien, asst.	261 Main st., Salinas.
Napa	Prof. H. J. Baade; Enoch Torpen, asst.	Court House, Napa.
Nevada	H. I. Graser	Grass Valley.
Orange	H. E. Wahlberg; W. M. Cory, asst.	508 N. Main st., Santa Ana.
Placer	R. D. McCallum	Court House, Auburn.
Riverside	M. M. Winslow; J. Q. McDonald, asst.	641 Ninth st., Riverside.
Sacramento	L. Y. Leonard; E. L. Stanley, asst.	Court House, Sacramento.
San Benito	W. J. Tocher	Farm Bureau Office, Hollister.
San Bernardino	H. J. Wilder; E. J. Campbell, asst.	439 Court st., San Bernardino.
San Diego	J. G. France	Elks Bldg., San Diego.
San Joaquin	J. W. Adriance; E. D. Schlaman, asst.	339 E. Weber ave., Stockton.
Santa Barbara	D. T. Batchelder	117 E. Anapaum st., Santa Barbara.
Santa Cruz	H. L. Washburn; K. W. Koch, asst.	4 Cooper st., Santa Cruz.
Shasta	Prof. Parker Talbot	Court House, Redding.
Solano	J. W. Mills	Court House, Fairfield.
Sonoma	Prof. H. A. Weinland; M. W. Buster, M. P. Everett, assts.	Court House, Santa Rosa.
Stanislaus	A. A. Jungerman; D. M. Smith, asst.	922 J st., Modesto.
Sutter	C. E. Sullivan; E. F. Serr, Jr., asst.	Mission Hall, Yuba City.
Tehama	E. W. Curtis	Chamber of Commerce, Red Bluff.
Tulare	Prof. C. M. Conner; W. E. Gilfillan, asst.	Auditorium, Visalia.
Ventura	C. C. Staunton	Court House, Ventura.
Yolo	Warren D. Norton	Court House, Woodland.
Yuba	Wm. Harrison	410 Second st., Marysville.

W. H. Cudaback, W. F. Carroll, H. E. Paxton, itinerant assistants; Agricultural Hall, Campus.

APPENDIX C.

NATIONAL AND CALIFORNIA AGRICULTURAL ASSOCIATIONS.*

Horses.	
American Hackney Horse Society	Hempstead, New York
American Shire Horse Society	Bushnell, Illinois
American Saddle Horse Breeders' Association	Lexington, Kentucky
Arabian Horse Club of America	1729 G st., Washington, D. C.
Coach Horse Association of America	Lafayette, Indiana
French Coach Horse Society of America	Maple ave. and Harrison st., Oak Park, Ill
German, Hanoverian and Oldenburg	
Standard Bred: American Trotting Registered Association	137 South Ashland ave., Chicago, Ill.
Thoroughbreds: The Jockey Club	New York, New York
Percheron Society of America	Stockyards, Chicago, Illinois
Pacific Coast Saddle Horse Breeders' Association, Dr. W. J. Smyth, Secretary	Union Savings Bank, Oakland, California
Pacific Coast Trotting Horse Breeders' Association	Oakland, California

STATES HAVING STALLION REGISTRATION LAWS.

State	Name and location	Date of organization
California	Stallion Registration Board, Sacramento	Aug. 1, 1911
Colorado	State Board of Stock Inspection Commissioners, Denver	Aug. 5, 1911
Idaho	Stallion Registration Board, Moscow	Mar. 15, 1909
Illinois	Stallion Registration Board, Springfield	Jan. 1, 1910
Iowa	Stallion Registration Board, Des Moines	Mar. 30, 1907
Kansas	State Livestock Registry Board, Manhattan	April 3, 1910
Michigan	Agricultural College, East Lansing	Aug. 1, 1911
Minnesota	Stallion Registration Board, St. Paul	April 25, 1907
Missouri	Missouri Stallion Registration Board, Columbia	Jan. 1, 1918
Montana	Bureau of Agriculture, Labor, Industry and Publicity, Helena	Mar. 8, 1909
Nebraska	Stallion Registration Board, Lincoln	July 7, 1911
New Jersey	Stallion Registration Board, New Brunswick	Sept. 1, 1908
New York	New York Stallion Registration Board, Albany	Aug. 1, 1916
North Dakota	Stallion Registration Board, Fargo	Jan. 1, 1910
Oklahoma	Oklahoma State Live Stock Registration Board, Stillwater	Feb. 25, 1915
Oregon	Stallion Registration Board, Corvallis	May 20, 1911
Pennsylvania	Stallion Registration Board, Harrisburg	Jan. 1, 1908
South Dakota	Stallion Registration Board, Brookings	Mar. 9, 1909
Utah	Stallion Registration Board, Logan	May 13, 1907
Washington	Stallion and Jack Registration Office, State College, Pullman	June 8, 1910
Wisconsin	Stallion Registration Board, Madison	Jan. 1, 1906

Cattle.

American National Livestock Association	Denver, Colorado
American Hereford Cattle Breeders' Association	625 Finance Bldg., Kansas City, Missouri
American Polled Hereford Cattle Breeders' Association	Des Moines, Iowa
American Jersey Cattle Club, R. M. Gow, Secretary	324 West Twenty-third st., New York, N. Y.
American Polled Jersey Cattle Club	R. F. D. No. 4, Springfield, Ohio
American Guernsey Cattle Club, Wm. H. Caldwell	Peterboro, New Hampshire
American Devon Cattle Club, L. P. Sisson, Secretary	Charlottesville, Virginia
American Polled Durham Breeders' Association, J. H. Martz, Secretary	Greenville, Ohio
American Shorthorn Breeders' Association, F. W. Harding, Secretary	No. 13 Dexter Park ave., Union Stockyards, Chicago, Illinois
Holstein-Friesian Association of America, L. F. Houghton, Secretary	Brattleboro, Vermont
Red Polled Cattle Club of America, H. A. Martin, Secretary	Gotham, Wisconsin
American Aberdeen-Angus Breeders' Association	817 Exchange ave., Chicago, Illinois
American Galloway Breeders' Association	Carrollton, Missouri
American Kerry and Dexter Cattle Club, C. S. Plum, Secretary	Ohio State University, Columbus, Ohio
Ayrshire Breeders' Association, C. M. Winslow, Secretary	Brandon, Vermont
Dutch Belted Cattle Association of America, G. G. Gibbs, Secretary	Marksboro, New Jersey
Brown Swiss Cattle Breeders' Association, Ira Inman, Secretary	Beloit, Wisconsin
California Cattlemen's Association	320 Sharon Bldg., San Francisco, California
Brown Holstein-Friesian Association	Sacramento, California
California Jersey Breeders' Association	Lockeford, California

*This is only a partial list, as there are many county and local organizations too numerous to include in this summary.

Sheep.

American Southdown Breeders' Association	510 Monroe st., Springfield, Illinois
American Shropshire Register Association	Lafayette, Indiana
American Oxford Down Record Association	Hamilton, Ohio
The Continental Dorset Club	Mechanicsburg, Ohio
American Cheviot Sheep Society	Fayetteville, New York
American Tunis Sheep Breeders' Association	Crawfordsville, Indiana
American Cotswold Registry Association	Waukesha, Wisconsin
National Lincoln Sheep Breeders' Association	Charlotte, Michigan
American Leicester Breeders' Association	Cameron, Illinois
American Romney Breeders' Association	Mechanicsburg, Ohio
American and Delaine, Merino Record Association	Delaware, Ohio
American Rambouillet Sheep Breeders' Association	Milford Center, Ohio
American Hampshire Sheep Association	36 Woodland ave., Detroit, Michigan

Goats.

American Angora Goat Breeders' Association	Lawrence, Kansas
American Milk Goat Record Association, J. C. Darst, Secretary	Dayton, Ohio
California Woolgrowers' Association, Prof. Robt. F. Miller, Secretary	University Farm, Davis, California
National Association of Wool Manufacturers	50 State st., Boston, Massachusetts

Swine.

American Berkshire Association	Springfield, Illinois
American Hampshire Swine Record Association	Peoria, Illinois
American Yorkshire Club	White Bear Lake, Michigan
American Poland China Record Association	Union Stockyards, Chicago, Illinois
National Poland China Record Association	Winchester, Indiana
National Duroc-Jersey Record Association	Peoria, Illinois
National O. T. C. Chester White Record Association	Hastings, Nebraska
California Swine Breeders' Association, R. P. Boyce, Secretary	University Farm, Davis, California

Poultry and Dairy.

American Poultry Association	St. Louis, Missouri
Poultry Keepers' Association	Petaluma, California
Poultry Producers of Central California	612 Underwood Bldg., San Francisco, California
Southern California Poultrymen's Association, Jos. Davis, Secretary	Los Angeles, California
Poultry Producers of Southern California	Los Angeles, California
Stanislaus Poultry and Pet Stock Association	Modesto, California
San Joaquin Poultry Association	Stockton, California
Pasadena Poultry, Pigeon and Pet Stock Association	Pasadena, California
Associated Milk Producers, Inc.	53 Clay st., San Francisco, California
A. J. Homen, Secretary.	
California Milk Producers' Association of Central California	Bacon Bldg., Oakland, California
C. H. Geer, President.	
H. J. Faulkner, General Manager.	
California Milk Producers	1505 S. Main st., Los Angeles, California
B. A. Rhoades, President.	
T. H. Brice, Secretary-Manager.	
Northern California Milk Producers' Association	Fruit Bldg., Sacramento, California
J. M. Henderson, Jr., President, Sacramento Bank, Sacramento.	
H. M. Ellis, Secretary.	
San Joaquin Valley Milk Producers' Association	Cory Bldg., Fresno, California
Fred W. Hansen, President and Manager.	
J. A. Schlotthauer, Secretary.	
Milk Producers' Association of San Diego County	310 Central Mortgage Bldg., San Diego, California
Douglas Young, Manager.	

Hares and Rabbits.

National Association of Commercial Giant Breeders	323 Riehland ave., San Francisco, California
California Rabbit Breeders' Association	2157 Encinal ave., Alameda, California

Fruit Associations.

California Fruit Growers' Exchange	Los Angeles, California
Citrus Protective League of California	Los Angeles, California
California Fruit Exchange	Sacramento, California
California Fruit Distributors	Sacramento, California
California Associated Raisin Company	Fresno, California
California Pear Growers' Association	510 Battery st., San Francisco, California
California Prune and Apricot Growers' Association	San Jose, California
California Peach Growers' Association	Fresno, California
California Fig Growers' Association	Cory Bldg., Fresno, California
California Avocado Association	Experiment Station, Riverside, California
American Date Company	206 Wright & Callendar Bldg., Los Angeles, California
Coachella Valley Co-operative Date Growers' Syndicate	Indio, California
California Associated Olive Growers, Incorporated	721 Balboa Bldg., San Francisco, California
American Olive Company	Adam st. and Long Beach ave., Los Angeles, California
California Ripe Olive Company	Oroville, California
Los Angeles Olive Growers' Association	522 Higgins Bldg., Los Angeles, California
Olive Products Company	Oroville, California
Imperial Valley Melon Growers' Association	El Centro, California
Sebastopol Apple Growers' Union	Sebastopol, California
Watsonville Apple Distributors	Watsonville, California

Nuts.

California Almond Growers' Exchange.....	311 California st., San Francisco, California
California Walnut Growers' Association.....	1326 East Seventh st., Los Angeles, California

Bees and Honey, and Wine.

California State Beekeepers' Association.....	232 West First st., Los Angeles, California
California National Honey Producers' Association.....	Los Angeles, California
California Honey Producers' Co-operative Exchange.....	Box 688, Modesto, California
Northern California Beekeepers' Association.....	Fairoaks, Sacramento, California
California Wine Association.....	216 Pine st., San Francisco, California

Vegetables.

The American Beet Sugar Company.....	625 Market st., San Francisco, California
The Lima Bean Growers' Association.....	Oxnard, California
California Castor Bean Association.....	Santa Barbara, California
California Bean Growers' Association.....	Stockton, California
California Tomato Growers' Association.....	510 Battery st., San Francisco, California
West Coast Potato Association.....	Stockton, California
Celery Growers' Association.....	Santa Ana, Orange County, California
California Vegetable Union.....	812 Union Oil Bldg., Los Angeles, California
Alfalfa Growers of California, Inc.....	525 Central Bldg., Los Angeles, California
Imperial Valley Long Staple Cotton Growers' Exchange.....	El Centro, California
Pacific Rice Growers' Association.....	Fruit Bldg., Sacramento, California

Miscellaneous.

National Agricultural Society.....	Second West Forty-fifth st., New York, N. Y.
California Farmers' Institute.....	University of California, Berkeley, California
California Farmers' Union, Incorporated.....	112 Market st., San Francisco, California
California State Grange, Joseph Holmes, Master.....	Cupertino, California
California Association of Nurserymen.....	237 Franklin st., Los Angeles, California
California Irrigation Association.....	Merchants National Bank Bldg., San Francisco, California
California Grape Protective Association.....	216 Pine st., San Francisco, California
San Joaquin County Grape Growers' Protective League.....	Lodi, California
Valley Fruit Growers' Association.....	Griffith-McKenzie Bldg., Fresno, California
Japanese Agricultural Association.....	444 Bush st., San Francisco, California

Agricultural Newspapers.

Pacific Rural Press (W).....	525 Market st., San Francisco, California
California Fruit News (W).....	341 Montgomery st., San Francisco, California
California Home and Farmer.....	706 Chronicle Bldg., San Francisco, California
Orchard and Farm (W).....	Examiner Bldg., San Francisco, California
California Cultivator (W).....	115 North Broadway, Los Angeles, California
Pacific Fruit World (W).....	706 Hollingsworth Bldg., Los Angeles, California
Rural World.....	237 South Broadway, Los Angeles, California
Western Empire (M).....	132 North Broadway, Los Angeles, California
Fig and Olive Journal.....	311 East Fourth st., Los Angeles, California
Pacific Dairy Review (W).....	78 Clay st., San Francisco, California
Breeder and Sportsman.....	239 Pacific Bldg., San Francisco, California
Pacific Poultry Craft (M).....	223 Central Bldg., Los Angeles, California
Pacific Poultry Breeder (M).....	San Jose, California
California Poultry Journal (M).....	105 ¹ / ₂ North Spring st., Los Angeles, California
Live Stock and Dairy Journal (M).....	Sacramento, California
Sacramento Valley Monthly.....	Sacramento, California

APPENDIX D.

Acts Relating to the Management and Control of the State Agricultural Society.*

- Chapter 60—To provide for the management and control of the State Agricultural Society by the state. Approved April 15, 1880.
- Chapter 307—An act to amend the above act. Approved June 11, 1913.
- Chapter 570—An act to amend the above act. Approved May 29, 1915.

STATISTICS.

- Chapter 584—An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the state of California, and making an appropriation therefor. Approved April 25, 1911.

CHAPTER 60.

An act to provide for the management and control of the state agricultural society by the state.

[Approved April 15, 1880.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The state agricultural society is hereby declared to be a state institution.

SEC. 2. Within ten days after the passage of this act, the governor shall appoint twelve resident citizens of the state, who shall, when organized constitute a state board of agriculture, who shall, except as hereinafter provided, hold office for the term of four years, and until their successors are appointed and qualified. Vacancies occurring from any cause in the board shall be filled by appointment of the governor for the unexpired term of the office vacated.

SEC. 3. Within ten days after their appointment, the persons so appointed shall qualify, as required by the constitution, and shall meet at the office of the state agricultural society and organize by the election of one of their number as president of the board and said society, who shall hold said office of president for the term of one year, and until his successor is elected and qualified. The board shall also elect a secretary and treasurer, not of their number, who shall each hold office at the discretion of the board.

SEC. 4. At the same meeting, the members of the board shall, by lot or otherwise, classify themselves into four classes of three members each. The terms of office of the first class shall expire at the end of the first fiscal year; of the second class, of the second year; of the third class, of the third year; of the fourth class, at the end of the full term of four years. The fiscal year shall be from the first of February to the first of February.

SEC. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society, to adapt the same to the provisions of this act, and to the management of the society, its meetings and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture.

*The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States. Incorporated May 13, 1854. State Board of Agriculture appointed March 12, 1863.

SEC. 6. The board shall have power to appoint all necessary marshals and police to keep order and preserve peace at the annual fairs of the society; and the officers so appointed shall be vested with the same authority for the preservation of order and peace, on the grounds and in the buildings of the society, that executive peace officers are vested with by law.

SEC. 7. Said board shall use all suitable means to collect and disseminate all kinds of information calculated to educate and benefit the industrial classes, develop the resources, and advance the material interests of the state, and shall, on or before the first day of February of each year, report to the governor a full and detailed account of their transactions, statistics, and information gained, and also a full financial statement of all funds received and disbursed. They shall also make such suggestions and recommendations as experience and good policy may dictate for the improvement and advancement of the agricultural and kindred industries.

SEC. 8. The superintendent of state printing shall, each year, print and bind in cloth, four thousand volumes of said transactions, and deliver the same to said board of agriculture for distribution and exchange. He shall also do such job printing as said board may require to carry out the provisions of this act.

SEC. 9. The directors or boards of managers of each county and district agricultural society or association, and of county, district, or state horticultural and stock breeding association or society, organized, and acting under the laws of this state, shall report annually, on or before the first day of April, to the state board of agriculture, the name and post-office address of each officer of such society or association; and, on or before the first day of December, shall report to said board of agriculture the transactions of said society, including the premiums offered, the list of stock and articles exhibited, and the premiums paid; the amount of receipts and expenditures for the year, the new industries inaugurated, and any and all facts and statistics showing the development and extent of the industries, products, and resources of the county or district embraced within the management of such society or association; *provided*, that the provisions of this act shall not apply to any board of commissioners or other body organized under the laws of this state, the object of which is to promote viticultural industries, unless such board or body shall voluntarily request the privilege of making such reports as are called for by this act, in which case such board or body shall enjoy equal privileges as are accorded to other institutions devoted to agriculture.

SEC. 10. To facilitate such reports, the state board of agriculture shall have prepared, and shall furnish such societies with necessary schedules and blanks for such reports; said state board shall include such reports from societies and associations, or so much thereof as they may deem advisable, in their report to the governor.

SEC. 11. When said state board of agriculture shall have been organized and classified as provided herein, the secretary of the board shall report such organization and classification to the governor. He shall also report any vacancy that may occur in said board at any time.

SEC. 12. All laws and parts of laws in conflict with this act are hereby repealed.

SEC. 13. This act shall take effect and be in force from and after its passage.

CHAPTER 307.

An act to amend an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880.

[Approved June 11, 1913.]

The people of the state of California do enact as follows:

SECTION 1. Section five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, is hereby amended to read as follows:

SEC. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society; to adapt the same to the provisions of this act, and to the management of the society, its meetings, and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture; *provided, further*, that the collections and receipts from other sources than state appropriations shall be reported monthly by the secretary to the controller of state and shall be paid into the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be for the use of the society.

CHAPTER 570.

An act to amend sections one and five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended and approved June 11, 1913.

[Approved May 29, 1915.]

The people of the State of California do enact as follows:

SECTION 1. Section one of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended June 11, 1913, is hereby amended to read as follows:

SECTION 1. The state agricultural society is hereby declared to be a state institution; *provided*, that all rights and privileges which have heretofore accrued to members of said society under its rules, either through payments made or by services rendered, are hereby recognized and continued.

SEC. 2. Section five of said act is hereby amended to read as follows:

SEC. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property and be intrusted with the direction of

its entire business and financial affairs. It shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules for the society, to adapt the same to the provisions of this act and to the management of the society, its meetings and exhibitions. It shall provide for an annual fair or exposition by said society of the industries and industrial products of this state and commercial products exported and imported through the ports of this state at the city of Sacramento each year; *provided*, that in any year during which an international exposition conducted in whole or in part under the auspices of the State of California and endorsed by the United States government, is held within the state of California and the state board of agriculture deems it inexpedient to hold a state fair, the funds of the state agricultural society for that year only may be expended in cooperation with the management of said exposition to provide for a proper exploitation of the industries of California at such exposition; *provided, further*, that in no event shall the state be liable for any premium awarded or debt created by the said state board of agriculture; *provided, further*, that the collections and receipts from sources other than state appropriations, shall be reported monthly by the secretary to the controller of state, and shall be paid to the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be solely for the use of the society.

CHAPTER 584.

An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the State of California, and making an appropriation therefor.

[Approved April 25, 1911.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The board of directors of the state agricultural society are authorized, and it is hereby made their duty, to collect, compile and publish annually, on or before the 31st day of January in each year, statistics showing the yield of agricultural and other farm and industrial products of the State of California for each preceding year, and shall, as nearly as may be practicable, ascertain and publish each year the number of acres of land within the state that are under irrigation, and the number, location and extent of any new irrigation enterprises, exclusive of individual pumping plants, that may have been started within the state during the preceding year.

SEC. 2. For the purpose of carrying out the provisions of this act, the sum of five thousand (\$5,000.00) dollars per annum is hereby appropriated out of any money in the state treasury not otherwise appropriated, and the controller is hereby authorized to draw his warrant from time to time up to the amount of said appropriation in favor of the board of directors of the state agricultural society, and the state treasurer is hereby authorized and directed to pay the same.

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THIRD REPORT

OF THE

California Department of Agriculture

FOR THE

PERIOD ENDING DECEMBER 31, 1922

SACRAMENTO, CALIFORNIA



CALIFORNIA STATE PRINTING OFFICE
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SACRAMENTO, 1923.



PLANT INDUSTRY INSURANCE.

Fig. 186—Plant products from the Orient held for inspection by the California Department of Agriculture quarantine and inspection bureau. (Chatterley.)

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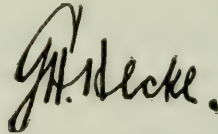
LETTER OF TRANSMITTAL.

SACRAMENTO, CALIFORNIA,
January 1, 1923.

HONORABLE WILLIAM D. STEPHENS,
Governor of the State of California,
Sacramento, California.

SIR: I have the honor to transmit herewith for your consideration my report covering the work of the California State Department of Agriculture for the period ending December 31, 1922.

Very truly yours,

A handwritten signature in black ink, appearing to read "G. H. Necke". The signature is written in a cursive style with a large initial "G" and a prominent "H".

Director of Agriculture.

THE MONTHLY BULLETIN

DEPARTMENT OF AGRICULTURE
STATE OF CALIFORNIA

DEVOTED TO AGRICULTURE IN ITS BROADEST SENSE, WITH SPECIAL
REFERENCE TO PLANT DISEASES, INSECT PESTS, AND
THEIR CONTROL.

G. H. HECKE, Director.....*Censor*
BRONTE A. REYNOLDS.....*Editor*

Entered as second-class matter October 6, 1919, at the post office at Sacramento,
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VOL. XI

NOVEMBER-DECEMBER, 1922.

Nos. 11-12

REPORT OF THE DIRECTOR.

Since the last report on the work of the Department of Agriculture was made a year ago there has been a general improvement in business conditions, due largely to bountiful crops and better prices. The financial returns from farm products, in spite of a railroad strike which for a time threatened to disrupt the entire transportation system, in spite of a serious shortage of refrigerator cars in which to move perishable fruits and vegetables, and in spite of a serious freeze in the citrus belt of the south, have been satisfactory, taking the state as a whole. It is of course regrettable that there was not a more even distribution of the returns.

With the lessons of the past season impressed upon the minds of the farmers of the state, well organized as they are in California, they are now determined to move vigorously toward the adjustment of the transportation problem. The western states, so largely dependent for an outlet upon eastern markets for their enormous and increasing production of perishable commodities, can not longer attack the transportation problem as independent units, but, in order to achieve the object, must act in unison. It is proposed to call together at Sacramento in the near future representatives of the perishable fruit and vegetable industries of all the western states for the purpose of effecting an organization by which it is hoped to prevent the recurrence of such conditions as obtained during the shipping season just passed. This will be exceedingly desirable because the western influence always will be overshadowed at Washington unless there is a united stand. The solution of the problem of transportation of perishable commodities produced by the western states is a paramount issue at this time.

The California State Department of Agriculture has during the past year made excellent progress and has, I believe, given in full measure the service that has been expected by the industry which it is called upon to protect. The various activities of the department will be found outlined in detail by the heads of bureaus and divisions in the

body of the report. This statement will be confined therefore to some of the outstanding accomplishments of the department, to dangers which threatened the agricultural industry and to recommendations for future activities and legislation. Before proceeding further, however, the helpful cooperation which has been extended to the State Department of Agriculture by the United States Department of Agriculture should receive special and favorable mention. Active cooperative agreements are now in force with the Federal Horticultural Board, the Bureau of Entomology, the Bureau of Biological Survey, the Bureau of Agricultural Economics and the Bureau of Animal Industry. These agreements should be continued and their scope increased. They have proved an invaluable source of strength to the entire structure of the department. Such cooperation without question has rendered much more effective the service that we have been able to give to California agriculture. Relations maintained with the College of Agriculture have been of the best, and while because of their entirely distinct functions no formal cooperative agreements have been entered into, the department has never hesitated, when occasion arose, to seek and obtain the advice of the College of Agriculture on scientific matters.

California is rapidly coming to the front as a live stock state and this fact has a twofold bearing on our agricultural welfare. The increase in production of live stock and animal products is in itself an excellent and necessary development. The population of California is increasing more rapidly than that of any other part of the United States and the state as a whole is still dependent upon other states for much of the meat supply. This condition should be corrected. It has been shown at the various national and international live stock shows that California can compete successfully with any other part of the country in the production of high quality stock. With the proper development of union stock yards and packing facilities in California, an under-supplied local market and unexcelled natural advantages in the way of climatic conditions, the stockmen may safely look forward to an era of great prosperity for their branch of agriculture.

The prospects for the live stock industry are, however, of great importance, indirectly, to the fruit and vegetable growers as well. It has frequently been said, and proved by history, that no agriculture can be permanent without live stock. Orchard and truck crops have, undoubtedly, up to the present time outstripped the live stock industry in growth, so that the more recent tendency toward increased development of the latter is an extremely healthy indication and one which is welcomed by all.

The dairy industry of the state is growing rapidly. Statistics compiled by the department indicate an increased production of 6,000,000 pounds of butter fat, a total of approximately 105,500,000 pounds; an increase of more than 13,000,000 gallons of market milk or a total of 75,000,000 gallons including certified milk; an increase of 2,000,000 pounds of butter, making a total of nearly 75,000,000 pounds; and an increase of 31,000,000 pounds evaporated and condensed whole milk, making a total of over 94,000,000 pounds. A steady improvement in the quality of the manufactured products also is evident.

Only a small part of the farm lands adapted to dairying is developed, and more cows should be kept in fruit-growing sections. Consumption

is more than keeping pace with production, which, in conjunction with the fact that California is in a key position to command the export trade to Mexico, the west coast of South America and the Orient, leaves no cause for worry about future markets. California is separated from the exporting dairy states of the middle west by two mountain ranges and 3000 miles of railroad, which makes a shipping cost of about three cents a pound on imports. This state has a long growing season, cutting twice as many crops of alfalfa as can be grown in other dairy sections of the country. To this should be added the statement that the crops can be grown without fear of loss from rains during curing. Mild winters prevent interference with milk flow by severe cold weather and permit the use of less costly buildings with consequent less overhead expense. All of these factors combine to make dairying profitable in California.

The work of the State Dairy Service is now limited almost entirely to the intensive dairy sections. It should be extended to the mountain valleys where dairying is now fast developing.

The benefits which have accrued from the work of the department in the prevention, control and eradication of transmissible animal diseases again should be emphasized. Experience has taught that disease is one of the most serious menaces to the development of a great animal industry. When the large live stock population of California is taken into consideration with so little contagious disease present, it is evident that proper regulations have succeeded in preventing the entrance into the state of many fatal maladies prevailing elsewhere and also in keeping under control or eradicating those with which we have been obliged to deal within the borders of our state. The animal husbandry of California would be in a sorry plight if these restrictions were removed, as has been demonstrated by conditions that have prevailed in other states. Fortunately provision has been made to enable the Department to maintain constant vigilance on the borders for this necessary protection.

MEAT INSPECTION.

Human beings are subject to a number of diseases which may be contracted from eating unwholesome meat. The Meat Inspection Law requires sanitary inspections of all slaughtering establishments in the state. It also affords the people in all parts of California the privilege of having their meat supply properly inspected and operates to protect the producers of a wholesome product. The law is so framed that it may be operated cooperatively with county and municipal meat inspection ordinances. In order that this activity may be carried on efficiently it is necessary for the department to maintain a corps of inspectors with special training in animal diseases and sanitation.

It is not yet a year since the department has put into effect this systematic method of meat inspection which is applied in municipalities and counties. Within that period cooperative inspection has been extended to twenty-six slaughtering establishments in twelve municipalities located in various sections of the state. One entire county through request of its supervisors has been granted the same efficient inspection. This law is found to be not only a splendid public health measure but it also protects the honest butcher against

unscrupulous competition, aids the state officials in locating disease throughout the state, and enables progressive stock raisers economically to place wholesome meat on the market.

The consideration that this law has been given by the public is a demonstration that its meaning is clearly understood. It has thereby prompted cooperation with state officials in a thorough and far-reaching manner.

BOVINE TUBERCULOSIS.

Particular attention has been given by the department to this most insidious foe to the health of both men and animals. The first beneficial measure enacted for the control of tuberculosis in cattle is known as the California Pure Milk Law which requires the tuberculin testing of all cattle producing milk for public consumption in the raw state. This law serves as a protection to the public health and enables dairymen who sell raw milk to maintain their herds free from tuberculosis. It has been effective in preventing the spread of the disease in dairy herds, but is not sufficiently far-reaching to class it as an eradication measure.

In addition to the Pure Milk Law the department is also charged with the enforcement of the Accredited Herd Law which deals with the eradication of the disease from individual herds, and the Tuberculosis Free Area Law, which provides that citizens of any county wherein not more than 10 per cent of the cattle are tuberculous may take advantage of its provisions and have their cattle tested, and the reactors branded and removed from the area. This plan of eradication is operating successfully in Lassen, Modoc and Mendocino counties and many others have filed applications and action is only awaiting the time when necessary help is available. These three methods of attacking the problem harmonize and their proper support will go far toward freeing our cattle industry from this formidable disease. Further than this, it has an important bearing on the health of the people. This is evidenced by a recent statement of the Secretary of the State Board of Health to the effect that the appreciable reduction of tuberculosis in children in California can be attributed to some extent to the operation of the Pure Milk Law.

PLANT QUARANTINE.

On account of the distance from the great markets of the country the sale of California products of the soil is made under a severe handicap. This must be counterbalanced either by lower production costs or by the production of a superior product, or by both. Success in any industry is measured by the difference between production costs and the net sale price to the producers. One important item in the cost of production of farms products is the attack of plant pests. For this reason it is particularly important that every effort should be made to prevent the introduction into California of pests and diseases which attack agricultural crops elsewhere, by proper quarantine and inspection measures, and thus keep down the cost of production. The unfortunate spreading of the alfalfa weevil over counties of the State of Nevada, and the first appearance on the Pacific slope of the dangerous white pine blister rust, emphasize the importance of proper restrictive measures. Let such examples serve as a reminder to California agriculturists that these

alien enemies are approaching close to the borders of the state, that the danger is becoming more pronounced from year to year and is being augmented by the increasing transportation by rail, water and automobile. It is the endeavor of the department to guard against these dangers by the greatest possible efficiency in the plant quarantine service, which on the other hand must be supported by sufficient appropriations to enable the department to place additional inspectors on the various routes of travel and commerce.

STANDARDIZATION.

Standardization is another method of overcoming our marketing handicaps. Knowledge on the part of the consumer that California products are reliable will tend to make him demand them, even at slightly higher prices. This branch of the work has experienced a successful year. A considerable loss was sustained by the citrus industry through the freeze of January, 1922, in connection with which the standardization laws were put to the test and in some respects found inadequate.

The shipping point inspection service has proved commercially successful and is entirely self-supporting. The State Department of Agriculture is now issuing an inspection certificate in cooperation with the Federal Department of Agriculture which is prima facie evidence of the quality and condition of the commodity at shipping point in any court of the United States. Under proper management it is certain that this cheap insurance service will be extended from year to year until it covers not only deciduous and citrus fruits, vegetables and grapes, but also dried fruits, cereals and other commodities.

PEST CONTROL.

The control of pests and diseases of agricultural crops is a problem from which no farmer can escape. It is an important function of the department to aid the grower in making his work in this direction most effective at the lowest cost and at the same time to protect his property from invasion by pests from surrounding districts through the enforcement of pest control laws. The department has undertaken the complete extermination from the state of certain pests, notably the strawberry root-weevil and the Sicilian snail, which have become established, but only in a very restricted way. The work of this bureau also embraces the control of rodents, weeds, predatory animals, insects, and fungous diseases of plants. The work has been carried on efficiently, in such a way as to receive the approval of the farmers and other agricultural interests. The control of pests by the biological or parasite method has been especially well received.

CHEMISTRY, MARKETS, WEIGHTS AND MEASURES.

Most valuable work has been accomplished by the Division of Chemistry, and in this estimate of its service the sentiment of the men who are producing commercial fertilizers and insecticides and expressions from the farmers themselves who are the buyers of these products, coincide. From a small beginning the Division of Chemistry has developed a service of most satisfactory commercial value to the agricultural industry.

The Divisions of Markets and of Weights and Measures were the last additions to the Department of Agriculture, having been consolidated two years later than the other offices; therefore they have not yet had the opportunity afforded the others to expand and give the real service which they can give ultimately.

RECOMMENDATIONS.

This year is legislative year and it is but natural that attention should be turned to questions of law enactment and amendment, matters of utmost importance to the agricultural industry of the state. There appears to be, at this time, a general feeling among enforcement officials that the legislative program for this biennium should be brief and that only in case of extreme necessity should the agricultural laws be modified. The department is in general accord with this attitude, particularly because continual changes in the law make it difficult for citizens to comply with them. No hesitancy in suggesting to the legislature such enactments or amendments as will be of unquestioned benefit to California agriculture should be evidenced, however.

Certain minor amendments to the laws, largely a clarification of the wording so that there can be no mistake as to the intent, are necessary, but these are relatively unimportant and need no special mention. Attention will be directed, however, to legislation which appears to be fundamental to the welfare of the agricultural industry and, indirectly, to the welfare of the state as a whole.

The laws relating to dairying and dairy products require complete revision. In some respects they are indefinite, in others obsolete. Some of the present requirements are unnecessary and new ones are needed. A careful revision of these laws will render enforcement more efficient and will permit extension of the work without increased appropriations.

The normal development of a great livestock industry is dependent upon restrictive measures to prevent diseased animals from crossing the borders of the state. California is menaced by sheep and cattle scab in neighboring states, and that most serious disease known as foot-and-mouth disease may threaten the livestock of the state through Mexico. Confronted with these and other known menaces it is necessary to devise new regulations and increase the police work in order to prevent the introduction of such diseases into California.

It is suggested that the matter of legislation governing the shipment of frosted oranges be given the immediate and serious attention of the industry. As is generally known, after the freeze which occurred during the month of January, the Department of Agriculture under the provisions of Section 15 of the Fruit and Vegetable Standardization Act, issued regulations designed to clarify the indefinite language relating to the shipment of frosted oranges as set forth in Section 10. This portion of the law states that "oranges shall be considered unfit for shipment when frosted to the extent of endangering the reputation of the citrus industry if shipped." The so-called frozen orange law of 1915 is believed to be adequate to regulate the shipment of citrus fruits after drying out sets in. This is the act which states that it is unlawful to ship citrus fruit if 15 per cent or more of the fruit in any lot shows on a transverse section through the center a marked drying in 20 per cent or more of the exposed pulp. The regulations of the department issued

under authority of the fruit and vegetable law, a separate act from the last quoted, were issued after full consultation with the trade and in the hope of developing a system and a procedure that would clarify the situation in the interim immediately following the freeze and up to the time drying out actually occurred.

As early as the month of May of this year, the orange situation was fully reviewed by our Bureau of Standardization and articles on the subject appeared in various publications, stating that the department felt that present legislation governing the shipment of frosted oranges was inadequate. Subsequent events have proved the truth of that statement. The Supreme Court of the state recently held that the language of Section 10 of the act was too vague, indefinite and uncertain to form the basis for a court proceeding. In addition the court held that any attempt on the part of an administrative board or officer to interpret, clarify or base regulations on such vague and indefinite language would be beyond the constitutional powers of such board or officer. In other words the court held that the Director of Agriculture did not have the authority to issue regulations when based on such indefinite language as "frosted to the extent of endangering the reputation of the citrus industry."

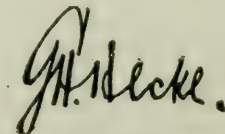
There has been so much misunderstanding concerning the character and scope of this decision that it might be well to point out at this time that the entire Fruit and Vegetable Standardization Act was by no means invalidated. As a matter of fact the court considered only the portion of the law brought before it. It is set forth very definitely in Section 17 that if any section, subsection, sentence, clause or phrase of the act, is for any reason held unconstitutional that such a decision shall not affect the validity of the remaining portion of the act. All the decision means is that there is nothing in the California Fruit and Vegetable Standardization Act, which will prevent the shipment of frosted oranges and that the Director of Agriculture has no authority to issue regulations which have the effect of law bearing on *that particular subject*. Nothing in the decision can be construed to mean that the director may not issue regulations when based on more specific language in the statute itself, or that the remaining portions of the law are not in full force and effect. In addition the statute of 1915 is, of course, still entirely valid.

The department simply raises the question as to whether the industry feels that additional regulations governing the shipment of frosted oranges is necessary at this time. The facts are that there is a law which regulates the shipment of such oranges after drying out sets in. There is nothing regulating the shipment of frosted oranges in the period immediately following a freeze and up to the time evaporation and drying out is visible on tranverse section. The department would not recommend that additional legislation on this subject be introduced into the legislature unless the industry as a unit is solidly behind it. If 20 or 30 per cent of the tonnage is definitely opposed to additional legislation on this subject, it is felt it would be the part of good judgment to forget it. The department is not going to recommend at this time anything specific although we have many specific suggestions in mind. This is a subject which the industry should decide for itself.

It is hardly necessary to point out the great desirability of a provision which would enable the Department to undertake the extermination of new pests or diseases which may at any time break out in the state. Attention need only be called to the enormous losses occasioned to agriculture in other states and countries by the cotton boll weevil and pink bollworm, the gipsy moth, the alfalfa weevil, the Mediterranean, the melon and orange fruit flies, citrus canker and the pine blister rust to convince anyone that any practical attempt to rid the state of such troubles, if they should unfortunately appear in this state, would be effort well spent. California has today, the most efficient quarantine system of any state or country in the world. The department is making every endeavor to make it still more efficient, but there are certain avenues of entrance of pests and diseases against which we cannot guard. Thus in spite of a most efficient quarantine system a section of the state may be found at some time infested with one of these dangerous pests. It would not be in accord with the progressive spirit of California agriculturists to give up when this occurs and allow such a pest to gain a permanent foot-hold. California must have in addition to the quarantine, a second line of defense by which we may be enabled to undertake the complete extermination of such incipient outbreaks. We cannot afford to do the work by halves. Pest control history is replete with instances where such outbreaks could have been exterminated by a vigorous campaign, but which was not undertaken for lack of proper organization and funds with consequent losses which are staggering and which could probably never be overcome.

The necessity of an emergency fund which could be drawn upon in such cases is apparent. This fund should be available for no other use than the one suggested, and should be surrounded by whatever safeguards seem best to insure that it will not be expended excepting in the case of dire necessity. Such a fund might, and it is hoped that it would, lie idle for many years, but unless some such provision is made, the Director of Agriculture will not be able to give full protection to the industry.

As a final recommendation I wish to reiterate the suggestion which I made at the Visalia Fruit Growers' Convention in 1915 and which I have urged frequently since that time. I refer to a codification of the agricultural laws of California. The various police functions relating to agriculture have been successfully consolidated into one department, the State Department of Agriculture. The laws under which the department operates are, however, cumbersome and sometimes conflicting. A careful study should be made, with competent legal advice, of the laws now in force and they should then be reconstructed into a concrete whole which would be free from the present imperfections. Such a codification would do much to develop a smooth-running department and would give increased protection to California agriculture.



Director of Agriculture.

THE BUREAU OF PEST CONTROL.

By HARRY S. SMITH, *Chief.*

The work of this bureau, as at present organized, is divided into six sections or groups. These are as follows: Rodent, Weed and Predatory Animal Control; Field Work in Insect Control; Development of Control Measures Bearing on Regulatory Work; Biological Control of Insect Pests; Pathological Service; and Nursery Service. In the body of the report the functions and work of each of these sections is discussed in detail.

Toward two projects in the second group the writer wishes particularly to direct attention: (1) the eradication campaign against the strawberry weevil, and (2) the eradication campaign against the white snail. Both the weevil and the snail are reported to be serious pests in those states and countries where they are established. They each occur in California only in a single locality so far as we can determine; and there seems to be a reasonable possibility that by intelligent and persistent effort they may be exterminated. It is hardly necessary to point out what the successful consummation of these projects will mean. In British Columbia, where the strawberry weevil is firmly established, successful production of this crop is limited to those fields which are surrounded by a barrier over which the weevils can not cross and within which the weevils have been starved by clean cultivation or crop rotation. The activities of this pest at the Mt. Eden Berry Farm gave evidence that it would be fully as bad in California as in British Columbia.

In connection with the biological control work, we have maintained one foreign collector in the field during a portion of the year, most of his time being spent in accumulating data for future work in West Australia and the remainder in a search for new parasites and for additional material in known species in South Africa. We are now well equipped to handle shipments of new parasites and it is hoped that during the coming biennium we will be enabled to send out an additional collector to search in southeastern China for natural enemies of the red, purple and citricola scales.

It is desired to express appreciation to the various bureaus of the U. S. Department of Agriculture, particularly the Bureaus of Entomology, Biological Survey and Plant Industry, for their cooperation. We believe that this cooperation has been mutually advantageous, and has advanced the interests of California agriculture.

We are especially appreciative of the work of the county horticultural commissioners, who have, in effect, acted as the field or local representatives of the bureau on all our projects and who should share the credit for whatever results of value have been secured.

RODENT, PREDATORY ANIMAL AND WEED CONTROL.¹

The Rodent Control Division of previous years has been succeeded in function by a combination of rodent, predatory animal and weed control operations. The superintendent of rodent control has had



STOCK KILLERS.

FIG. 187—Two large stock-killing bears captured by the State-Federal hunters in Humboldt County.

charge of the work of predatory animal and weed control during the last year and a half, and a word as to the organization of the office at the present time may be of interest.

¹The work of this section has been under the immediate supervision of Mr. W. C. Jacobsen, superintendent of rodent control.

The work of this section has been organized into three divisions. An assistant specializes in each one of the divisions for the major portion of his work, and deals with the other phase of his work as they may come to his attention. These assistants have been termed field assistants of rodent, predatory animal and weed control, respectively, and the work of the field assistant of rodent control is handled by the assistant zoologist, thus eliminating an extra assistant. In the predatory animal control phase of the work, there is an additional subdivision which embodies hunters and trappers who work under a cooperative agreement with the federal government. The number of men so classified varies from ten to thirty, as the season may demand. In order to simplify the details of each function, they will be taken up under separate headings.

RODENT CONTROL.

The main purpose of this work for 1922 was the elimination and destruction of gophers, meadow mice, rabbits, house rats and mice, and particularly ground squirrels. During this year the work has progressed rapidly and the goal has been brought considerably nearer. Although the final completion of this work is still in the future, its ultimate consummation can be more easily approached than heretofore, due to standardization of methods.

Cooperation.

A memorandum agreement was entered into the first of the year with the federal government through the Bureau of Biological Survey, U. S. Department of Agriculture. While this agreement places in writing the duties to be performed by each agency, it merely follows the plan under which these two agencies have been working for the last four or five years. It places the control of all operations upon government lands, whether public domain or national forest, under the immediate direction of the biological assistant in charge, whereas cooperative work with the other agencies in the state, such as the county horticultural commissioners, is operative jointly in accordance with a plan outlined by the Director of Agriculture.

Cooperation on the part of the State Department of Agriculture with county horticultural commissioners is still the most important phase of our cooperative work. In practically every county in California where there is a county horticultural commissioner, the enforcement of squirrel control under the County Commissioners' Act has proceeded even more extensively than has been the case in past years, and decided advantages have appeared in this enforcement work. Voluntary efforts on the part of the landowners are being exerted to a greater extent so that much overhead of law enforcement is eliminated. Now in most cases it is only necessary for the horticultural inspector to discuss the advantages of rodent control with land owners, with the result that there is active work on their part, obviating the necessity of serving a legal notice. In many sections individual farmers or local organizations on their own initiative often engage in control measures and evidence their desire to make clean-ups for their own protection and do not wait until the office of the county horticultural commissioner or its representative has presented the matter.



SEVEN KILLERS.

FIG. 188—Results obtained from a short poison line in one night in Tulare County. Others reported later from the same line.

A problem which still confronts county horticultural commissioners in many counties is the grazing land or foothill areas where the value of lands concerned is not very great and the cost of squirrel control would amount to 8 or 10 cents per acre. While the return value in green feed for live stock would adequately compensate for the cost of eliminating the squirrels, nevertheless the argument does not seem to be convincing. Investigations have been made by representatives of the U. S. Biological Survey as to rodent conditions in the higher mountains partly in cooperation with the county horticultural commissioners and the State Department of Agriculture.

We have continued support to the county horticultural commissioners in a cooperative way by making surveys and reports of cleanups and suggestions as to how problems might better be handled not only in connection with ground squirrels but other rodent pests. Exhibit material has been prepared and suggestions made for that type of publicity either for permanent or temporary exhibits for the county horticultural commissioners' offices.

Other agencies cooperating with the State Department of Agriculture remain the same as in previous years, namely farm bureaus, the forest service, and private individuals or corporations.

Education.

Educational work has been continued by giving demonstrations in the control of all rodent pests, particularly pocket gophers. It would seem that this phase of rodent control, while it has not been neglected, has not been given the vigorous support that the control of ground

squirrels has been given. During the spring of 1922, due to rather heavy rainfall, there was a great deal of natural assistance to the problem of controlling pocket gophers, and it was felt that active educational efforts at that time would serve to keep down the infestation. In addition to actual demonstrations, educational work has been greatly aided by the establishment of a revolving exhibit which goes to the various county fairs in the state and the State Fair at Sacramento. Written articles and publications along the line of rodent control, while not as elaborate as the original ground squirrel bulletin, have been issued in the form of newspaper articles or journal reports during the times of the year when most advantageous.

Rodent Control Drives.

The control of squirrels by the community drive method has been followed in several counties of the state, particularly in Modoc and Lassen. In those counties an attempt was made to control the Oregon ground squirrel. While there is very little state land in these sections upon which the State Department of Agriculture may conduct actual control work, the cooperation of the federal government on its lands opens up the need for concerted and enlarged effort upon private lands in these districts. The policy of the department to carry on protective work for the agricultural industry is best carried out by an organization of communities to cover all lands in a district rather than to leave certain infested areas infested to serve as a menace to the clean areas. This work is always done in cooperation with the office of county horticultural commissioner and the farm bureau, where such organizations exist. As an example of the success of such operations, the results in the Fort Bidwell section of Modoc County might well be brought out. Drives have been carried on consecutively for the past three years and it is found that each year the amounts of poisoned grain used in these drives are materially decreased. The second year of the drive the amount of grain was cut nearly in half, whereas the amount used during the season of 1922 was a little more than one-tenth of the amount used three years ago. Rabbit drives were conducted in some of the valleys of California where requests for assistance were received. These requests came largely from counties not having a county horticultural commissioner or other agricultural agent.

Experimental Work.

Experimental work has been followed up in some degree by testing poisons said to be of a new type. So far, results have proved that the methods in vogue are satisfactory. Chlorine gas, supplied by releasing liquid chlorine in pressure cylinders, and calcium cyanide in crude flake form were experimented with in order to learn whether or not a cheaper and more efficient substitute for carbon bisulfid might be found, but no final conclusions were drawn. Representatives of the Biological Survey tried out mustard gas with representatives of the department in observation, but nothing definite as to what the ultimate success might be could be gained from the small quantity used. It proved to be extremely disagreeable material to handle.

There is a decided need for further investigations of methods of rat control. While rat poisons have often been tried out, their success has not been of the highest type, although the results may have been satisfactory. Control of rats in small towns and communities is needed before actual work can be taken up on the farms for the protection of agricultural crops, either stored or in the field. While there is very little evidence that house rats have become serious field pests, there is always the possibility that this most voracious of all rodents will more or less take the place of ground squirrels if the success in eliminating the ground squirrel continues.

Actual Operations in California.

During July, 1921, the office of Rodent Control discontinued the active handling of poison supplies for county horticultural commissioners and other cooperating agencies. This was largely due to arrangements with firms on the Pacific Coast to handle these materials directly with the county horticultural commissioners at a very low cost, often less than the price for which the material could have been purchased in the eastern markets and delivered into the counties. Also firms so engaged locally could better understand the conditions under which boards of supervisors and horticultural commissioners could make payment as well as overlooking delays accompanying the auditing of accounts. The Department of Agriculture, however, still feels more or less responsible for bringing about this system of reduced costs in poison supplies.

The following is a summary of results obtained and materials used throughout the state by horticultural commissioners, cooperating agencies and private individuals, which is perhaps as accurate as can be obtained at this writing. The figures have been compiled from the annual reports of the county horticultural commissioners and through contact with other cooperating agencies. It has been presumed that poison grain used in the control of ground squirrels would decrease during the past fiscal year, but the reduction has not been as great as might be expected because of the enlargement of operations by horticultural commissioners into foothill areas where poisoned grain is used almost exclusively. The acreage treated during the past year is nearly double that of the fiscal year of 1921. During the fiscal year ending June 30, 1922, approximately 400 tons of poisoned grain were used, this being the total of poisoned grain exposed by county, state, federal and private agencies. In a few counties the horticultural commissioners have discontinued the preparation of poisoned grain. The continuance of this phase of rodent control is very important because of the need of freshly mixed poison, and the ability of the land owner to obtain poison at all times from a local agency is an item of considerable saving, in addition to the fact that the material must be furnished at actual cost.

During the winter season of 1921-22 there were used approximately 90,000 gallons of carbon bisulfid, which would call for between four and one-half and five million jute waste balls. To reduce this number of gallons to tons would make the total of the material approximate 450 tons.

The total acreage covered in California by all agencies, including the work of private land owners, would total a little over 5,000,000 acres, of which 4,600,000 were treated by poisoned grain. It would be interesting to know what the total costs of these operations is, and as near as we can supply figures for labor, cost of material, overhead of law enforcement and supervision, the amount would be about \$557,000. Material and labor are the greatest items in this control work. It is impossible and perhaps would not be wise to make any estimate of the actual saving occasioned by the furtherance of rodent control work, but it is unquestionably certain that if this amount represented interest on an investment or premium on insurance against damage, it would amount to an insignificant per cent.

WEED CONTROL.

For many years there have been introduced into California innumerable plant immigrants; some of these have stayed and found a permanent home, while others did not thrive and were eliminated by natural causes. However, as a general rule, climatic conditions in some part or other of California are very apt to favor a few of these plant immigrants in obtaining a foothold. A careful investigator has estimated that there are at least three new plant species introduced into California annually, and of these three, at least one is a noxious weed. This has undoubtedly been happening for a long period. Some of the farmers and land owners of California recognized members of these new plant species as pests in areas from which they had themselves originally come and knew that their control was necessary, but for a long period it was largely a matter of individual effort. On the part of a majority of agriculturists, there was a decided lack of knowledge as to the identity of many of these weeds, which had gained a foothold



HOW WEEDS ARE SPREAD.

FIG. 189—Spiny clotbur (*Xanthium spinosum*), along banks of irrigation ditch.

long before evidence could be turned against them. Not long after the establishment of a horticultural commission within the various counties it was deemed advisable not only to call the attention of farmers to the various noxious weeds, but attempts were even made to bring about some concerted effort toward control. There was no inspection for weed seeds among agricultural seeds imported from foreign countries until the passage of the Federal Seed Importation Act in 1912, and many of the serious weeds came to us in this manner. Another source was in seed from other states until inspection methods were perfected. County ordinances were sometimes passed against the more serious ones; also cities and towns passed ordinances, not so much on account of the noxiousness of the weed but because in a dry state it constituted a fire hazard of no mean importance.

The first actual state law against any weed pest, except perhaps the Canada Thistle Law for Alameda County and the old county of Klamath in the '70's, was the Johnson Grass Law, passed by the legislature in 1903. Since that time there have been other legislative additions relative to weeds to the County Horticultural Commissioners' Act and the Agricultural Statutes of California. Bringing this down to date, it is noted that the legislature of 1921 passed what is known as the "Weed-Free Area Act," providing for even greater protection than before due to the fact that it increased individual and community effort by a system of protection after the work of removing the weed pest had been practically accomplished.

Program.

In line with the real function of the State Department of Agriculture the program adopted for weed control was primarily protection. A study is being made of weeds within the state to learn which are the most serious. The extent of their infestation is being investigated, in order that they might be curbed while the area is not too large or while the infestation is yet confined to a definite district or section of California. Prevention of spread is deemed to be one of the most satisfactory ways in which to afford this protection and whenever serious noxious weeds are to be found the horticultural commissioner is advised of the fact as well as the landowners upon whose property they exist.

In addition to the prevention of spread of new weeds, it was also necessary to attack some of the older problems, such as weeds that had been established over a period of years, and weeds of a type such as puncture vine, Russian thistle, Johnson grass, morning-glory, or the cocklebur. Success in this program has been in part attained. In some counties where these weeds were found in light infestations they have been entirely eliminated from the areas where they had developed a foothold. A definite outline was prepared by the Director of Agriculture and approved by the county horticultural commissioners for an attack against three weeds practically statewide in distribution but still not abundant in all sections. The three weeds chosen were weeds that could readily be distinguished. They were also named in the "Weed-Free Area Act" and the proclamation added thereto. These were Puncture vine (*Tribulus terrestris*), Russian thistle (*Salsola*

kali), and Spiny clotbur (*Xanthium spinosum*). It was found in choosing these three weeds that several agencies were interested, some of them not necessarily agricultural. In the case of the puncture vine not only were stock men interested because of the mechanical injury to the digestive tracts of live stock by the spiny burs, and the report that the weed had proved poisonous to stock in South Africa, but it was also of decided interest to automobilists because of the ability of the heavy spines on the seed case or bur to puncture automobile tires. Alfalfa growers, road men, and railway officials have become more or less interested in it for other reasons. Alfalfa men are interested



"EARTHLY TROUBLE."

FIG. 190—The puncture vine (*Tribulus terrestris*), flanking the highway. The burs will be picked up in auto tires and carried over the state.

because of its adaptability to conditions under which alfalfa grows; road men because of the difficulty of keeping the road clean and free of the nuisance, and railway men because section hands have developed blood poisoning from the pricks of the spines. The average family takes note of the puncture vine because the youngster of the family finds it difficult to go barefoot in the summer time where the burs are abundant.

In the case of Russian thistle, the grain farmer and seed grower is interested because the presence of this weed in his marketable products proves detrimental to its sale, especially since the enforcement of the Pure Seed Law, and also because of an additional expense of removing the huge piles of these large tumbling weeds swept against fences and buildings by the wind.

In the case of spiny clotbur, the live stock industry is interested, and particularly sheep men, because the presence of the burs in the wool of the sheep render the value of that product considerably less.

In order to follow out this program, the department has devoted itself to several main features: First, assisting the horticultural com-

missioners in determining which weeds in their counties might be considered noxious, the extent of their infestations, and the general avenues by which these weeds might spread. Second, assistance is rendered by identifying weeds within the various counties not only for public officials but also for individual farmers, and notes made as to habit, adaptability and seriousness of the weeds. In the third place, herbarium specimens are being collected in various parts of the state with a view to placing information at the disposal of the department as well as the horticultural commissioners, as to where these weeds might be looked for, also giving material for exhibition purposes to acquaint landowners with weeds that rob the soil and militate against a high market value for their products.

Publicity.

During the past year a great deal of time has been devoted to making known through the horticultural commissioners and farm bureaus something of the scope of the weed problem, what weeds are serious, and against which of them steps should first be taken. The Weed Bulletin was issued by the department and gives a very comprehensive idea of what weeds California has and how many of them can be controlled. Newspapers and farm journals have printed articles on weeds and their control with very satisfying results. Exhibits were made of Riker mounts giving, where possible, all parts of the plant in different stages of growth, making it easy upon casual observation to recognize them. This exhibit material was used at the State Fair and at the various county fairs throughout the state.

Experimental Work.

There has been a great desire on the part of many farmers to learn if there was not some easy way to kill weeds. Some commercial firms have taken advantage of this desire for information and placed weed killers on the market, some of them apparently very satisfactory in their immediate results but often without any degree of permanency. The department has attempted to try out some of these commercial preparations but so far without conclusions that would point to anything more satisfactory than the original chemical materials which have been used for years. Experiments are under way for the control of morning-glory and Russian knapweed (*Centaurea repens*) by carbon bisulphid, the control of Canada thistle by the use of carbon bisulphid, sodium arsenite in various concentrations, and the age-old method of clean cultivation. We are also conducting experiments in soil sterilization with concentrated sodium arsenite to kill the weeds, followed by iron sulphate on the weeds for neutralization of the ill effects on soils, and in the control of a number of perennial weeds by clean cultivation. These experiments are carried on as a general rule in cooperation with members of the office of the county horticultural commissioner and with farmers who take an interest in the control of said weeds on their own property. The main difficulty with experimental work in weed control is that observations must cover a lengthy period, sometimes a year and not less than two years for perennials. On lands that are used for growing crops experiments are apt to be

destroyed when cultural methods are employed for bringing on a crop. This work will be continued as time permits, no funds being available for any work in weed control other than that which comes in line of regular duty.

Weed-Free Area Act.

This measure has been in full force and effect since August, 1921, but demands the time of one or more men for a considerably longer period than is possible to devote to it. It means far more careful inspection than a casual weed survey does, for such an inspection must bring out the actual location of a local infestation as well as to outline large areas of general distribution.

Detailed inspection for a weed-free area was made in Stanislaus County, and it was there, in a county where a great deal of local work has been done successfully, that the difficulty of bringing the law into action quickly was disclosed. The ideal system would require that the survey extend over a period of months unless for a single noxious species, and this has been to some extent a stumbling block. Some weeds germinate early in the year, others not until late, and to cover all of these weeds means devoting a continuous effort throughout the growing period. As we see it at the present time, the chief part that the Department of Agriculture can play in the enforcement of the provisions of the Weed-Free Area Act is to actually learn which of the serious weeds are not found in an area, declare the section included free of these particular weeds, prevent the entrance and spread of these weeds within said area, and then assist in taking up the work intensively upon known infestations of other weeds within the district with a view to having the area declared free of them at a later date.

Local and General Surveys.

Weed surveys were made by members of the bureau in a number of counties to furnish the horticultural commissioner with a more definite knowledge of the scope of the weed control problem. These surveys gave information which, if heeded, would afford a certain amount of protection to communities not infested by weeds of neighboring sections and tended to reveal new species hitherto not known to exist within a given area except perhaps locally, and then in many instances neither the actual type of weed was known nor the seriousness of allowing it to spread.

A general survey of weed infestations in California has revealed the fact that there are many sections in the state where only one or two of the noxious weeds are abundant. Some counties in California naturally have a greater abundance of weeds than others, but many of them have very light infestations of noxious weeds and present a comparatively easy problem for their elimination. Weeds have been found in a general survey of California in sections where they have not been known to exist, and likewise areas that have been reported infested have been found not to be seriously affected and in some instances the weed is no longer to be found.

A brief list of noxious weeds of general importance is added here. This list does not include all noxious weeds, nor does the omission

of a species from any one district indicate that we have not found it there, but it will serve to show the weeds needing attention in the order mentioned. This list is based primarily on the noxious character of the plant and, secondarily, on the infestation.

Northern California.

(Counties in the Sacramento Valley, North Coast Counties and Sierra Counties north of Lake Tahoe.)

1. Puncture Vine (*Tribulus terrestris*) chiefly along main line railroads.
2. Yellow Star Thistle (*Centaurea solstitialis*) general Sacramento Valley.
3. Russian Thistle (*Salsola kali* var. *tenuifolia*) chiefly north and east of Sacramento Valley.
4. Johnson Grass (*Holcus halepensis*) general in Sacramento Valley and adjacent areas.
5. Water Grasses and allied weeds in rice fields.
6. Hoary Cress or Hell Weed (*Lepidium draba*) spotted and localized in Northern California.
7. Spiny Clot-bur (*Xanthium spinosum*) general.
8. Canada Thistle (*Cirsium arvense*) north coast counties chiefly.
9. Purple Star Thistle (*Centaurea calcitrapa*) San Francisco Bay counties north and adjacent.
10. Bull Thistle (*Cirsium lanccolatum*) general.
11. St. John's Wort (*Hypericum* sp.) north coast, north and east Sacramento Valley.
12. Blue Lettuce (*Lactuca pulchella*) extreme northeastern part.
13. Prickly Lettuce (*Lactuca scariola*) northeastern part.

In this area a few infestations of Devil's Claw (*Martynia proboscoides*) were located as well as general infestations of Common Cockle-bur (*Xanthium* sp.), Poverty or Death Weed (*Iva axillaris*) and Tumbling Mustard (*Sisymbrium altissimum*).

San Joaquin Valley.

(Counties in Valley and east to Nevada line.)

1. Puncture Vine (*Tribulus terrestris*) general, some sections severe.
2. Johnson Grass (*Holcus halepensis*) general irrigated areas.
3. Russian Thistle (*Salsola kali* var. *tenuifolia*) general in arid sections.
4. Sand-bur Grass (*Cenchrus pauciflorus*) heavy spots in irrigated sections.
5. Spiny Clot-bur (*Xanthium spinosum*) general.
6. Wild Heliotrope (*Heliotropium curassavicum*) general in subsaline soils.
7. Russia Knapweed (*Centaurea repens*) local infestations in valley.
8. White Horse Nettle (*Solanum elaeagnifolium*) arid valley sections along railroads and isolated.
9. Milk Thistle (*Silybum marianum*) general.
10. Creeping or alkali mallow (*Sida hederacea*) in subsaline sections.
11. Hell Weed (*Lepidium draba*) isolated and local.
12. Yellow Star Thistle (*Centaurea solstitialis*) isolated and local.

Coastal Counties South.

(From San Francisco Bay Region south including Coast Range Counties to Los Angeles County.)

1. Hoary Cress or Hell Weed (*Lepidium draba*) quite common.
2. Russian Thistle (*Salsola kali* var. *tenuifolia*) general.
3. Puncture Vine (*Tribulus terrestris*) along railroads chiefly.
4. Spiny Clot-bur (*Xanthium spinosum*) general.
5. Poison Hemlock (*Conium maculatum*) coastal streams.
6. Johnson Grass (*Holcus halepensis*) general.
7. Milk Thistle (*Silybum marianum*) general.
8. Canada Thistle (*Cirsium arvense*) scattered local infestations.
9. Coast Dandelion (*Hypochaeris radicata*) general in bay region.
10. Alkali Mallow (*Sida hederacea*) local infestations.
11. White Horse Nettle (*Solanum elaeagnifolium*) spotted south.
12. Yellow Star Thistle (*Centaurea solstitialis*) spotted throughout.

Southern California.

(Counties South of Ventura County and Tehachapi.)

1. Camels Thorn (*Alhagi camelorum*) Imperial and Coachella valleys.
2. Puncture Vine or Ground Bur-nut (*Tribulus terrestris*) general, particularly railroads.
3. Johnson Grass (*Holcus halepensis*) general throughout, severe in places.
4. Russian Thistle (*Salsola kali* var. *tenuifolia*) common on drier lands.
5. Sand-bur Grass (*Cenchrus pauciflorus*) spotted in irrigation districts.
6. Hoary Cress or Hell Weed (*Lepidium draba*) spotted areas, some large.
7. Canada Thistle (*Cirsium arvense*) localized.
8. Spiny Clot-bur (*Xanthium spinosum*) general.
9. White Horse Nettle (*Solanum elaeagnifolium*) spotted, especially Imperial Valley.
10. Creeping Sow Thistle (*Sonchus arvensis*) severe local infestations.
11. Milk Thistle (*Silybum marianum*) general.
12. Russian Knapweed (*Centaurea repens*) localized.
13. Alkali Mallow (*Sida hederacea*) occasional in subsaline soils.
14. Yellow Star Thistle (*Centaurea solstitialis*) occasional.
15. Burdock (*Arctium lappa*) spotted farms leased to Japanese.
16. Buffalo-bur (*Solanum rostratum*) spotted.

It will be noted in the above lists that a few weeds are added which are not listed in the "Weed-Free Area Act," but have been considered serious enough to warrant attention. Also, there are a number of very common weeds throughout the state that have been purposely omitted because of their widespread dissemination, thereby constituting in most cases a purely local or individual problem. Of the latter we could mention the nut grasses, (*Cyperus* sp.); field morning-glory (*Convolvulus arvensis*); dodder (*Cuscuta* sp.); Common cockleburs (*Xanthium* sp.); bull thistle (*Cirsium lanceolatum*); and in addition to these a few that are not listed in the "Weed-Free Area Act," particularly those of the family *Compositae* belonging to the *Madieae* or Tarweed tribe, namely the ragweeds (*Ambrosia* sp.); the beach bur and associated desert sand bur (*Franseria* sp.); and the spikeweeds (*Hemizonia* sp.).

General Remarks.

It is not the purpose of this report to go into technical details concerning weeds or their infestations and methods of control. These matters will be taken up in special articles by the Superintendent and Field Assistant in charge, but we have outlined in a general way what has been done during the past year in weed control. A definite program was projected and its success assured in so far as the time and funds allotted would allow. It will be necessary for a great deal of educational work to be done to bring home to those on whose property weeds are found which of them are serious and need to be controlled. It will also take some enforcement of the provision of the Horticultural Commissioners' Act and county ordinances along the lines of weed control within the various counties. With no funds previously allotted we feel that weed control has made progress in California which if continued will prove of much value within the next few years.

Miscellaneous Activities.

Besides personally supervising and organizing rodent drives, conducting demonstrations in pocket gopher and squirrel control, explaining policies and modes of operation in predatory animal control to boards of supervisors and live stock associations, attending meetings and aiding weed control work, the superintendent of rodent control

has been called upon to perform other duties, in addition to his routine work. Most important of these, insofar as protective work for plant industry in California is concerned, is the conducting of examinations for county horticultural commissioners in conjunction with the executive assistant to the Director of Agriculture. The legislature of 1921 passed a law which provides that the duties of the Board of Horticultural Examiners be turned over to the Director of Agriculture, and empowers him to adopt rules for examinations to determine the qualifications of persons desiring to become horticultural commissioners. The rules and regulations adopted by the Department of Agriculture have proved satisfactory in the two examinations held since the law became effective. It has been the policy to hold at least one examination each year, preferably in January or February, in not less than four places in the state. In the two examinations already given twenty-five persons passed and qualified to eligibility out of ninety-four who took the examination and out of one hundred and fifteen who made formal application.

A uniformity, hitherto lacking, has been possible under the new rules and regulations. In addition to the written examinations, consisting of about eighty questions, there is a substantial oral quiz that has served admirably to reveal the fitness of the candidate in addition to the information he may possess. Two days are allowed for the examination, which gives the candidate ample time for completing the test.

Written examination questions are prepared by the heads of each department having to do with horticultural commissioner's duties and these same heads read the answers for correctness and grade them, thereby providing for further uniformity in arriving at the qualifications of the candidates. The examinations, being more severe than was generally the case when given in each county, have made it possible for the Director of Agriculture to absolutely vouch for the qualifications of the candidate when his certificate of eligibility is issued and, in addition, the fact that a person must qualify for eligibility in every county of the state makes it necessary that he command a broad knowledge and experience.

All eligibles are notified by the Director of Agriculture of vacancies existing in the various counties and also when the boards of supervisors make requests for a list of eligibles.

In some cases where questions have arisen concerning necessary steps in appointment of horticultural commissioners, relations between commissioners and boards of supervisors, and difficulties arising with associated agencies, the superintendent of rodent control has been delegated to adjust such matters under the supervision of the head of the Bureau of Pest Control.

PREDATORY ANIMAL CONTROL.¹

Predatory animal control in California has been practiced ever since there has been a live stock or poultry industry within the state. Even before the advent of bounty payments by counties, owners of large ranchos hired men by the year to control predatory animals on their ranges. The bounty came into vogue many years ago and has passed through stages of affluence as well as degeneracy. We have no conflict whatsoever with bounties in their ideal form, which is the establishment of a set sum to be paid for a predatory animal, provided it is sufficient to encourage systematic work by people who will trap and kill predatory animals for the bounty. However, when that bounty remains at a definite sum and does not increase in price when the animals sought decrease in number, lack of interest is soon shown by those attempting to make a living in such a manner and the bounty generally is repealed. The idea seems to be that its need no longer exists. At no time until now has the heart of the problem been attacked systematically and the work aligned to accomplish the purpose which it was originally thought the bounty would, namely the destruction of those animals that were causing losses to live stock, poultry and wild game. The problem at hand, then, calls for the elimination of those predatory animals that cause the destruction, rather than to make a wholesale slaughter of all animals of the kind, some of which might even be of value.

Funds Available.

With the decrease in the value of live stock products and with little lessening in the cost of overhead for bringing live stock products to a marketable condition, live stock men found they could no longer pay out sufficient money to support self-established bounties. Their observations showed them that protection was being afforded other industries through assistance from state, county and federal agencies. Hence, representatives of the live stock industry sought similar assistance from the state government to increase the efficiency of the federal operations in the state of California, which up until 1921 were decidedly limited in their scope. The legislature of 1921 set aside a fund of \$50,000 to add to the amount expended by the federal government and to be administered by the State Department of Agriculture. Since that time there has been added to this combined amount of money appropriations from counties through the county boards of supervisors, who realized that the bounty system had failed to bring about the results anticipated. The discontinuance of bounties in these counties left a fund available and in most instances a portion of this, perhaps a half, a third, or a fourth, was devoted to systematic work along the lines of a policy outlined by the state and federal governments in cooperation.

The Policy.

Since the work of the State Department of Agriculture is regulatory and protective, it was aimed to place predatory animal control on a similar basis and to utilize funds appropriated against predatory

¹The report on predatory animal control work shall be considered a joint report between the Superintendent of Rodent Control and the Predatory Animal Inspector in charge for the U. S. Biological Survey.

animals at points where the cause of damage and where actual losses could be shown. This was deemed advisable rather than the wholesale control of all predatory animals regardless of whether proved marauders or not. In many instances an agricultural area, particularly range and grazing land, had been rendered useless due to the presence of predatory animals, and the cost to the community for protection has increased enormously. Yet the actual losses still continued because of the percentage of killers among these animals. It is under such conditions that the Department of Agriculture feels its efforts can be best exerted.

Following such a policy, it can readily be seen that the cost of this type of protection would be greater than the promiscuous hunting, poisoning or trapping of coyotes, but nevertheless the accomplishment of the purpose would be realized to far better advantage than in any other way.

Administration.

In order to make state funds where available cover the most ground and bring about most actual results, a plan was adopted in cooperation with the representatives of the Federal Government for a fusion of field operations into one system. A cooperative memorandum agreement was drawn up with the Bureau of Biological Survey, U. S. Department of Agriculture, which called for the administration of all federal funds by the predatory animal inspector for California, for the administration of state funds by the Director of Agriculture of the State Department of Agriculture, but with the field supervision for both agencies under the direction of the predatory animal inspector¹. In so far as the expenditure of funds was concerned, this would be done in consultation with the superintendent of rodent control acting for the Director of Agriculture. Briefly, this sums up the terms of the agreement and it can be seen that the overhead of field supervision and administration was cut down to a minimum inasmuch as the work was placed in the hands of officers already working in the state. The field assistant of rodent control was delegated to devote part time to predatory animal control and, during the winter season when field activities are at the highest point, all of the time of this field assistant was devoted to predatory animal work, supervising the field work in direct cooperation with the predatory animal inspector.

With the advent of county cooperation and cooperation of live stock associations, written agreements were entered into with the county boards of supervisors or the directors of these associations, signed by them, the predatory animal inspector and the superintendent of rodent control. These provided in each instance for the expenditure of whatever funds were appropriated within the counties or districts covered by the associations, but to be administered and supervised by the predatory animal inspector and the superintendent of rodent control jointly under essentially the same terms as are provided for in the federal-state agreement. There are at the present time five counties actively cooperating under agreement, together with the Yuba County Wool Growers Association, and the amount of funds set aside by these cooperating agencies will vary from seven to eight thousand dollars during the year.

¹Chas. G. Poole.

Operations.

Actual field operations in predatory animal control have embodied work in Alameda, Butte, El Dorado, Glenn, Humboldt,¹ Lake,¹ Lassen,¹ Los Angeles, Madera, Mendocino, Merced, Modoc, Monterey¹ Napa,¹ Nevada, Plumas, Shasta, Sierra, Siskiyou, San Benito, San Luis Obispo, San Bernardino, Santa Cruz, Solano,¹ and Yolo counties. It can be seen from this that the scope of operations has been extremely large, and because of limited funds it has not been possible to keep men in all of these counties throughout the entire time, but where situations demanded immediate attention because of excessive losses, men were placed in these areas until the situation was alleviated.

The methods pursued in general were poisoning, trapping and hunting, poisoning being preferred wherever weather conditions would permit because of the rapidity with which the work can be consummated. A string of 15 or 20 stations made of some suitable meat bait can be visited by one man easily in the course of a day both to place out poison baits and to make checks on the number of poisoned baits taken. During hot weather trapping necessarily must be followed because the heat destroys any poison baits in a very short time. Den hunting is followed in the spring of the year when the results will warrant the following of this system and, while it has not been followed as extensively as the other two methods, it has been productive of some results. It has been estimated, and conservatively, too, that in poison operations one man can cover the ground three times more rapidly with poison than with trapping, this estimate for a given locality, and in movements in a large district the amount of territory covered will be five times greater with poisoning than with traps. For this reason poison is followed whenever conditions will permit. A great deal of work has been done besides these actual operations in the demonstration of methods pursued with a view to apprising those interested of the ease and simplicity with which this work can be done in the hands of trained men. Under most circumstances the promiscuous use of poison is not encouraged among farmers or other individuals due to the possibility that the indiscriminate use of poison might prove disastrous to dogs and thereby cause trouble. In the use of poison every possible precaution is taken. Every bait that is set out is carefully checked, the number of baits exposed during one day being definitely known, the number of baits taken checked up the following day, generally in the morning, and whenever a poison line is abandoned every exposed bait is collected and destroyed. Wholesale poisoning of carcasses is never practiced, this method giving rise to untold difficulties following the abandonment of a poison line. Land owners are notified of the operations and cautioned to keep dogs and live stock as much as possible away from the areas where poison has been exposed.

Results.

We are partly dependent upon reports of others for a statement of results obtained. We find that to make estimates of the cutting down of losses is far better in the hands of stock men and practical agriculturists, although it has been found that as a general rule the estimates

¹These are the counties with which cooperative agreements have been drawn up carrying county appropriations.

made by them are not so conservative as those made by the department. In many sections the work has released for use of live stock thousands of acres that previously were useless owing to the depredations of coyotes and other predatory animals, even though an attempt had been made to make these sections of some value by close herding and careful watching. Now many of these localities are that free of coyotes that sheep can be grazed on them without the close herding necessary even under average conditions. Many reports are on hand at the office of the department bearing out this statement, and another estimate of the saving made by parties who have been benefited by the work is that the direct losses to live stock and poultry previously placed at from 10 to 20 per cent of the natural increase has been cut down to a loss of one per cent of the natural increase or less. The actual record of hunters and trappers over a period from January 1, 1922, to October 1, 1922, is 1380 coyotes, 297 bobcats, 4 bears and 144 other lesser predatory animals. This is a record of the animals actually found following poisoning, trapping and den hunting operations. Inasmuch as the greatest proportion of the work is poisoning, it might be conservatively estimated that we have actually found but one-third of the animals actually killed. Stockmen and ranchers have informed us that they believe that with poisoning operations we find only one animal out of ten actually killed. However, the optimism on the part of these men may be enhanced by the fact that the killers are the ones that we actually set out for, and the cessation of killing would probably lead to their making such statements. It is certain that, although activities are directed primarily against the ones that are doing the killing, this method indirectly kills numbers of coyotes more susceptible to poison and traps than the wiser and more wily members of the group that are actually responsible for the depredations.

It has been the policy of the department to have all men in the field devote their time to field operations and not to seek out the animals they have killed, for it is estimated that far greater value will be received from the money expended in killing coyotes than for money expended in having men look up animals which may have drifted from a hundred yards to several miles away from the points where poison has been exposed. We are not in the business to collect bounties or to enhance the state or federal coffers with the sale of furs, although whenever predatory animals are found the scalps are sent in for record, or furs are taken during the season when they are prime. The furs are then sold at auction and the money returned to whatever agency chances to be paying the salary of the hunter at the time the scalp or fur is taken. The actual record of animals taken ends October 1, 1922. Up until this time the average number of men in the field has been about 16. From October 1 to the end of the year, there will likely be an average of 40 men in the field devoting their efforts chiefly to poisoning, and a very conservative estimate of the total number of animals that will be killed within this period will be between one thousand and fifteen hundred. After January 1, 1923, it is likely that the number of men in the field will be cut down noticeably due to unfavorable climatic conditions, but on the whole it is aimed to keep as many men in the field during the advantageous poisoning season as possible. During the past season

when furs were prime a total of 201 furs were taken which were of commercial value, and these were disposed of a remuneration of \$477.83, which was applied to further predatory animal control work.

FIELD WORK IN INSECT CONTROL.¹

The work under this section of the Bureau of Pest Control covers a wide and varied field, the general plan under which our work has been conducted being divided into three distinct phases:

(1) To carry on drastic eradication measures against pests new to California where the area of infestation is so limited as to give reasonable assurance of success in such eradication campaigns.

(2) To perfect immediate control measures and conduct control campaigns with a view to preventing further spread of pests now confined to certain portions of the state and liable to become serious pests in other districts.

(3) To aid farmers, fruit growers and nurserymen in the protection of their agricultural and horticultural crops against insect pests which threaten to render such crops unfit for market under the marketing requirements of the Agricultural Statutes of the State of California.

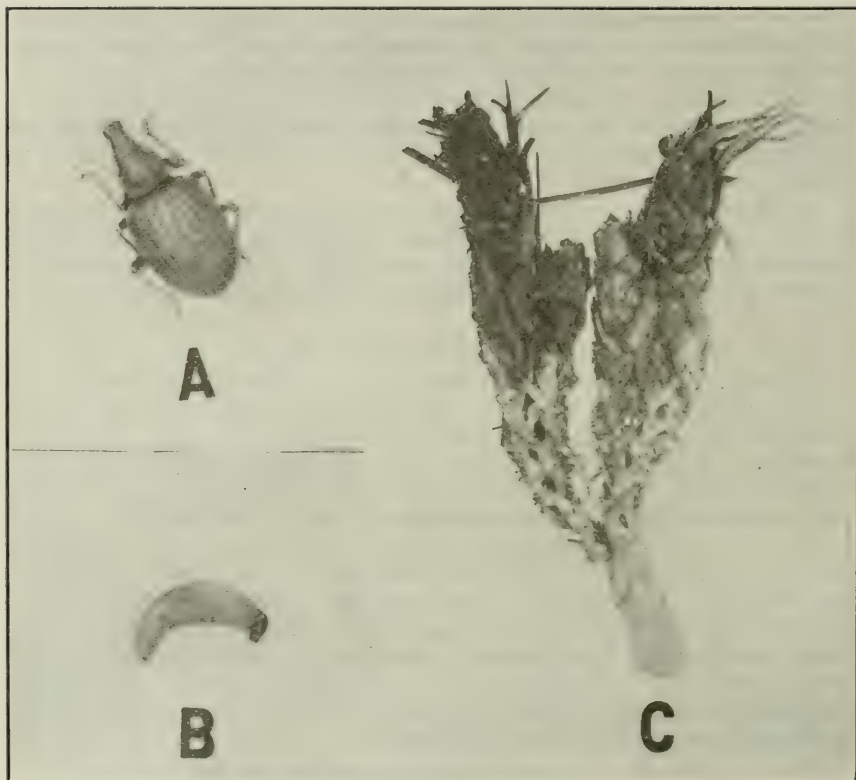
Orchard Spray Meetings.

A great deal of attention was devoted to an effort to aid fruit growers and farmers in more effective and economical spraying with insecticides for the control of insect pests destroying their crops. Enormous quantities of spray materials are used annually. Its efficiency is in many instances reduced by faulty or untimely application or without due consideration of the life cycle and habits of the insect to be controlled. Such faulty application of insecticides frequently leads to the production of infested or diseased fruit unfit for market. In this connection, over one hundred public meetings were held throughout the state during the past season in cooperation with county horticultural commissioners and farm advisors, where subjects of better and more effective spraying were discussed. A continuation of this work is very important in order to reduce the enormous loss resulting to agricultural products from attacks of insect pests.

New Insecticide Problems.

The bureau has made an endeavor to acquaint itself with such insecticides as may be new or little known throughout the state with a view to guiding fruit growers and farmers in their insecticidal value and thereby preventing losses too frequently resulting from unjust claims made by unscrupulous vendors. This work is greatly facilitated by the cooperation of the Division of Chemistry in supplying chemical analyses of insecticides.

¹The work of this section has been under the immediate supervision of Mr. T. D. Urbahns, entomologist.



A STRAWBERRY PEST.

FIG. 191—The strawberry root weevil (*Brachyrhinus* [*Otiorynchus*] *rugifrons*).
A, adult; B, larva; C, work of root weevil on strawberry plant.

MISCELLANEOUS INSECT PROBLEMS.

Strawberry Root Weevil.

The eradication campaign against the strawberry root weevil (*Oti-orhynchus rugifrons*) was continued with very promising results. During season of 1922 only a single living adult and four larvæ of this species were found on the area of young berry plants left as a trap crop and where very serious infestation occurred the previous year. The trap crop was in turn destroyed at the proper season (early in September, 1922), so as to thoroughly dry the soil and kill the half grown larvæ of this destructive weevil which might have been present. The results have been very satisfactory and we feel practically certain of complete success in the eradication of this pest from the only known infested area within the state. The farming operations carried on in this area will be closely watched for another season and no crops will be permitted which are considered host plants of this weevil.

Citrus White Fly.

This insect is present on town lot citrus trees in two cities of the interior valleys but fortunately not in any of the citrus growing districts. A control campaign toward keeping the pest down and preventing its further spread is of great importance. Such a campaign would meet with serious resistance because of the fact that these infestations are on town lots and ornamental trees instead of being in commercial orchards.

White Fly on Grapes.

This insect appeared in abundance on Tokay grapes in several vineyards and over an area of three miles distance. Its abundance was such as to cause considerable alarm and the abundant secretion of honey dew gave the vines and grapes a very unattractive appearance. Control measures were not practical because their abundance was not observed until just before picking the crop.

The Yellow Striped Armyworm.

Armyworms of this species appeared in great abundance throughout many localities of the state. Other species also were involved in the destruction of crops. Considerable aid was given farmers in the application of control methods for the protection of their crops.

Peach Moth.

The peach moth (*Anarsia lineatella*) was again responsible for the loss of large quantities of peaches but the injury was apparently not as general as in the season of 1921. Thorough applications of the winter strength lime sulphur solution appears to be effective against the early generation of moths when applications are properly timed. Late infestations usually result from ineffective control early in the season.

Pear Mealybug (*Pseudococcus maritimus*).

This insect continues to be a serious pest in some orchards of the Sacramento river and bay districts. The spraying of orchards with miscible oils in the river district strongly indicates that this pest can

be kept under control although larvæ and egg-masses protected by rough bark on old trees prevent complete eradication of the pest.

Numerous other insects have demanded attention in the way of control measures from time to time when outbreaks have occurred.

ERADICATION OF THE WHITE SNAIL (*HELIX PISANA*) AT LA JOLLA.

During the spring of the present year the white snail (*Helix pisana*) which was discovered a few years ago at La Jolla, in San Diego County, again became troublesome and after a conference between federal, state and county officials held in June, 1922, it was decided to undertake an extermination campaign.

This snail is said to be a serious pest of citrus and other fruit trees and ornamentals in south Europe, and its activities in California lead



FIG. 192—A "close up" of *Helix pisana*.

us to believe that its reputation as a pest in Europe is fully justified.

In July, 1922, the campaign against this pest was begun as a cooperative project between this bureau and the county of San Diego. By means of burning, clean culture and hand picking, the conspicuous part of the infestation has now been destroyed, in order to prevent danger of its spread to the citrus districts of the state. After considerable experimental work we have found that a poison bran mash composed of one part of bran to sixteen parts of calcium arsenate is

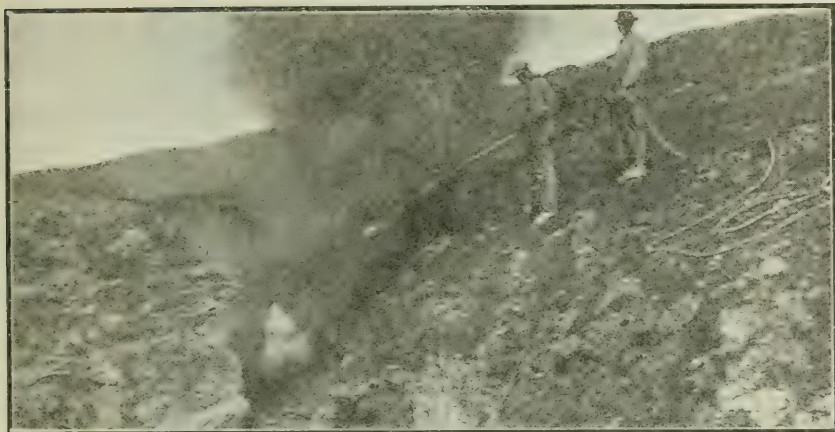


FIG. 193—Flaming a difficult part of the infested ground. (Basinger.)

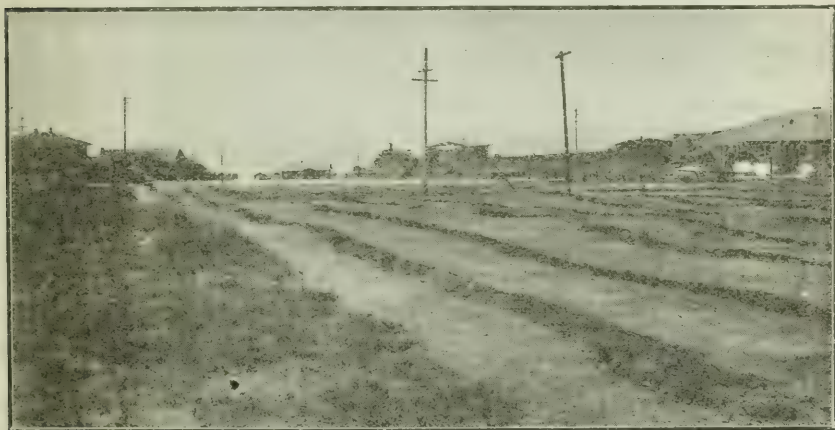


FIG. 194—An infested piece of ground is first scraped clean with the hoe in preparation for the flaming process. (Basinger.)



FIG. 195—Eradication of the white snail (*Helix pisana*). The flamer at work. (McLean.)

very effective in destroying the snails. It is planned to poison the entire infested area this fall as soon as the rains commence. By keeping this program up it is hoped to completely destroy the infestation.

A detailed report of progress on this project will be published in a forthcoming number of the Monthly Bulletin.

DEVELOPMENT OF GENERAL INSECT CONTROL MEASURES.¹

The work of the past year covers largely a continuation and application of the results of the previous year's investigations to commercial practice. In brief, the activities of this office cover the following projects:

1. Regulation of the walnut traffic with relation to the codling moth including the compulsory treatment of sacks.
2. Improvement of methods of handling nursery stock to prevent its acting as a carrier of noxious insects.
3. Better control of insects affecting dried fruit.
4. Treatment of potatoes to destroy tuber moth infestation.
5. Development of methods of treating picking boxes to prevent their acting as carriers of mealybug.
6. Investigations looking to the improvement of methods of treating warehouses and elevators infested with insect pests.

Codling Moth in Walnuts.

The work of the bureau in this connection has been carried out at the special request of the California Walnut Growers' Association. During the present season it has been possible to turn over most of the work of checking the actual handling of packers and dealers to the county horticultural commissioners.

Conditions in regard to the treatment of sacks have been greatly improved, enabling a much greater thoroughness in the sack treatment and at the same time a reduction of costs to packers and dealers.

During the present season three and possibly four vacuum fumigators will be in operation in this work. They are located in Ventura, Los Angeles and Orange counties respectively. With the apparatus available the costs of such treatment will average about one-fourth of a cent as compared with one-half cent to 2 cents in previous years. While the entire work in this regard is not yet completed, records show that over 800,000 sacks will have been processed.

Treatment of Nursery Stock.

Work in the treatment of nursery stock has been continued along the lines previously reported. Considerable advance has been made in all lines of this work. Particularly is this true in regard to the treatment of citrus stock by vacuum fumigation, the details of which will be dealt with in another part of this report.

The department's work in the field of deciduous fruit stock has been directed to testing out the resistancy of the different species by vacuum fumigation with hydrocyanic acid gas. A large portion of this work has

¹The work of this section has been under the immediate supervision of D. B. Mackie, Entomologist.

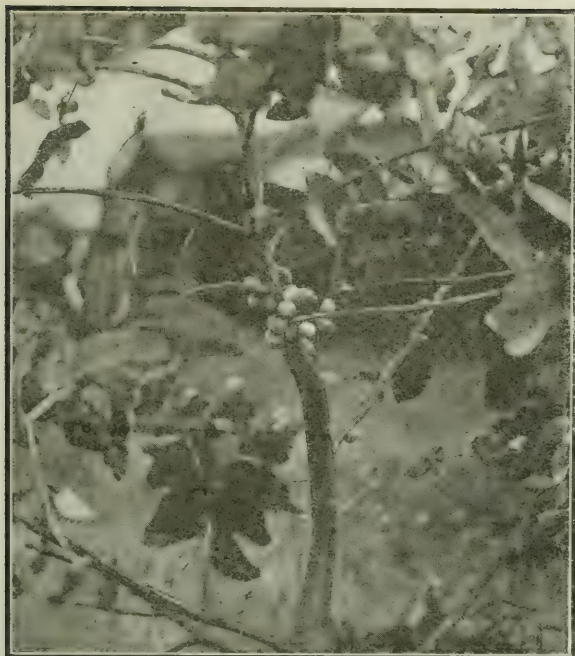


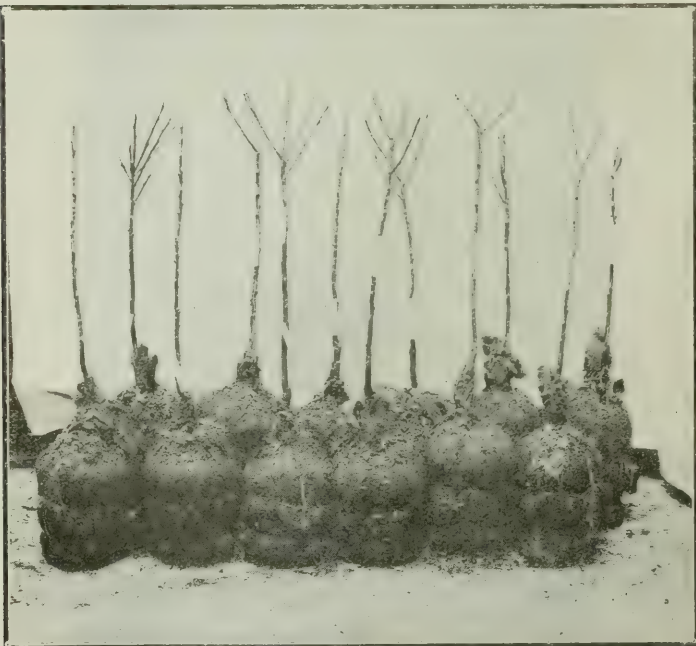
FIG. 196—*Helix pisana* clustered on citrus tree.



FIG. 197—Work of *Helix pisana* on young orange tree. (Armitage.)



FIG. 198—Bundles as received from nursery.



VACUUM FUMIGATION OF NURSERY STOCK.
FIG. 199—Same stock defoliated prior to fumigation.

been completed, some of which has been published. The results would seem to point to the fact that the following stocks can be treated with hydrocyanic acid gas in schedules up to and including one ounce sodium cyanide per 100 cubic feet of space in the container: Apple, pear, peach, plum, apricot, nectariné, persimmon, fig, grape, prune, gooseberry, currant, blackberry, almond and olive stocks have been treated at the above dosage and while all have survived it is desired to continue investigational work another season. Trees of all of the above species have been treated and growing for an entire season and are at present in a very thrifty condition.

Of particular interest is the work in handling citrus stock. During the year three fumigators have been constructed and installed largely for the treatment of these stocks. They are located and controlled as follows: (1) Santa Paula, Ventura County; (2) Tustin, Orange County, installed by the Lemon Heights Nursery; (3) Los Angeles, Los Angeles County, a demonstrating plant installed by the Union Tank and Pipe Company.

The results of this season's operations are of particular interest to nurserymen, planters and growers at large. In the first case, it enables shipments carrying proper certificates of treatment to go anywhere in the State. Secondly, it enables the planting of clean trees and thus removes one of the greatest hazards to planting.

Just how this has worked out is of interest. Trees treated by this method have been allowed to move from red scale areas to clean territory. This would otherwise have been impossible. In addition, the Arizona citrus quarantine has been amended to allow vacuum fumigated citrus to move into the Yuma district of that state. In plain words, the development of this process by the bureau has meant the actual movement and planting of over 20,000 citrus trees in counties whose commissioners would have otherwise been forced to deny them entrance under existing state laws.

The results obtained from a standpoint of efficiency of the process have been everything that was anticipated. Heavily scale infested trees treated over a year ago have made healthy growth, all of which is entirely free from infestation.

The possibility of applying this treatment to ornamentals is under way. Already a large number of species have been treated and are under observation. Though it is too early to report the general results it may be reported that success seems to be attending the work of treating roses. The most favorable circumstances attend this work as the California Nurserymen's Association has volunteered to furnish the State with all stock gratis, thus overcoming what has hitherto been the greatest obstacle.

In addition to work with hydrocyanic acid gas, this year completes some very interesting observations in regard to the treatment of rooted grape cuttings by vacuum fumigation with carbon bisulfid. During the shipping season, vines of all of the commercial grapes were processed by this method. The results obtained have been most gratifying and no injury directly traceable to the treatment has been found. It is interesting to note that all vines treated by this method have made practically double the cane growth of vines treated by the hot water method.



VACUUM FUMIGATION OF NURSERY STOCK.

FIG. 200—Typical growth on grapefruit, one year after fumigation.

This, however, should be further corroborated. As stated in a previous report all phylloxera were killed by the treatment. The results of this particular phase of the work are being prepared for separate publication.

Apropos to the general subject of vacuum fumigation, it may be stated that considerable data has been worked up in the combination of various gases which it is believed will give a greater extension of this line of pest control.

The development of the application of liquid insecticides in vacuum has been directed at better control of two of our major pests that may

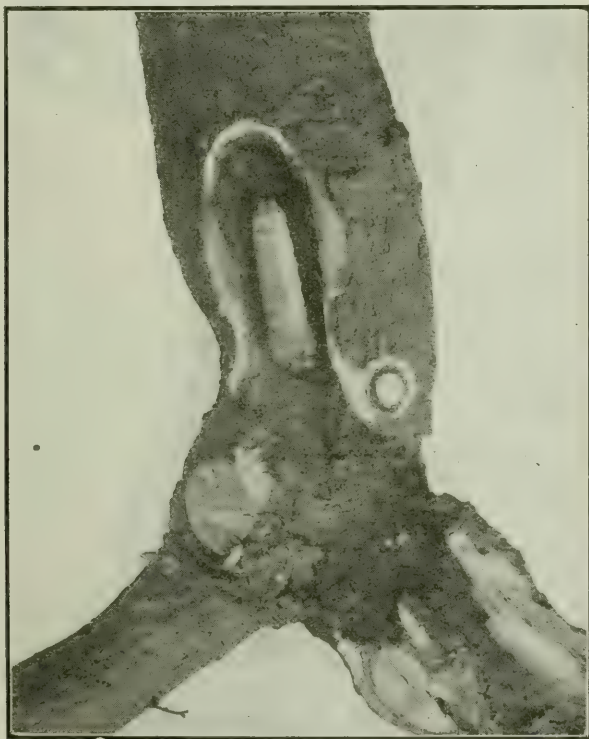


FIG. 201—Healthy larva of peach borer (*Aegeria opalescens*
A. Edw.)

be carried in nursery stock. They include treatment of stone fruit stock to destroy peach borer and the treatment of grape cuttings. While other stock has been treated these two have formed the basis for the work.

In regard to peach borer it may be said that this pest is the cause of more trouble and misunderstanding between horticultural officials and nurserymen of this state than perhaps any other pest. Its habit of boring into the base of the young trees renders it immune to most insecticides and also most difficult if not impossible to detect by inspection. Work in this line covers the possibility of applying different

insecticides in a partial vacuum. The process is very simple. Trees are submerged in the liquid, the air exhausted to a 27" mercurial vacuum, after which the air is allowed to enter till normal atmospheric pressure is recorded. It was found that miscible oil at a strength of 1 to 12 parts of water applied in the above way showed that no borers

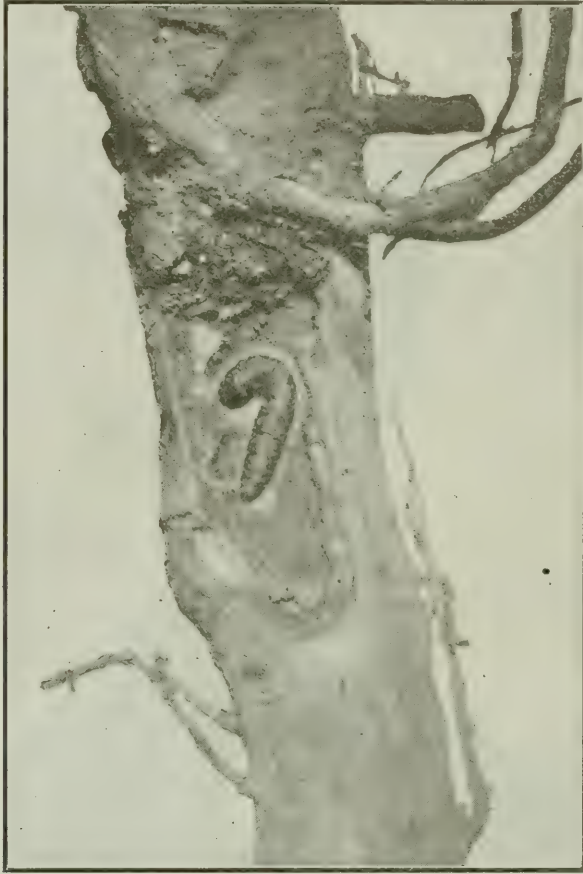


FIG. 202—Larva of peach borer after treatment with oil emulsion applied under vacuum.

survived the treatment. With this treatment death is slow, complete kill taking as long as two weeks. Other contact insecticides were given trial under this method but have been abandoned.

Certain parts of the work in this line have been published in the official journal of the Prune and Apricot Growers' Association.

Hot Water Treatment of Rooted Grape Cuttings.

In connection with the regulation of the department to prevent the spread of phylloxera, all apparatus used in the application of this process has been investigated and a standard type of vat brought into use.

This has resulted in more thorough application of the treatment and has materially reduced the number of complaints of losses incurred. In addition to this, there has been designed and built an electrically heated vat which is thermostatically controlled and which, it is believed, will reduce both cost of construction and operation.

Control of Pests of Stored Products.

As in previous years, this work has been in the nature of a collaborative project carried on with the U. S. Bureau of Entomology. The activities of the Bureau of Pest Control have involved work with the following associations: Sun-Maid Raisin Growers; California Peach and Fig Growers; California Prune and Apricot Growers' Association; Date Growers; California Bean Growers' Association; California Rice Growers' Association.

That part of the work requiring most time has been with the raisin growers. The problem of the raisin growers is of considerable magnitude. It has had to deal largely with the development of a process that lends itself to their manufacturing processes and at the same time lends itself to development on a large scale.

This work has followed two lines, the development of vacuum fumigation for automatic handling of this product and the possible development of heat treatment. In the former case plans for various types and sizes of fumigators have been worked out with their engineering staff to handle as high as 200 tons of raisins every eight hours. Specifications and designs for different-sized units have all been worked out and supplied them.

In heat treatment a large amount of data has been obtained both independently and through the association itself. Work has followed two lines: heat at low temperature for a long period of time and high temperature for a short time. From this season's work it would seem that while heat under certain conditions might be made available to treat this product, yet the construction costs to apply the same will be high. The costs of installation of equipment is considered as high. As matters stand, the Bureau of Pest Control is seeking to remedy this by a reduction in the fumigation cycle by new and more effective combination of gases.

In addition to the above, a series of fumigation experiments on the possibility of fumigating raisins in lug boxes as they come to the packing houses was made. Work has been started looking to the reduction of the infestation in raisins before they enter the final process of manufacture.

The California Peach and Fig Growers' work with pests affecting their product has been largely with the branch of the association handling figs. At the present writing it consists of converting certain apparatus at present installed in their Fresno plant into a vacuum fumigator. This work is not completed though the necessary generators have been constructed and all that remains is the installation.

Investigation in prune and apricot pests covers fumigation work with a number of fumigants. As with other dried fruits, the regular schedules have in every case produced the requisite kill. The results of

investigations in this line have been published in the "Sun-Sweet Standard."

In the date industry two new date packing houses have been built and each has installed a fumigator. It is interesting to note that practically every date packing establishment is now equipped with vacuum fumigators.

Work with pests of beans has been of a collaborative nature, Mr. A. O. Larson of the U. S. Bureau of Entomology supplying the material and the state office running the fumigation tests. Tests to date have been completed with *Bruchus quadrimaculatus*. It has been shown according to the check that all stages of this insect, including eggs, succumb to this method. It may be said that this work was conducted with great thoroughness by Mr. Larson. In the material treated were eggs, both newly laid and newly incubated, young larvae, full fed larvae, newly emerged adults and older adults.

As a result of this work the California Bean Growers' Association has asked for a design and estimate of cost of such apparatus with a view to installing same in its new headquarters.

Treatment of Potatoes to Destroy Tuber Moth.

Work has been confined to the very early potatoes that from time to time show burning by the treatment for seventy-five minutes with carbon bisulfid. Four new combinations of gases are under investigation with a view to shortening the fumigation cycle and of preventing injury to immature potatoes which have had the skin rubbed off in digging and are so easily affected by the fumigant.

Box Sterilizers.

The problem of cleaning picking boxes is one that each year presents itself in some quarter. Calls have come from time to time to make the treatment of boxes mandatory. The most insistent came from Merced County. It would seem that this matter will never be settled until some type of portable sterilizer can be designed that will be complete in itself and which can be installed for moderate cost. Viewing the problem in this light, the Bureau of Pest Control is working up data for a hot air apparatus that will meet this need.

Rice Growers.

This is the first season that the assistance of the Bureau of Pest Control has been sought by the rice growers. While investigation is not yet completed it seems that there arises considerable trouble, particularly in carry-over grain. Due to the difficulty of fumigating warehouses aside from the costs, this work has been handled by applying the tent method as used in citrus orchards. The sacked grain is so stacked that the tents can be used. At this writing only hydrocyanic acid gas has been utilized. It is desired to test out carbon bisulfid before making definite recommendations.

In addition to the above, advice and assistance have been furnished a number of warehouses, elevators and mills. This interest is in a large measure directly traceable to the establishment in the department of

a grain standards official in accordance with the State Warehouse Act. With the possibility of lowering of grades by reason of infestation by insects, the grain trade is waking up to the need of better methods of handling their product to curtail the loss from this source.

Conclusion.

The foregoing, by reason of its brevity, covers little more than a synopsis of the work, it carrying only an outline of the major activities. As in previous years, a large amount of data on vacuum fumigation has been requested by various interested industries. The last season's inquiry of the Australian dried fruit interests has been followed by an order for a plant, which has been built from specifications prepared by the Bureau of Pest Control. During the present year this list of inquiries has covered further work with the Union of South Africa, Canada, Holland and France. Special work has also been done in this line for the cotton interests of Texas in relation to the pink bollworm.

BIOLOGICAL CONTROL OF INSECT PESTS AT THE SOUTHERN LABORATORY.¹

The work of the Southern Laboratory during the past fiscal year has been concerned with, first, the carrying on of field work having as its object a careful study of the inter-relations of host plant and host insect conditions in the field and the various parasites and predators under consideration; second, the handling of all foreign insect material received from the department's foreign collectors; and third, the routine work of maintaining an available supply of certain economic beneficial insects, which have been introduced and established in California, either for the purpose of providing for their reestablishment where necessary, or for the purpose of further insuring the establishment of some of the more recently introduced species.

Included in the first phase of the work is the keeping in close touch with field conditions as they may affect the status of the pests under consideration and the establishment or reestablishment of their particular natural enemies. Also the carrying out of field experiments along the lines of applied biological control. The second phase of the work requires the determination of the desirability of such foreign parasites as may be received, the working out of their life history and the carrying out of their establishment under proper field conditions. The third phase includes the development of more practical and economical methods of quantity production under laboratory conditions.

The work may best be taken up in the body of the report by considering it from the standpoint of each of the insect pests with which it is concerned.

The Black Scale.

Aside from the further distribution of *Aphycus lounsburyi* Howard to more thoroughly secure its establishment in the areas suitable to its attack, the work carried on in connection with the biological control of the black scale has been chiefly concerned with the behavior of this parasite under the unusual field conditions to which it has been subjected during the past year. During the fall of 1921, immediately following their widespread distribution, the *Aphycus* were confronted with an unusually heavy "unexplained mortality" among the scale which had been counted on to carry them through the winter in appreciable numbers. Again during January, those parasites which managed to find suitable scale to carry them through the winter were subjected to a "freeze" very nearly the equal of the memorable one of 1913. Many *Aphycus*-bearing scale were stranded on dead limbs and were removed by the elements before the parasites emerged, thus further reducing their numbers. That the *Aphycus* were not directly affected by the low temperature was borne out by the rearing of adults from parasitized scale taken from nursery trees killed by the frost. Then following a long cool spring, not cool enough to delay the development of the scale but sufficiently cool to retard the development of the

¹The work of this section has been under the immediate supervision of H. M. Armitage, Entomologist.

parasites. As a consequence a noticeable increase in numbers did not occur until nearly June 1st, by which time oviposition by the scale was well under way and control during that generation had become an impossibility. Conditions since June 1st, however, have been very favorable to the development of the *Aphycus* and recent observations have indicated that it will again reach controlling numbers in many areas during the coming fall. The work of the *Aphycus* in Orange, San Diego and parts of Los Angeles County is fast reaching a par with previous results secured in Ventura County.

In some localities secondary parasites are becoming an important factor in retarding the work of the *Aphycus*. This is particularly true in regard to *Quayllea whittierii*. Previously recorded as working on the *Scutellista* it has apparently found the *Aphycus* very suitable to its taste. In some orchards in which the work of the *Aphycus* has been particularly poor, these secondaries have been observed swarming like "gnats" on the tips of the new growth, apparently undisturbed by wind or sun. Just why they should gather in numbers at the topmost terminals of the limbs has not been definitely ascertained, but has been in part attributed to their mating habits. In general, however, it takes an abundance of *Aphycus* to produce an abundance of secondaries, and an abundance of *Aphycus* at the proper time of the year may result in economical control of the scale before the attack of the secondaries is felt.

Experiments in the use of *Aphycus* under "even hatch" conditions have further corroborated previous findings to the effect that it can not, alone, control the scale in such areas. Aided by other enemies attacking succeeding stages of the scale it has, however, a definite economic value.

The distribution of the *Aphycus* by the State and various other agencies during the past three years has been so complete that it is with difficulty that a single orchard can be found in the areas suitable to its work in which it does not occur quite extensively.

The effect of the unusual conditions to which *Aphycus* has been subjected during the past year has made it necessary to practice mechanical control of the scale in many localities in which it was hoped natural control had obtained a permanent foothold.

It is still impossible to say just what the exact status of the *Aphycus* is with regard to controlling the black scale. It is certain, however, that it is a most valuable addition to the present complement of parasites attacking that pest. It has increased the effectiveness of *Scutellista* by decreasing the period of oviposition on the part of the scale and thus eliminating the possibility of any additional eggs being deposited after the *Scutellista* has completed its feeding period. In many localities it has effectively evened up the hatch, thus permitting more efficient fumigation. Its value therefore is not confined to what it may accomplish alone but is already being demonstrated along the above lines.

The Mealybug.

Mealybug infestations of practically all species affecting citrus have been on the increase during the past year, following a long period of comparative freedom from this pest. Field conditions have necessi-

tated that all branch and private insectaries be operated at full capacity in order to meet the situation. That they were successful in combating the pest is shown by the very few serious infestations which developed.

The Citrophilus mealybug (*Pseudococcus gahani*) is fast becoming generally distributed in southern California. During the past season five new localities have reported this species: Covina, Rivera, San Fernando and Malibu, all in Los Angeles County. These new localities are rather widely separated and are not in close proximity to any previously reported infested areas. In several cases investigation has pointed to the use of field boxes from infested areas as the source of the infestation. During the period of high prices of last year independent buyers covered a wide territory, transporting their own field boxes long distances to handle their purchases. It is a difficult matter to keep a check on such boxes, particularly where hauled by truck and it is practically up to the grower to protect himself by using extreme caution in admitting such boxes to his grove.

The work of the propagation of the natural enemies of the mealybug at Whittier is contained in another part of the report.

Red, Purple and Citricola Scales.

Sufficient time has not yet elapsed to allow any very definite report of conditions in the red-scale plots selected for the purpose of carrying on experimental work towards the biological control of that pest using some of the natural enemies already established in California.

The steely blue ladybird beetle (*Orcus chalybeus*), while it carried through a rather severe winter in considerable numbers has not shown any inclination to increase to any extent except in one of the plots in Orange County. In this plot on the Hewes' Ranch at Orange they have maintained themselves through several generations in fair numbers. In the other plots they have practically disappeared.

The native coccinellid, *Chilocorus bivulnerus*, commonly known as the "twice stabbed" ladybird has been rather abundant throughout the south, feeding on red scale. It is doing good work in all of the plots, having been introduced in limited numbers.

The work of developing host plants of red, purple and citricola scales, for laboratory use, is progressing slowly with no marked results to report. The outlook, however, is very promising.

Certain field work is being carried on to determine why the complement of parasites which keep the soft brown scale (*Coccus hesperidum*) under control and which are known to attack the citricola scale to a heavy degree do not keep the latter under control. It seems apparent that the same relation of "even" and "uneven" hatch conditions which apply in the case of *Aphycus* and the black scale may be the underlying factor in the failure of these parasites to control the citricola scale.

The Cottony Cushion Scale.

The demand for *Vedalia* (*Novius cardinalis*) during the past year to combat the cottony cushion scale has been far above the normal. This in part is attributed to the rather general use of sprays which contain internal poisons in combating other scale pests. Heavy infes-

tations of cottony cushion scale have followed the use of such sprays in many instances. It is logical to assume that the *Vedalia* are killed by feeding on eggs or bodies covered with this poison and as a consequence the scale increases unchecked by its most effective enemies. The difficulty of propagating these beetles in the laboratory makes it necessary to depend on field-collected material which is a very uncertain source of supply. However, we have been able, as a rule, to meet all requests with reasonable sized colonies.

Foreign Material.

A report of the foreign material received at the Whittier laboratory up to December 22 was included in the annual report for the preceding fiscal year, as it seemed to be a matter of immediate interest to the growers. Since that date shipments have been received from both the Orient and from Florida. The nature of these shipments is taken up in detail in the following table under the insectary number assigned it at the time of its arrival at the laboratory.

No. 1464. June 4, 1922.

Received from Mr. C. P. Clausen of the Bureau of Entomology, U. S. D. A., who is doing some collaborative work with the State Department, from Yokohama, Japan, a shipment of parasitized citricola scale (*Coccus citricola* Campbell). The following parasites were recovered from this material, which was received in fair condition.

- (a) *Coccophagus yoshidac* Nakayama, by far the most conspicuous parasite present in the shipment. Twenty-seven females issued. An examination of host remains proved conclusively its primary nature.
- (b) *Coccophagus lunulatus* How. or very near that species. One male and several females recovered.
- (c) *Microterys* sp. One female and three males recovered. Unfortunately, in spite of all efforts to preserve them the males died before the females issued.
- (d) *Aphycus* new species. Twenty-five specimens recovered.

No. 1466. June 20, 1922.

Received from Mr. C. P. Clausen, Bureau of Entomology, U. S. D. A., a second shipment containing parasitized citricola scale (*C. citricola*), soft brown scale (*C. hesperidum* Linn.) and the pupae of an undetermined coccinellid recorded as an enemy of the aphids and mealybugs. Some of the parasites received from this shipment were similar to those of the previous shipment, *i. e.* thirty-eight *Coccophagus yoshidac* (1465-A); forty-seven *Aphycus*, new species (1465-D) and one *Microterys* (1466-C). The new material received consisted of the following:

- (a) Undetermined coccinellid. Three hundred and thirty-five adults recovered.
- (b) *Leucopis* sp. Fourteen adults recovered.

No. 1467. June 12, 1922.

Received from Mr. G. F. Moquette of the Bureau of Entomology, U. S. D. A., Miami, Florida, a shipment containing parasitized black scale. The shipment arrived in sealed metal containers and was rather mouldy when received. However, the following insects were recovered.

- (a) *Leucodesmia* sp. Probably parasitic on *Lactilia coccidivora*. Two females recovered.
- (b) *Letilia coccidivora*. Twenty-eight of these moths were recovered and appear to be predacious on black scale eggs.
- (c) *Lecaniobius cockerelli* Ashm. A hymenopterus parasite attacking the eggs of the black scale. Thirty-two adults recovered.
- (d) *Pyroderces rileyi* Wlsm. A small scavenger moth apparently feeding on the old shells of the black scale eggs. Occurred in rather large numbers.

No. 1468. July 9, 1922.

Received from Mr. C. P. Clausen, U. S. D. A., Yokohama, Japan, a shipment of parasitized Florida red scale (*C. aonidium*). From this material the following were recovered.

- (a) *Comperiella bifasciata* How. A hymenopterus parasite of both the Florida and citrus red scale (*C. aurantii*). Fifteen specimens issued. These specimens were very weak and apparently died without reproducing.
- (b) *Perissopterus carnesi* How. A secondary parasite in this case working on *Comperiella*. Twenty specimens issued.

The larger part of the material covered has never left the insect proof room as in many cases the small amount of material available has made it impossible to determine definitely the desirability of the species. Many facts regarding their habits, however, were determined which should facilitate the handling of future shipments of the same species.

With the exception of the citricola material an abundance of host insect material has been available for use with each shipment. In that case, due to that pest not being present in the Whittier district, it could not be made available. The parasites recovered, however, and showed a willingness to oviposit in soft brown scales, though we have as yet been unable to recover any progeny from that host.

At the present time *Lecaniobius cockerelli* is propagating successfully at the laboratory and small colonies are being placed in the field. They will not, however, be ready for general distribution for some months.

Coccophagus (bifasciaticorpus?) is propagating in an outside cloth house and it is hoped we will be able to develop colonies for spring liberation. This parasite attacks the immature stages of the black scale and was received from South Africa in the fall of 1921.

Probably the most outstanding success in the propagation of new material during the past year should be credited to the small coccinellid beetle, *Scymnus binaevatus*, received from South Africa in December, 1921. This beetle preys on practically all of our economic species of mealybugs and while introduced primarily to combat the grape mealybug, *P. maritimus*, which is fast becoming a serious pest in the San Joaquin valley, has been liberated throughout the State on all species of its host. The twenty-nine adults received from the original shipment have been increased and liberated in nine months to the extent of over two hundred thousand. So far it has been recovered in the field only on the Citrophilus mealybug (*P. gahani*). If it is as prolific and efficient in the field as it is in the laboratory growers acquainted with the mealybug as a pest will have cause to welcome its introduction and establishment.

Among the other new parasites of which small colonies were placed in the field during the year are the following.

On November 7, 1921, a small colony of *Coccophagus modestus* Silv., an internal parasite of the black scale was liberated on the property of Mrs. Jesseium in Whittier. Due to the unfavorable weather conditions as explained in detail under "Black Scale" it is doubtful if this species has become established.

The same is probably true of a small colony of *Coccophagus* sp., Laboratory No. 1450-H, which were liberated on the Menafee property at Covina. This small parasite attacks the immature stages of the

black scale and it was hoped would prove of value in "even hatch" areas. Unfortunately the orchard in which it was placed was so injured by the low temperatures of January that all of the trees with the exception of the one on which the liberation was made were pulled out. Mr. Rust is now in South Africa for the purpose of securing further colonies of this parasite.

On December 6, 1921, a large colony of *Encyrtus infelix* Embleton, an internal parasite of hemispherical scale (*Saissetia hemisphaerica*) and new to California was liberated on the Leffingwell Ranch at Whittier where this scale was a pest on certain ornamental trees. Later colonizations were made on the Huntington Estate at Alhambra, December 28, and at Lincoln Park, Los Angeles, on December 30. This parasite was successfully propagated at the laboratory from material received through foreign collector Mr. E. W. Rust, from the Hawaiian Islands. It has not been propagated extensively as there is little need for it in the field, the hemispherical scale not being a serious pest.

The first liberations of the coccinellid, *Scymnus binaevatus*, were made on the property of Harrison and Albright in Spring Valley, San Diego County, March 23, 1922. This liberation was followed closely by others in Orange and Ventura counties and at this date has been pretty well distributed throughout the mealybug-infested areas of the State.

A record of these distributions is shown in some detail in the following table and gives some idea of the thoroughness of the distribution.

Experimental plots have been established in Kings, Fresno and Tulare counties, using this beetle against the grape mealybug (*P. maritimus*). Infestations, however, are so light this year that it will be difficult to determine anything definite.

The first beetles of this species sent out from the laboratory were placed in the hands of outside insectaries in a position to propagate them for local distribution. Among the insectaries receiving them were the Ventura County Branch Insectary, the Limoneira Ranch at Santa Paula; the Lamanda Park-Sierra Madre Citrus Association, Lamanda Park; the San Bernardino County Insectary, Upland; the Orange County Insectary, Anaheim; and the San Diego County Insectary at Chula Vista.

To date only the San Bernardino and San Diego County Insectaries have reported any success in their propagation.

DISTRIBUTION OF SCYMNUS BINAEVATUS, THE NEW SOUTH AFRICAN PREDATOR OF THE MEALYBUG, TO JULY 1, 1922.

County	Number of properties	Number of insects	Host insects	Host plant
Los Angeles—				
Alhambra	3	2,100	P. citrophilus.....	On citrus
Azusa	2	1,500	P. citri.....	On citrus
Covina	3	1,350	P. citrophilus.....	
			P. citri.....	
			P. maritimus.....	On citrus
Duarte	2	700	P. citri.....	On citrus
Glendale	2	600	P. citri.....	On citrus
Hollywood	4	3,000	P. citri.....	On ornamentals and citrus
			P. citrophilus.....	
Lamanda Park	1	200	P. citri.....	On citrus
Long Beach	1	300	P. citrophilus.....	On ornamentals
Pasadena	2	2,500	P. citrophilus.....	On citrus
Santa Monica	3	4,000	P. citrophilus.....	On citrus
San Marino	1	1,000	P. citrophilus.....	On citrus
Orange—				
Anaheim	15	16,150	P. citrophilus.....	On citrus
Santa Ana	2	8,750	P. maritimus.....	On ornamentals
Tustin	2	600	P. maritimus.....	On ornamentals
Villa Park	1	100	P. maritimus.....	On citrus
Riverside—				
Riverside	3	1,050	P. colmani.....	On citrus and ornamentals
			P. citrophilus.....	
Santa Barbara—				
Santa Barbara	2	5,500	P. citri.....	On citrus
San Bernardino—				
Redlands	1	300	P. maritimus.....	On ornamentals
Uplands	10	6,000	P. citrophilus.....	On citrus
San Diego—				
Benita	2	1,800	P. citri.....	On citrus
Chula Vista	2	1,200	P. citri.....	On citrus
Esccondido	1	500	P. citri.....	On citrus
National City	3	5,000	P. citri.....	On citrus
San Diego	4	2,500	P. citri.....	On citrus
Ventura—				
Santa Paula	13	40,800	P. citri.....	On citrus
Outside—				
Ceres	1	1,000	P. maritimus.....	On grape
Fowler	1	1,000	P. maritimus.....	On grape
Niles	2	700	P. citrophilus.....	On ornamentals
Sacramento	1	800	P. maritimus.....	On pear
Selma	1	2,000	P. maritimus.....	On grape
Clovis	1	560	P. maritimus.....	On grape
Carruthers	1	1,500	P. maritimus.....	On grape
Kingsburg	1	1,000	P. maritimus.....	On grape
Dinuba	1	5,000	P. maritimus.....	On grape
Totals	95	121,090		

PRODUCTION AND DISTRIBUTION OF PREDATORS AND PARASITES.

During the past fiscal year over two and a quarter million parasites were handled by the Southern Laboratory, of which number practically two-thirds were propagated within the laboratory, the balance being collected in the field. These two and a quarter million insects consisted of nineteen different species attacking seven of our economic insect pests and represented over one thousand shipments. The number of shipments recorded, however, is not a true index to the number of growers served, as a large percentage of the shipments were made direct to horticultural commissioners or horticultural inspectors who in turn distributed them to the growers requiring them in their respective districts.

The following tables show in detail the productions of natural enemies at the Southern Laboratory during the past year and the distribution of this same material by counties. A comparative table showing production for the past five years is also given to show the increased scope of the work:

PRODUCTION RECORD.
1921-1922.

	Laboratory grown	Field collected	Used in laboratory	Liberated in field	Total
Mealybug—					
<i>Cryptolaemus montrouzieri</i>	77,915	4,290	14,200	67,135	81,335
<i>Scymnus binaevatus</i>	107,847	-----	6,424	101,423	107,847
<i>Scymnus sordidus</i>	59,525	-----	3,275	26,650	59,925
<i>Sympherobius barberi</i>	29,865	-----	1,615	28,250	29,865
<i>Tanaomastix abnormis</i>	1,112,850	-----	5,500	1,107,350	1,112,850
Total	-----	-----	-----	-----	1,391,822
Black scale—					
<i>Aphyeus lounsburyi</i>	33,675	442,575	22,550	453,700	476,250
<i>Rhizobius ventralis</i>	825	6,160	400	6,585	6,985
<i>Scutellista cyanea</i>	375	66,500	25	66,850	66,875
<i>Coccophagus lunulatus</i>	-----	2,500	-----	2,500	2,500
<i>Axion plagiatus</i>	-----	425	100	325	425
Total	-----	-----	-----	-----	553,035
Red scale—					
<i>Oreus chalybeus</i>	-----	65,365	200	65,165	65,365
<i>Chilocorus bivulnerus</i>	300	2,265	915	1,750	2,565
<i>Rhizobius lopanthæ</i>	250	-----	50	200	250
<i>Scymnus marginicollis</i>	-----	252,400	400	252,000	252,400
Total	-----	-----	-----	-----	320,580
Cottony cushion scale—					
<i>Vedalia cardinalis</i>	1,055	3,605	1,505	3,155	4,660
<i>Cryptochaetum icerya</i>	-----	840	-----	840	840
Total	-----	-----	-----	-----	5,500
Aphis—					
<i>Hippodamia convergens</i>	-----	110,000	-----	110,000	110,000
<i>Aphelinus</i> spp.	150	-----	-----	150	150
Total	-----	-----	-----	-----	110,150
Red spider—					
<i>Stethorus vagans</i>	-----	400	-----	400	400
Totals	1,423,762	967,325	57,150	2,204,428	2,381,487

DISTRIBUTION BY COUNTIES.

July 1921-July 1922.

Counties	Parasites of the				Total
	Black scale	Mealy-bug	Red scale	Miscellaneous	
Los Angeles	216,625	212,515	58,000	80,215	567,355
San Diego	91,580	923,065		805	1,015,450
San Bernardino	300	16,875		1,220	18,395
Orange	117,050	132,405	189,940	435	440,430
Riverside	5,685	1,375	69,150	25	76,235
Santa Barbara	12,100	7,950			20,050
Ventura	7,000	44,075		30	51,105
*Outside	15,500	30,360		2,055	47,915
Used in laboratory	86,595	23,202	3,490	31,265	144,552
Totals	553,035	1,391,822	320,580	116,050	2,381,487

*Northern California points, Arizona, Texas, Florida, Sicily, Egypt, South Africa, Montevideo.

COMPARATIVE TABLE OF PRODUCTION WITH PRECEDING FISCAL YEARS.

	1921-22	1920-21	1919-20	1918-19	1917-18
Mealybugs—					
<i>Cryptolaemus montrouzieri</i>	81,335	150,045	158,885	103,839	8,155
<i>Scymnus binaevatus</i>	107,847				
<i>Scymnus sordidus</i>	59,025	5,800			
<i>Sympherobius barberi</i>	20,865	6,270	800	269	4,910
<i>Tanaomastix abnormis</i>	1,112,850	111,400	62,000	35,750	64,300
<i>Hyperaspis lateralis</i>				250	385
<i>Leucopis bella</i>		25	500		
<i>Pauridia peregrina</i>			1,450		
Black scale—					
<i>Aphycus lounsburyi</i>	476,250	376,400	10,007		
<i>Rhizobius ventralis</i>	6,985	34,120	23,403	250	
<i>Scutellista cyanea</i>	66,875	18,325	10,125		
<i>Coccophagus lunulatus</i>	2,500				
<i>Axion plagiatus</i>	425				
Red scale—					
<i>Oreus chalybeus</i>	65,365	6,375	200		
<i>Chilocorus bivulnerus</i>	2,565	250			
<i>Rhizobius lophanthae</i>	250	690	1,000		
<i>Scymnus marginicollis</i>	252,400				
Cottony cushion—					
<i>Novius cardinalis</i>	4,690	2,505		100	211
<i>Cryptochaetum icerya</i>	840				
Aphis—					
<i>Hippodamia convergens</i>	110,000				
<i>Aphelinus</i> spp.	150				
Red spider—					
<i>Stethorus vagans</i>	400				
White fly—					
<i>Delphastus</i> spp.					1,500
Totals	2,381,487	712,905	266,370	140,449	79,261

Cryptolaemus production was rather slighted by the concentration of all efforts on the propagation of the coccinellid, *Scymnus binaevatus*, which we were desirous of seeing thoroughly distributed. For that reason the total production is much lower than in the previous year.

An effort was made to reestablish the Sicilian parasite, *Tanaomastix abnormis* Gir., wherever its host, the citrus mealybug (*P. citri*), occurred. It has been several years since this parasite was established in California and it was felt that the scarcity of its host during the past three years might have seriously reduced its numbers in the field.

Aphycus production was continued until its establishment in the areas suitable to its attack was assured. Its further propagation and distribution except along experimental lines now rest with the grower or with growers' organizations.

Some success has been attained in growing *Chilocorus bivulnerus* and *Rhizobius lophanthae*, two coccinellids which attack the red scale in the laboratory. However, for the experimental work being carried on in the field controlling that pest through the use of its natural enemies, we have depended on field-collected material.

During the coming fiscal year, aside from the propagation of the various natural enemies of the mealybugs, which is a fixed part of the work at the laboratory, propagation will be more or less confined to new species of introduced parasites and predators.

BRANCH INSECTARIES.¹

The collaborating branch insectaries in Ventura, San Bernardino and San Diego counties have confined themselves to the propagation of the natural enemies of the mealybugs. They have, with a little assistance from the State Laboratory, been able to meet the demands within their districts.

During the past year Orange County has established an excellent insectary at Anaheim. This insectary is to be in charge of the Horticultural Commissioner, Mr. A. A. Brock.

Following is a table showing production of these insectaries, during the past fiscal year:

	Mealy- bug	Black scale	Miscel- laneous	Total
Ventura County Branch, Santa Paula.....	141,726	-----	-----	141,726
San Bernardino County Branch, Upland.....	² 219,584	-----	-----	219,584
San Diego County Branch, Chula Vista.....	³ 30,380	4,100	-----	34,480

¹In charge of the following men: Ventura, A. H. Call; San Bernardino, John P. Coy and Paul Howard; Orange, A. A. Brock; San Diego, R. R. McLean.

²Incomplete.

³In operation three months.

Summary.

The work during the coming year will be concerned largely with the new material being received through our own and collaborating foreign collectors. Every effort will be extended towards securing the establishment, if possible, of the new material already in our possession and towards maintaining a supply of host plant and host insect material suitable to the handling of any further parasites which may be received.

With Mr. Rust again established in South Africa we should soon receive further shipments of parasites of the black scale some of which, a brief study has indicated, should be of exceeding value under "even hatch" conditions.

The work of determining the true value of the natural enemies of the red scale (*Chrysomphalus aurantii*) already established in California will be continued, as will a study of field conditions relating to the Citricola scale (*Coccus citricola*) necessary to the successful establishment of any natural enemies of that pest which may be obtained.

As a proper function of this department the propagation and distribution of the natural enemies of the mealybug will be continued. An effort will also be made to meet the demand for *Vcdalia* either with field-collected or laboratory grown material.

With an assistant assigned to the development of new host plant material of the many insect pests under consideration, interesting results should be obtained during the coming year.

PLANT PATHOLOGY.¹

The office of plant pathology was opened on December 1, 1921. Since that date a laboratory has been equipped with apparatus and supplies necessary to carry on the technical work required for efficient service in plant pathology. In addition, files were instituted for the keeping of records. On April 10, 1922, Mr. C. Emlen Scott was appointed laboratory assistant. This appointment was made in order to keep a continual service from the office to the growers, which otherwise would be interrupted by the absence of the pathologist on field duty.

The functions of the office with the responses towards their fulfillment during the year were as follows:

1. Diagnosis of diseases of nursery stock shipped into counties for planting in orchards and submitted by county commissioners of horticulture for examination to assist them in their inspections.

Approximately 300 different specimens representing several hundred thousand trees and vines were examined and reported upon. The varieties of deciduous fruit trees were chiefly peach, apricot, pear, apple, plum, prune, nectarine, cherry and walnut. A large number of grape specimens were examined. The diseases found most frequently were nematode infestation, brown rot (*Pythiacystis citri*), oak-root fungus and crown-gall. These diseases persist in the soil when once introduced and are eradicated with great difficulty and expense.

¹The work of this section has been under the immediate supervision of Mr. D. G. Milbrath, Plant Pathologist.

2. Diagnosis of diseases of plants submitted by the state quarantine officer.

During the year, two shipments of chestnut nursery stock into the state were found to be affected with chestnut bark disease. In an eight-year-old chestnut grove a serious disease which appeared at first to be chestnut bark disease was discovered and upon examination in the laboratory it developed to be a disease almost as serious as the former and caused by the fungus *Fusicoccum* sp. Eradication measures were undertaken.

3. Advice on the control of plant diseases to county commissioners of horticulture, individual growers and associations of growers.

Approximately 400 specimens of diseased plants were submitted to the office for diagnosis and recommendations for control. These specimens embraced deciduous and citrus fruit trees, small berries, forage crops, truck crops and ornamentals.

In many cases, accurate diagnosis of diseases is contingent upon field or orchard or greenhouse conditions and frequently it is necessary to make field examinations. In response to the call for assistance by individual growers and county commissioners of horticulture, trips were made to different counties of the state. Owing to many of the growing regions being inaccessible by railroad, the trips were usually made in an automobile supplied by the department. The following counties were visited with the number of visits mentioned after the name of each county: Solano, 2; Yolo, 2; Nevada, 3; Placer, 4; San Joaquin, 6; Stanislaus, 2; Merced, 3; Contra Costa, 3; San Francisco, 2; San Mateo, 2; Santa Clara, 2; San Benito, 2; Monterey, 2; San Luis Obispo, 1; Fresno, 2; Kern, 1; Riverside, 1; Orange, 3; Los Angeles, 4; San Diego, 3; and Imperial, 3.

Owing to requests for assistance by the canners' associations of the state, meetings were attended to discuss ways and means of obtaining information of the nature and control of certain tomato diseases. Similar meetings were attended of the potato growers of the Delta Islands of the Sacramento and San Joaquin Rivers.

4. Diagnosis of plant diseases for the shipping point inspection service and the office of potato seed certification.

Assistance was rendered to the above named offices whenever called for by members of the same.

5. Survey of orchard, field and truck diseases to determine the distribution, nature, damage and possible means of control.

There are many diseases of these crops in California, which are the cause of large losses each year. These losses range from 3 to 100 per cent of the crop of individual fields. Owing to the absence of sufficient scientific information of their nature, control measures which are practicable are not known. Some of these diseases are the following:

Pea blight. This disease is caused by the fungus *Mycosphaerella pinodes*. In several regions of the state where conditions are otherwise particularly adapted to the culture of green peas, this disease is a controlling factor.

Root-rot of peas. In the Carlsbad and Oceanside regions, the loss was 90 per cent of 900 acres.

Downy mildew of spinach. This disease is caused by the fungus *Peronospora effusa*. It affected the spinach in Imperial Valley to such an extent that that crop has been abandoned in that region. The disease was serious on spinach in all parts of the state where the crop was grown for canning purposes.

Pink-root of onions. The causal organism is not known. In the Delta region this disease is spreading rapidly. About 12 per cent of the crop was a total loss.

Lettuce foot-rot. Cause unknown. Losses in individual fields range from 5 to 10 per cent. This disease is confined to Imperial Valley.

Tomato mosaic. This disease is spreading rapidly in the state.

Sweet potato storage diseases caused large losses and made a large amount of seed unfit for planting.

Cauliflower ring-spot. In the Colma region, about 90 per cent of the crop was affected.

Grapes, black mildew. The most outstanding trouble in grape culture is a disease commonly known as black mildew. The disease is spreading so rapidly and causing so much damage that grape growers are viewing the same with much concern.

Black end of pears. This disease has become very prominent recently and was reported from all pear growing regions of the state.

Plum die-back. In Placer County, plum trees have become affected with a condition or trouble which is threatening the industry in that county.

Nematode. The most important pathological problem in the state is caused by the nematode, *Heterodera radicicola*. This organism has caused large losses in truck crops and some deciduous fruits. It has infested a very large acreage and is spreading rapidly.

NURSERY SERVICE.¹

The nursery service department was created to assist the growers, nurserymen and horticultural inspectors in the growing, shipping and inspection of nursery stock grown throughout the state; to assist nurserymen in the upbuilding of the industry; to encourage the production of clean, healthy nursery stock of all kinds by giving the nurserymen special aid and personal assistance in the best known methods of pest control, thereby reducing to a great extent the dissemination of plant pests and diseases in the state; to bring about uniform methods of inspection and disposition of infected stock by the inspecting officials.

Considerable time was spent during the past season in the settlement of differences between the nurserymen and inspectors due largely to a misunderstanding on account of different interpretations of the various laws covering the movement and inspection of nursery stock. It is hoped that this will be largely eliminated in the future by bringing about a clearer understanding of the laws and regulations and more uniform methods of inspection by the various inspecting officials.

This work so far has been supported solely by the income received from the nursery license fees. There were 1082 nurserymen licensed during the past year, and at the present time, there are 2340 acres of growing nursery stock in the state, which now ranks first in the production of ornamental stock in the United States.

¹The work of this section has been under the immediate supervision of Mr. F. C. Brosius, Superintendent, Nursery Service.

THE BUREAU OF STANDARDIZATION.

By F. W. READ, *Chief.*

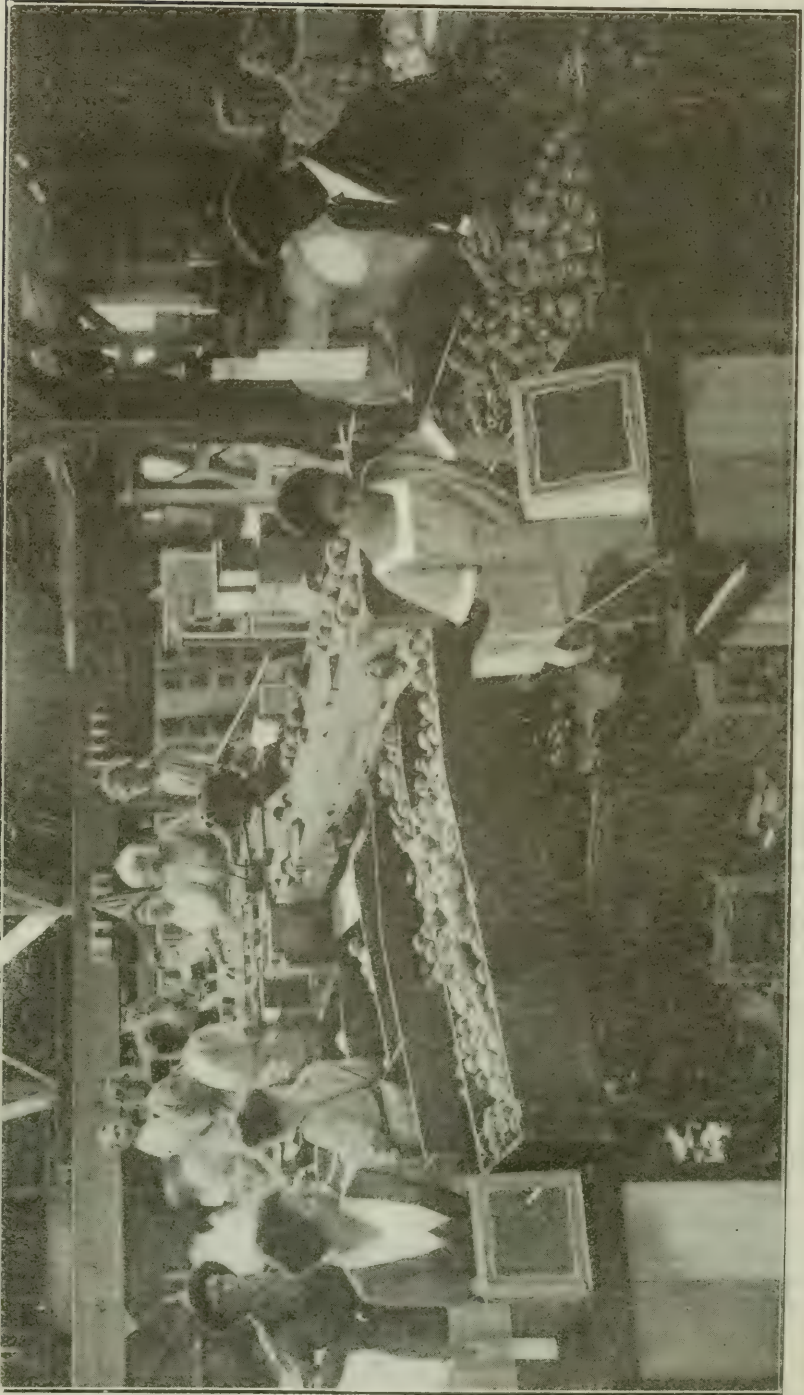
The Bureau of Standardization is divided into the following subdivisions for the purpose of carrying out the different functions which have been assigned to it: (1) Fruit and Vegetable Standardization Service, (2) Apple Standardization Service, (3) Shipping Point Inspection Service on fruits and vegetables, (4) Seed Potato Certification Service, (5) Warehouse and Grain Standardization Service, (6) Pure Seed Standardization and Inspection Service.

FRUIT AND VEGETABLE STANDARDIZATION SERVICE.

There have been many developments in the standardization work on fruits and vegetables during the calendar year ending December 31, 1922. The enforcement of the California Fruit and Vegetable Standardization Act involving the inspection and standardization of some seventeen different fruits and vegetables, the principal commodities in this line shipped from the state of California, is entrusted to this bureau. The County Horticultural Commissioners and their inspectors are the enforcing officers under this act and their work is coordinated and directed, under the provisions of the law, by the State Department of Agriculture. It would, of course, be out of the question in the narrow confines of a report of this character, to enumerate the many phases of the work and the number of developments which have occurred during the twelve month period. An attempt will be made, therefore, to discuss briefly only a few of the outstanding developments.

Probably the most serious freeze in the history of the orange industry occurred pretty generally throughout the citrus fruit districts of the state on January 19, 20, and 21, 1922. Immediately following the disaster, meetings were called by the State Department of Agriculture with the principal growing and shipping interests, and on January 24th regulations governing the shipment of oranges were issued under the authority contained in section 15 of the Fruit and Vegetable Standardization Act. The regulations promulgated were in an endeavor to clarify the language of section 10 of the act in which it is stated among other things that "Oranges shall be considered unfit for shipment when frosted to the extent of endangering the reputation of the citrus industry, if shipped."

The agricultural statistician of the department, in a report issued the latter part of February, estimated a 50 per cent loss in the Navel crop remaining on trees. Miscellaneous varieties were probably damaged fully as much as were the Navels. In the heaviest Valencia producing districts, however, the loss was not so great. It was estimated at that time that probably 60 per cent of the Valencia crop was marketable. On the basis of 450 boxes to the car, it was then figured that the total crop available for market purposes following the freeze would be about 20,000 cars with the odds favoring a decrease from this figure. It was also estimated that about 40 per cent damage was done to the lemon



APPLE STANDARDIZATION
Department of Agriculture examining apples in packing house.

crop. Figures of carlot shipments since that date indicate that the preliminary estimate was about correct.¹

The regulations governing the shipment of frozen oranges, issued under the authority of the fruit and vegetable standardization act, were worked out after careful consultation with the southern county horticultural commissioners and the industry and read as follows: (1) No oranges shall be shipped, delivered for shipment, offered for sale or sold until further notice by the State Department of Agriculture, unless inspected and passed by the County Horticultural Commissioner in the county in which the fruit may be located, or by his deputies or inspectors. (2) It shall be unlawful to ship, deliver for shipment, offer for sale or sell oranges if the contents of any package or if the fruit in bulk contains fifteen per cent or more, of oranges showing marked evidences of frost injury. (3) "Marked evidence of frost injury" in any orange is hereby defined as a drying in twenty per cent or more of the exposed pulp as shown on a transverse section through the center; or a water soaked appearance showing on two or more segments, or the presence of crystals or a crystalline deposit on two or more segments. It was set forth in the regulations that in addition the terms of "an act regulating the sale of citrus fruit damaged by frost" approved May 3, 1915, would also have to be complied with. It was found necessary on January 30th to issue a fourth regulation which stated (4) The mere statement "for export" on the original billing covering shipment of a car of oranges does not constitute satisfactory proof that such shipments are exempt from the provisions of section 10 of the California Fruit and Vegetable Standardization Act, and the rules and regulations of the Director of the State Department of Agriculture, issued under date of January 24, 1922. Shipments of oranges for export must show the foreign destination or steamship connection on the original bill of lading. Enforcing officials under the Fruit and Vegetable Standardization Act may require from the owner or shipper of such fruit, such proof as may be deemed necessary that the shipment in question will actually be exported to a foreign country within the meaning of the act.

It is hardly possible to over emphasize the splendid spirit of cooperation manifested on every hand in enforcing the provisions of the law and the regulations regarding the shipment of frosted oranges. While there were differences of opinion on the part of the industry in the matter of law enforcement, it was to be expected that a calamity as widespread as this one would bring out such differences of opinion. The County Horticultural Commissioners in orange producing counties, their deputies and inspectors deserve great credit for the able and tactful manner in which the law was enforced. In addition special mention should be made of the very able services of Mr. H. H. Warner, district supervising-inspector of the State Department of Agriculture in southern California.

At the request of the California Citrus League, Mr. Warner was sent to Washington, D. C., in order to confer with the enforcing officials of the Federal Bureau of Chemistry. Mr. Warner succeeded in

¹See report California Cooperative Crop Reporting Service, February 23, 1922, by E. E. Kaufman.

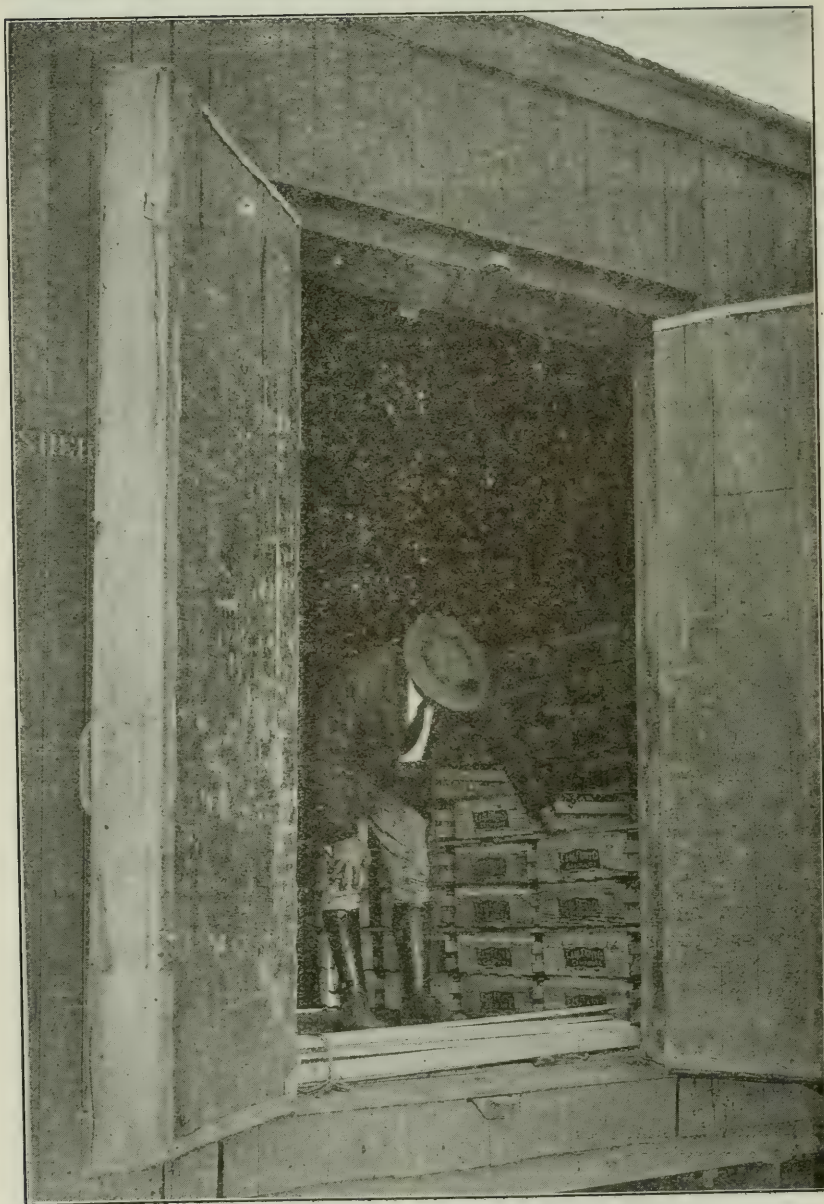
**GRAPE STANDARDIZATION.**

FIG. 204—Shipping point inspection officer examining labels and method of loading.

securing a much closer working relationship between state and federal forces in the inspection and reinspection of oranges shipped from California. The Bureau of Chemistry is charged under the terms of the Federal Food and Drugs Act with the duty of inspecting oranges at destination markets and the results of the agreement entered into by the State Department of Agriculture and that organization were issued early in April. Mention should also be made of the splendid support received by enforcing officials from the various transportation companies serving the orange producing districts.

Court cases proved, however, that the Fruit and Vegetable Standardization Law in so far as it treated with the shipment of frosted oranges, was vague, indefinite and inadequate for the protection of the industry. A case brought before the Supreme Court was finally decided about the ninth of October and the decision states among other things that the language of section 10 of the Fruit and Vegetable Standardization Law is too vague, indefinite and uncertain to furnish the basis for a criminal prosecution and that it is also too vague to furnish the basis for definition by the Director of Agriculture under the provisions of section 15. The Supreme Court expressed the opinion that the legislature had no power to delegate to an administrative board or officer the exclusive power and function of determining what acts and omissions on the part of an individual are unlawful, and that inasmuch as the act itself did not define what shall constitute such a defect in frosted oranges as would render their shipment unlawful, it is clear, in the language of the court, "that any attempt on the part of an administrative board or officer so to do would be an act of legislation and as such beyond the constitutional powers of such board or officer."

An analysis of this decision indicates that at the present time there is no legislation on the statute books of California sufficient and adequate to regulate the shipment of frosted oranges during the period immediately following a freeze and up to the time when drying out of the fruit sets in. The decision indicates that any attempt to issue regulations based on indefinite language in a statute is unlawful, but does not, of course, invalidate the remaining portions of the act. Neither does the decision invalidate the frozen orange statute of 1915 which regulates shipments after drying out becomes evident. It is recommended, however, that the entire subject of frost legislation for citrus fruit be reviewed immediately by the industry with a view to framing a law which will adequately protect their interests.

A number of other developments which should be of general interest have taken place during the past year. Trading standards for lettuce, tomatoes, cauliflower and potatoes have been worked out in cooperation with the Federal Bureau of Agricultural Economics. The standards for Bermuda onions were strengthened and grades on drum Emperor grapes were promulgated. In addition tentative cherry grades were issued. Copies of all of these specifications may be had on application to the department.

The standardization work on grapes, cantaloupes, Bermuda onions, early and late potatoes, strawberries and general deciduous fruits continued on the same high plane as in former years and a better uniformity in the inspection work on the part of the horticultural com-

missioners and their inspectors was indicated by a greater satisfaction on the part of growers and shippers in general. An attempt was made to carry on some experimental work on the question of the proper maturity at which to ship certain of our important deciduous fruits, but lack of funds prevented such a study being brought to a successful completion. It is recommended that a practical systematic program be worked out in this connection in order that definite information may be obtained on the proper stage of maturity at which to ship the important varieties of deciduous fruits now grown in California.

SHIPPING POINT INSPECTION SERVICE.

The shipping point inspection service organized in July, 1920, has made great strides during the calendar year of 1922. On July 1st a cooperative agreement was made with the Federal Bureau of Agricultural Economics, which federalized the service in every sense of the word. The inspection certificates now issued in California are joint federal and state documents and are *prima facie* evidence in any court of the United States.

The shipping point inspection service very logically and advantageously supplements the police inspection made under the Fruit and Vegetable Standardization Law. It is a voluntary service in every respect and provides a method whereby shippers or receivers may obtain an inspection upon a specific car or lot upon payment of the fee of \$5 per carload. A fee of \$2.50 is charged for a half carload or less and \$10 for mixed cars of five or more varieties or commodities.

The service is particularly valuable on cars sold f.o.b. California points or on commodities where the price range fluctuates materially in a given shipping season. The work has proved especially attractive to shippers of Bermuda onions, and the various potato, lettuce, tomato, and cantaloupe deals. The shipping point inspection work was also found of great value by the shippers of grapes and it will be noted from the tabulation below that inspections of this commodity form a very considerable portion of the total. Experience has shown that the holder of a joint federal and state certificate is in a much better position to press railroad claims than the man who has seen fit to ship without such protection. The carriers have also taken considerable advantage of the service.

One added development was the insurance of perishable goods against deterioration or loss in transit based on the inspection certificate. Grapes were the only commodity against which policies were written but it is expected that the different insurance companies will enlarge their activities the coming year. The figures following will illustrate the growth of the inspection work since its organization.

TABLE I. *Carlot Inspections of Fruits and Vegetables, July 1, 1920, to October 1, 1922.*

1920	Cars	1921	Cars	1922	Cars
July	105	January	299	January	347
August	400	February	359	February	303
September	1125	March	243	March	1130
October	1070	April	111	April	647
November	868	May	654	May	1486
December	396	June	447	June	1085
		July	741	July	994
		August	879	August	1377
		September	2482	September	3447
		October	2470	October	
		November	998	November	
		December	351	December	
Totals	3964		10,034		10,816
Grand total					24,814

TABLE II. *Carload Inspections of Fruits and Vegetables, July 1, 1920, to October 1, 1922, by Commodities.*

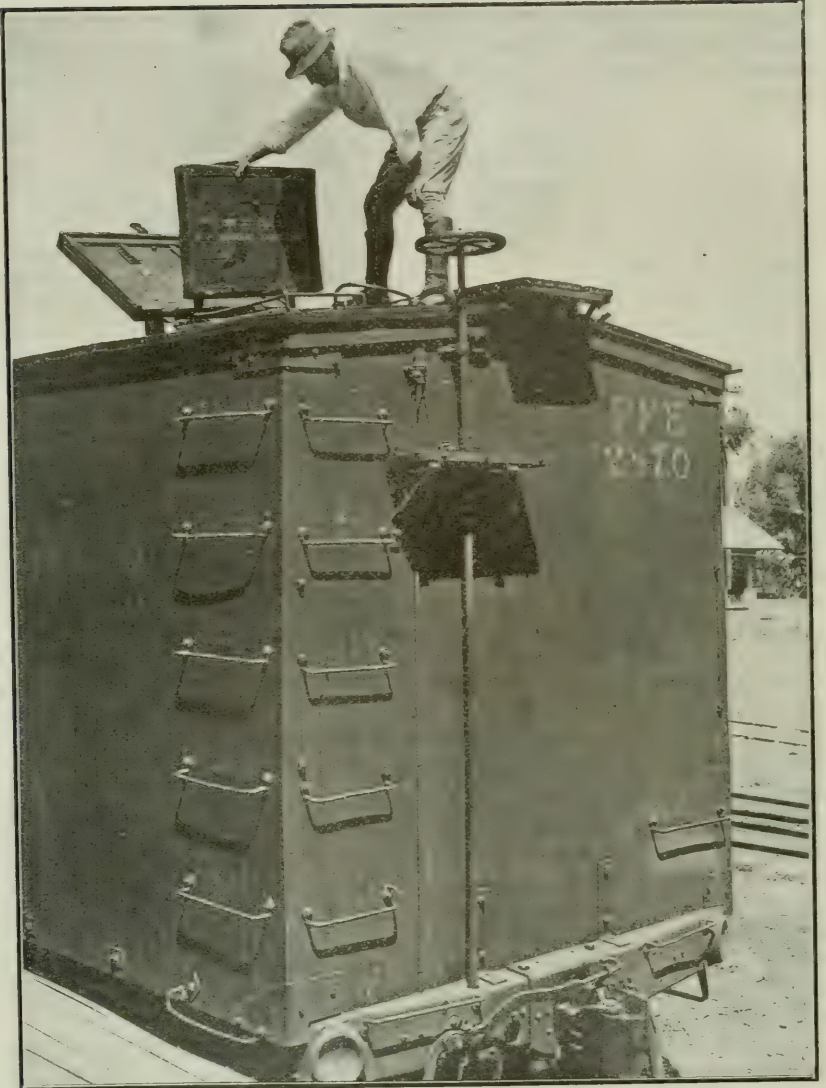
Apples	7988	Chicory	9	Peaches	99
Apricots	8	Garlic	1	Pears	41
Berries	59	Grapefruit	14	Plums	1
Cabbage	102	Grapes	6708	Potatoes	1746
Cantaloupes	565	Lemons	95	Sweet Potatoes	4
Cauliflower	1378	Lettuce	1182	Tomatoes	446
(Broccoli)		Onions	2047	Watermelons	16
Celery	171	Oranges	1201	Mixed Vegetables	493
Cherries	25			Miscellaneous	127
Totals	10,294		11,547		2973
Grand total					24,814

Apple Inspection Service.

The apple work forms a separate function of the Bureau of Standardization on account of the fact that the California Standard Apple Act makes such an organization advisable. The work during the calendar year 1922 followed along the same general lines as the previous year. Practically every car of apples leaving California was examined and inspected by this department. The major portion of the work was undertaken in the large commercial apple shipping districts, the Watsonville section, the Sebastopol section of Sonoma and Napa counties and the apple producing districts of southern California, principally in the vicinity of Yucaipa and Beaumont.

The cooperative crop reporting service estimated the total production of California apples for 1922 at 7,656,000 boxes, of which about 50 per cent will move in carload lots. Up to the first of November about 2650 carloads had actually been shipped as compared with 3750 to the same date last year.

Early shipments of apples started in a commercial way from Sutter County during the latter part of June and from the Sebastopol section about the 15th of July. The bulk of the Gravenstein stock in the Sebastopol district was moved out by the end of August. Up to that



FRUIT AND VEGETABLE STANDARDIZATION.

FIG. 205—Shipping point inspection service examining ice bunkers.

time the railroad records showed a total of 967 cars moved from the district of which 932 were certified and inspected by this department. It is expected that the late and miscellaneous varieties will bring the total shipments in the Sebastopol district up to about 1200 cars. The grade and quality of the fruit was excellent and packers and shippers cooperated to the fullest degree in the shipment of stock which was a credit to the district.

Mr. C. H. Beasley was placed in charge of the apple inspection work succeeding Mr. S. V. Christerson, who resigned, effective July 1st. Mr. Beasley took up his permanent headquarters in Watsonville at the opening of the deal in that section of the state. The extremely weak market which has prevailed on apples during the latter months of the calendar year, have accounted in large measure for the light shipments and for the large proportion of the crop being diverted to drying purposes. Up to the middle of November approximately 1380 cars had been moved out of the Watsonville district all of which was certified and inspected by the department. Of this number 665 cars were Bellefleurs, 490 Newtown Pippins and the balance miscellaneous varieties.

It was estimated at the beginning of the season that about 3500 cars of apples would be shipped from the Watsonville district, figuring on about 800 packed boxes per car, or about 2,800,000 packed boxes of all varieties. The present condition of the market, however, makes it appear that a smaller number of cars will actually be shipped. As a matter of fact it is now estimated that not over 3000 cars at the maximum will be moved from the district. There are about 25 driers operating in the Watsonville section and up to the middle of October about 10,000 tons of green apples, equivalent to about 600 cars, had been delivered to the evaporators.

The following estimate of the commercial production in the Watsonville district is given in order to indicate the importance of the various varieties and to present total figures in so far as possible at this writing (November 10, 1922):

Newtown Pippins	1,400 cars
Bellefleurs	1,050 cars
White Pearmains	25 cars
Red Pearmains	20 cars
Miscellaneous	100 cars
Total	2,595

Under normal conditions there are perhaps between 75 and 100 cars of Red Pearmains produced in the Watsonville district, but practically all of this stock was sent to the drier this year. The estimates given above have been made by the Chief Apple Inspector of the department and undoubtedly are very conservative.

The apple inspection work in the Yucaipa-Beaumont district opened up about the first of September and it was estimated at that time that about 200,000 boxes would be packed. Market conditions and infestation of codling moth will, however, cut down the estimated output.

It may be said that in general the grade and pack of California apples was better than in any previous season, owing in very large measure to the cooperation on the part of growers, packers, and shippers.

Seed Potato Certification Service.

Results from the use of California certified seed potatoes have been exceedingly gratifying and much larger quantities were used in all potato growing districts than ever before. Owing to the relatively small amount of available certified seed during the past year, the price paid by growers was in many cases three times that of ordinary seed. Most of the certified seed potatoes of the state retailed at from 6 to 8 cents per pound and growers who used it were amply justified for paying such a high price.

An examination of the spring crop potato fields of California showed very easily whether certified seed had been used or not and the yields



GRAIN STANDARDIZATION.

FIG. 206—A typical grain grading office.

in many cases from the certified seed were two or three times as great as where ordinary stock was used. Certified seed from other states, as a rule, has not given as good results as the use of California grown certified seed. Because of these facts, a great impetus has been given to the production and use of California certified seed potatoes.

For the year 1921 approximately 600 acres passed the state certification standards and a little over 22,000 certified tags were issued, one tag being used on each sack of certified seed. For the present year, approximately 1600 acres have passed inspection and it is estimated that there will be a total production of at least 50,000 sacks of certified seed. This shows an increase of more than 100 per cent in the production of this specialized crop. The healthy growth of this industry is shown by the fact that the increased production was distributed quite uniformly over the entire state. Southern California still produces the greatest acreage of any district; the number of certified seed grow-

ers in southern California has more than doubled during the past year. The extensive Stockton potato growing district which heretofore has not taken readily to this work is this year producing nearly 500 acres of certified seed potatoes. The Owens Valley district which has never produced certified seed before, has taken up the work and gives promise of becoming an important seed potato growing section.

The progress made in the production of certified seed potatoes in California is the more striking when it is remembered that a common belief has prevailed in this state that it was necessary to go outside of California for seed potato stock. This work has shown conclusively that the best quality of seed can be produced in many localities of the state. The extension of this industry will be a great benefit to California potato growers.

WAREHOUSE AND GRAIN STANDARDIZATION SERVICE.

The California Warehouse Act, passed by the 1921 legislature, gives authority to the Director of Agriculture to license warehousemen storing such agricultural products as cotton, wool, hay, fertilizer, grain products, grains, tobacco, rice, beans and flaxseed. The provisions of the act are not compulsory and a license is issued, therefore, only upon request. The act imposes certain conditions on the warehouseman before he can become licensed and before his house can be designated as a California bonded warehouse. It is necessary for instance, that the warehouse be maintained in proper condition for the storage of agricultural products. The warehouseman must be able to show a satisfactory financial condition and he must execute and file with the Director of Agriculture a good and sufficient bond to secure the faithful performance of his obligations, under the laws of the state and under the rules and regulations prescribed under the act.

Subsequent to the issuance of a license, the warehouse, the goods stored therein, and the records of warehouse receipts issued and canceled are subject to inspection by a representative of the Department of Agriculture. Such inspections are made for the purpose of protecting the depositor, for determining the condition of the goods stored in the warehouse and the accuracy of the records kept by the warehouseman.

Under the terms of an agreement entered into with the United States Department of Agriculture, all local matters pertaining to the enforcement of the United States Warehouse Act are handled through the State Department of Agriculture. The chief grain and warehouse inspector of this department is designated as a warehouse inspector under the United States Warehouse Act. This cooperative agreement makes possible a close working arrangement with the United States Department of Agriculture and eliminates duplication of effort and expense.

The provisions of the California Warehouse Act are such as to give added safeguard to the storage of agricultural products. The act tends to improve in the eyes of the banker the standing of warehouse receipts issued by licensed and bonded warehouses. A better understanding of the advantages of the bonded warehouse will doubtless result in a larger number of applications for licenses. It is felt that this will give the depositor greater assurance concerning the safety of his goods and will make the warehouse receipt more valuable as collateral. For the

presentation of this matter to interested parties, it has been necessary to do considerable educational work and the provisions of the act have been laid before practically every banker, bankers' association, clearing house association, warehousemen's association, county farm bureau and farmers' organization in the state.

The California Grain Standardization Act is another optional law giving the director of agriculture authority to establish standards for corn, wheat, rye, oats, barley, grain sorghum and beans. The use of such standards, however, is not compulsory. In the carrying out of the provisions of this act, offices have been established in Stockton and Oakland in addition to Sacramento. The act sets forth that any standards for grain made mandatory under the authority of the Congress of the United States shall be established and promulgated as the official standards of this state. In accordance with this language, the United States standards for corn, wheat, and oats, have been promulgated as the California standards. In addition the suggested standards for grain sorghums, as published by the federal government, have been established as the California standards. Effective June 10, 1922, California standards for barley were promulgated by the department. The questions entering into the standardization and grading of beans and rice have been studied, and it is hoped that standards may be established which will be applicable to the 1923 crop.

An increasing interest has been shown in the inspection and standardization work made possible under this act. Experience has shown that as the producer becomes familiar with the character of the service rendered, he will so market his products that they will be sold upon the basis of a definite grade, with a state certificate certifying to the quality and condition of the product. It is hoped that this work will eventually be placed upon a self-supporting basis.

PURE SEED STANDARDIZATION AND INSPECTION SERVICE.

The seed inspection service was actually started January 1, 1922, under authority granted in the California Pure Seed Act, approved June 3, 1921. The enactment of the Pure Seed Law marked the culmination of several ineffectual attempts to place needed seed legislation on the statute books of the state. Just prior to the opening of the calendar year, an agreement was made with the Bureau of Plant Industry, United States Department of Agriculture, for the removal of the federal branch seed laboratory, located at Berkeley, to Sacramento and for the consolidation and coordination of the seed work of both departments. This consolidation was completed about the first of the year.

The work of the seed inspection service is divided into two general parts: First, the testing of samples received, which are voluntarily submitted by dealers, farmers, or seedsmen and, second, the testing of labeled stocks of seed, offered for sale on the markets of California, together with the enforcement of the provisions of the act relative to such stocks.

The California Pure Seed Law is primarily a "labeling law" in contra-distinction to a "grading law," where definite grades are required. The law requires the labeling of all agricultural seeds which are sold within the State of California for seeding purposes within the state, when in bulk, packages or other containers of five pounds or more,

with the exception of special mixtures such as law mixtures, which must be labeled if in packages or other containers of eight ounces or more. The labeling feature insures the purchaser as to the class and quality of seed which he is buying. Agricultural seeds are defined as all domesticated grasses, cereals, legumes, field peas, cow peas, beans, soy beans, vetches and the seeds of all other crops which may be grown commercially on a field scale, but not including flower, sugar beet, and garden vegetable seeds.

The efforts of the seed inspection service have been concentrated on acquainting dealers and growers with the provisions of the law, with testing samples submitted and with a limited amount of routine police work contemplated under the act. Over 1700 samples have been submitted to the laboratory for testing. The majority of these were submitted by seedsmen, dealers, jobbers or importers. Rules and regulations governing the testing of samples, were promulgated by the Director of Agriculture, in January, 1922, and are available upon application. Ten free tests are allowed per month. The work of testing the several kinds of seed is divided into two general classes: First, the testing of the sample for purity and, second, for germination. Special attention has been given to the weed seed content.

It is felt that the enactment of the Pure Seed Law and the publicity which has been given to it, is causing a material improvement in the quality of seed being sold within the state. While it has been found that the fees collected for the testing are not sufficient to cover the costs, it is hoped that this phase of the work at least may eventually become self-supporting. The department is prepared to recommend certain changes in the act in order to make it more effective, but it is felt that on the whole the operation of the Pure Seed Law has been of tremendous advantage to the dealer and grower and that it has come to stay.

PUBLICATIONS.

The Bureau of Standardization has issued a number of publications during the past year which should be of particular interest. The following is a list of publications issued to date:

Regulatory Announcement No. 1, Governing the Packing, Shipping and Sale of Grapes.

Regulatory Announcement No. 2, Governing the Packing, Inspection and Sale of Apples.

Regulatory Announcement No. 3, Rules and Regulations for California Bonded Warehouses.

Regulatory Announcement No. 4, Net weight or quantity marking requirements for fruit and vegetable containers.

Regulatory Announcement No. 5, Grading Rules governing the Packing, Shipping and Sale of Emperor Grapes in Drums and Kegs.

Regulatory Announcement No. 6, Grading Standards for Shelled Corn, Wheat, Oats, Barley and Grain Sorghums.

Regulatory Announcement No. 7, Grades and Grading Rules, governing the Shipping and Sale of Bulk Plums in Placer County.

The Growing and Shipping of California Cauliflower and Broccoli, by L. J. Weishaar and S. S. Rogers. (Monthly Bulletin, April, 1922.)

Growing and Shipping California Lettuce, by F. W. Read and S. S. Rogers. Special Publication No. 19.

Suggestions for Controlling Tuber Moth in Potatoes, with special reference to Standardization and Grading. Prepared by Bureau of Pest Control and Standardization. (Special Publication No. 24.)

Descriptive Catalogue of California Grapes, compiled by Bureau of Standardization and Viticulture Service. (Special Publication No. 25.)

THE BUREAU OF PLANT QUARANTINE.

LEE A. STRONG, *Chief.*

As has been pointed out in previous reports, the work of the Bureau of Plant Quarantine of the California Department of Agriculture is divided into two major functions: namely, Plant Quarantine Inspection at Maritime Ports of Entry, and Plant Quarantine Inspection at Border Points of Entry. A third function is supervision of plant quarantine inspection at interior points of entry as conducted by county horticultural commissioners and inspectors acting as state quarantine guardians.

MARITIME PORT INSPECTIONS.

Plant quarantine inspection at maritime ports embraces several more or less distinct features:

Foreign Vessels.

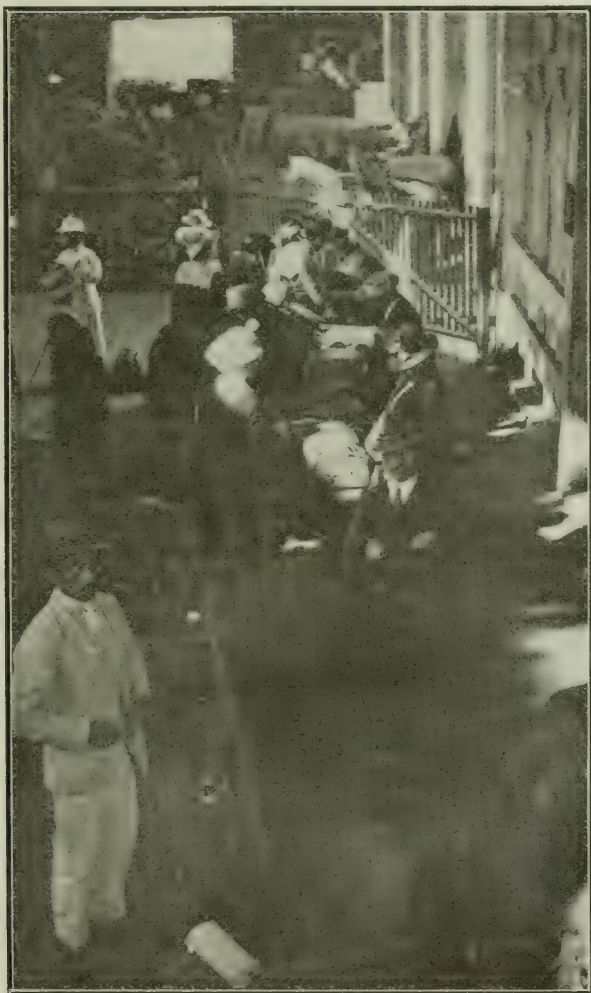
The boarding in quarantine of all vessels from foreign ports; the inspection of ships' stores, store rooms, crews' quarters and passengers' quarters on such ships, and the inspection and proper disposition of plant products found in baggage of passengers from foreign ports by U. S. Customs inspectors; the inspection and proper disposition of all plant products carried by such ships as cargo or otherwise. Vessels from foreign ports are boarded in the quarantine area by inspectors of this bureau in order that an inspection may be made of stores, and passengers' and crews' quarters for the presence of host fruits of the various species of fruit flies and melon fly, and to provide for the destruction of such fruits if found before the vessel arrives at the dock. If infested fruits are found it is necessary that proper sterilization of that part of the vessel where the fruits are carried be effected before arrival at the dock.

Quarantine inspectors are present during inspection of baggage of foreign passengers by U. S. Customs officers to dispose of plant products found in passengers' baggage. A complete manifest of all cargo carried by foreign vessels is furnished the inspectors of this bureau by steamship companies, and all plants and plant products must be inspected and passed by inspectors of the Department of Agriculture before permitted by the Customs authorities to leave the dock.

Hawaiian Vessels.

Owing to the presence in Hawaii of the Mediterranean fruit fly and melon fly, it is essential that the closest possible inspection be made of all vessels from Hawaii in order to prevent the entrance of these destructive pests. Ships and vessels from Hawaii are boarded in quarantine; the stores, fruit and vegetable lockers, crews' quarters, passengers' quarters, and the baggage and personal belongings of passengers and crew thoroughly searched for host fruits of fruit and melon flies and for plants and plant products liable to carry pest infection. Since Hawaii is domestic territory, the U. S. Customs authorities make no inspection of ships, baggage or cargo from ports in that territory; hence all inspection work falls to plant quarantine inspectors. Until very recently passengers' baggage from Hawaii has been inspected

on the vessel, but in view of the danger of passengers concealing fruits in baggage after the inspection has been made with the consequent danger of introducing fruit flies in this manner, the baggage is now all inspected on the dock, thus reducing to a minimum the danger of infested fruits being carried ashore.

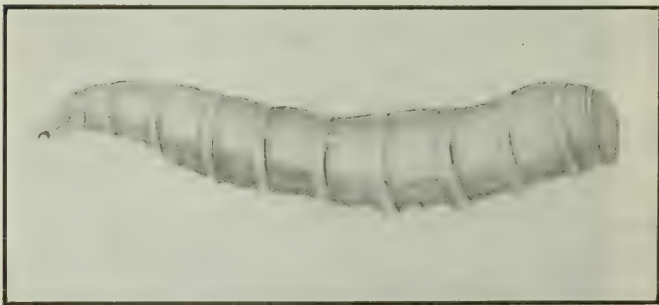


HOW THE FRUIT GROWERS ARE SAFEGUARDED.

FIG. 207—Port inspection of baggage from Hawaii. Thousands of contraband insect pests and much diseased plant material is destroyed every month at Pacific Coast ports. (Chatterley.)

After the inspection of the vessel and baggage is completed, an inspection must be made of the cargo. The only fruits permitted entry from Hawaii are bananas and pineapples which are not subject to fruit fly attack, but which must all be properly certified in Hawaii by inspectors of the Federal Horticultural Board. If the shipments are

so certified it is proof that every precaution has been observed in Hawaii in preventing the shipment of overripe fruit and in preventing the use of any material for packing which could in any way be considered dangerous.



THE DESTRUCTIVE MEDITERRANEAN FRUIT FLY.

FIG. 208—Above, adult fruit fly. Below, full-grown larva. (Chatterley.)

Naval Vessels.

Naval vessels frequently arrive at California ports from where fruit flies exist, and considerable difficulty has been experienced in the past in obtaining knowledge of the movement of naval vessels and in applying plant quarantine regulations after such vessels arrive in port. However, a general order has been issued recently by the Secretary of the Navy which provides that no plant products against which quarantines may exist shall be brought to the United States by members of the U. S. Navy. The order also provides for proper notification to be given inspectors of the Department of Agriculture, and emphasizes the

point that every facility must be furnished the inspectors in the inspection of the vessels and the baggage and personal belongings of passengers, officers and men.

Domestic or Coastwise Vessels.

Many coastwise vessels arrive at California ports from Pacific northwest points and from the Atlantic coast via the Panama Canal. Vessels from the northwest carry cargoes of apples, potatoes and, quite often, shipments of nursery stock, all of which require inspection. Vessels from the Atlantic coast bring in their cargoes shipments of seeds, nuts, etc., which require inspection, and frequently in the ships' stores are found quantities of citrus fruits from the gulf states and from the Mediterranean countries. Citrus from the gulf states may be infected with citrus canker, and any fruit from Mediterranean countries is dangerous because of the presence of fruit fly.

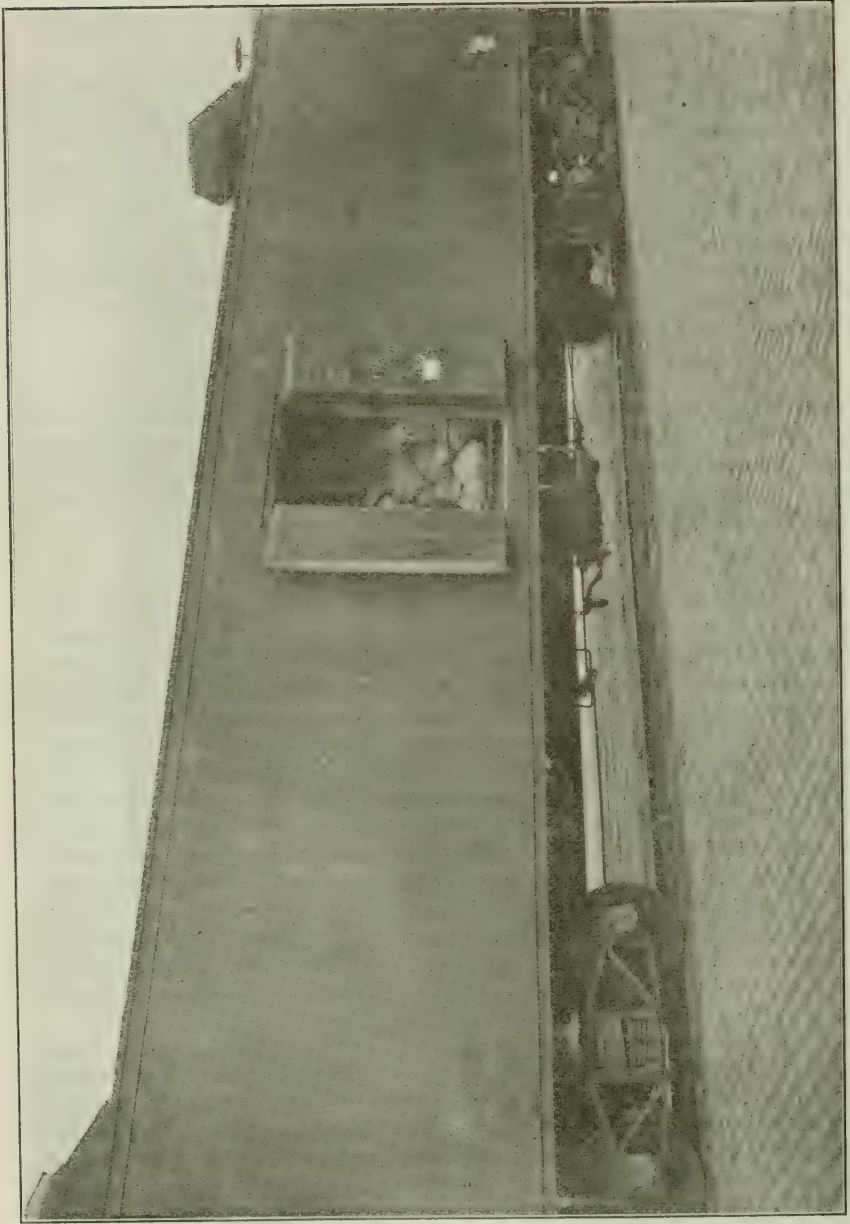
Fish Boats.

Running between Mexican ports and southern California ports are large numbers of fish boats of considerable tonnage. These boats are capable of carrying fruits and other plant products, and it is especially important that they be boarded and inspected to prevent the entrance of the Mexican fruit fly (*Anastrepha ludens*).

Railway Inspection.

At all maritime port inspection stations in addition to the work incident to the inspection of vessels there is also to be performed the inspection of all plant products arriving from other states by freight, express, and parcel post. Many shipments of infested plant products and commodities specifically quarantined against are constantly being found seeking entrance through these channels. With the spread in states outside of California of such pests as the alfalfa weevil, cotton boll weevil and the pink boll worm of cotton, it has been necessary to regulate the movement into California of emigrant movables and household effects from the infested areas as well as horticultural and agricultural products. It is vitally important that freight cars fouled with cotton seed and hay and straw be properly sterilized. The railway companies have extended every facility in the disinfection of contaminated cars with live steam. Steaming plants have been installed and are being maintained by the companies, and every effort is being made to promptly comply with the quarantine regulations.

During the seventy-second fiscal year ending June 30, 1921, there arrived at all California ports of entry 3018 vessels of all types which required plant quarantine inspection, and 53,264 passengers from ports in countries where fruit flies exist. During this period 772 packages of plant products were refused entry because of actual insect pest infestation or plant disease infection, and 1093 packages were refused entry and destroyed as being in violation of a specific quarantine order. Among the packages destroyed as contraband were 296 separate lots of hosts of the Mediterranean fruit fly, the melon fly and the Mexican fruit fly.



POTATO INSPECTION.
FIG 209—Department quarantine inspector examining car lot potatoes. (Chatterley.)

During the seventy-third fiscal year ending June 30, 1922, there arrived 3310 vessels and 52,979 passengers from fruit fly ports. Ten thousand nine hundred twenty-seven packages were refused entry because of actual pest infestation, and 1029 packages were refused entry and destroyed as being in violation of a specific quarantine order. Among the packages destroyed as contraband were 414 separate lots of hosts of the Mediterranean fruit fly, the melon fly, and the Mexican fruit fly.

Among the interceptions during the biennium covered by this report are noted:

Citrus fruits from China infected with citrus canker,

Citrus fruits in passengers' baggage from Siam infected with citrus canker.

Sweet potatoes from China infested with sweet potato weevil (*Cylas formicarius*),

Japanese pears infested with Oriental fruit moth (*Laspeyresia molesta*).

Oranges, sapotes, and mangoes from Mexico and Central America infested with larvae of the Mexican fruit fly (*Anastrepha ludens*).

Mangoes, avocados, coffee berries, bell peppers, and tomatoes from Hawaii, infested with larvae of the Mediterranean fruit fly (*Ceratitis capitata*).

Cucumbers and string beans from Hawaii infested with the melon fly (*Bactrocera cucurbitae*).

Sweet potatoes from the Orient infested with the sweet potato stem borer (*Omphisa anastomosalis*).

Cotton bolls from Hawaii infested with pink boll worm of cotton (*Pectinophora gossypiella* Saunders).

Cars of potatoes from Idaho containing live alfalfa weevil.

Plants infested with citrus white flies, and plants infested with various species of dangerous scale insects.

BORDER INSPECTION.

On account of the spread of the alfalfa weevil in Nevada in 1921, it was found necessary to place inspectors on the roads leading into California from Nevada for the purpose of inspecting camping equipment carried by automobile tourists. In that year inspectors were placed at Reno Junction and at Doyle, which was made possible through a cooperative arrangement with the county of Lassen, and state inspectors were placed at State Line and on the road leading from Reno to Truckee. The findings during that year demonstrated that this work was necessary in order to prevent the introduction of the alfalfa weevil, since there were inspected in that season 3495 automobiles, from 192 of which insects were taken, among the insects being live alfalfa weevils. During the present season, in view of the findings of last year and at the insistent demand of interested counties, an inspector was placed at Bridgeport in cooperation with the counties of Mono and Inyo. State inspection was maintained at State Line and on the Truckee-Reno road as during the previous year, and at Doyle and Plumas Junction in cooperation with the counties of Modoc and Lassen. In the inspection of 10,040 automobiles during the present year insects were found in 134 autos and live alfalfa weevil was intercepted several times. It is also interesting to note that on the Truckee-Reno road live specimens of the strawberry root weevil were intercepted in camping equipment brought into California from Nevada.

In an effort to protect the cotton industry of southern California, an inspector was placed at Blythe in cooperation with Riverside County, whose duty it is to make inspections of automobiles arriving in California by way of the Blythe Ferry through Arizona from the southern



CAUGHT BY THE QUARANTINE INSPECTORS.
FIG. 210.—Ten thousand prune trees in one pile. These trees, infested with peach root-borer, were destroyed by fire, on order from shippers. (Haupt.)

cotton growing states. During the short time this inspection has been maintained, there have been intercepted in tourists' automobiles several mattresses and pillows stuffed with raw cotton seed from the southern states, which states are infested with cotton boll weevil and pink bollworm of cotton; one package of cotton bolls infested with live cotton boll weevil; and also several lots of citrus fruits from states in the south which are infected with citrus canker. These findings demonstrate the wisdom of inaugurating border inspection work at border points, and prove the necessity of strengthening this work and of covering all border points which are not at the present time covered by such inspection.

INTERIOR INSPECTION WORK.

The constant spread of insect pests in other states which do not exist in California has made more and more important the inspection work



BORDER INSPECTION.

FIG. 211—A border inspection station on the California state line. Here thousands of incoming automobiles and wagons pass inspection. Here also the alfalfa weevil and contraband material have been intercepted. (Harrigan.)

as conducted at interior points of entry by county horticultural commissioners and inspectors acting in the capacity of state quarantine guardians. In the enforcement of plant quarantine regulations at 266 postoffice inspection stations and 1746 freight and express stations, state quarantine guardians during the seventy-second fiscal year refused entry to 301 packages of plant products because of pest infection, and 117 packages as being in violation of a specific quarantine order. During the seventy-third fiscal year 161 packages were refused entry because of infection, and 118 because of violations of quarantine.

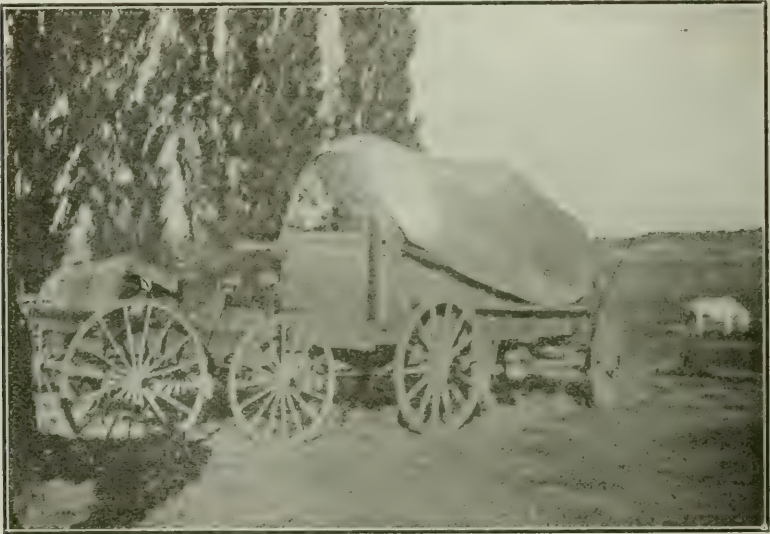
Among the interceptions are noted several violations of the white pine blister rust quarantine, numerous violations of the citrus white fly quarantine, the alfalfa weevil quarantine, the cotton boll weevil and pink bollworm quarantine, and the peach yellows quarantine. Two shipments were found to contain chestnut trees infected with chestnut

blight (*Endothia parasitica*), and many plants were found to be infested with various species of insect pests.

Pests to be Guarded Against.

Undoubtedly the most serious pests to be guarded against at the maritime ports are the various species of fruit flies. Owing to the manner in which the fruit flies attack fruits, it is often impossible to determine by inspection the presence of eggs or larvae of the flies in fruits, hence safety lies in preventing the entry for any purpose of known hosts of fruit flies.

Fruit flies lay small white eggs just beneath the skin of the host plant or fruit. The eggs hatch into whitish maggots or larvae which when



THE ALFALFA WEEVIL.

FIG. 212—Emigrant wagon coming into California from Nevada. Note the bale of forbidden alfalfa hay under the wagon cover. (Ryan.)

full grown are from three-sixteenths to half an inch in length. The larvae burrow in all directions through the pulp of the host, and feeding upon the living tissues, cause decays to rapidly develop which often produce as great injury as do the maggots themselves. Leaving the fruits the maggots or larvae ordinarily burrow short distances into the soil, pupate and transform into the adult fly, although in some fruits the pupation takes place within the host fruit.

Mediterranean Fruit Fly.

The Mediterranean fruit fly (*Ceratitis capitata* Wied) is the most serious and widespread of all fruit fly pests at the present time. During the past hundred years that it has been known to science it has been spreading to different countries until now it is causing great damage on all continents except that of North America. It

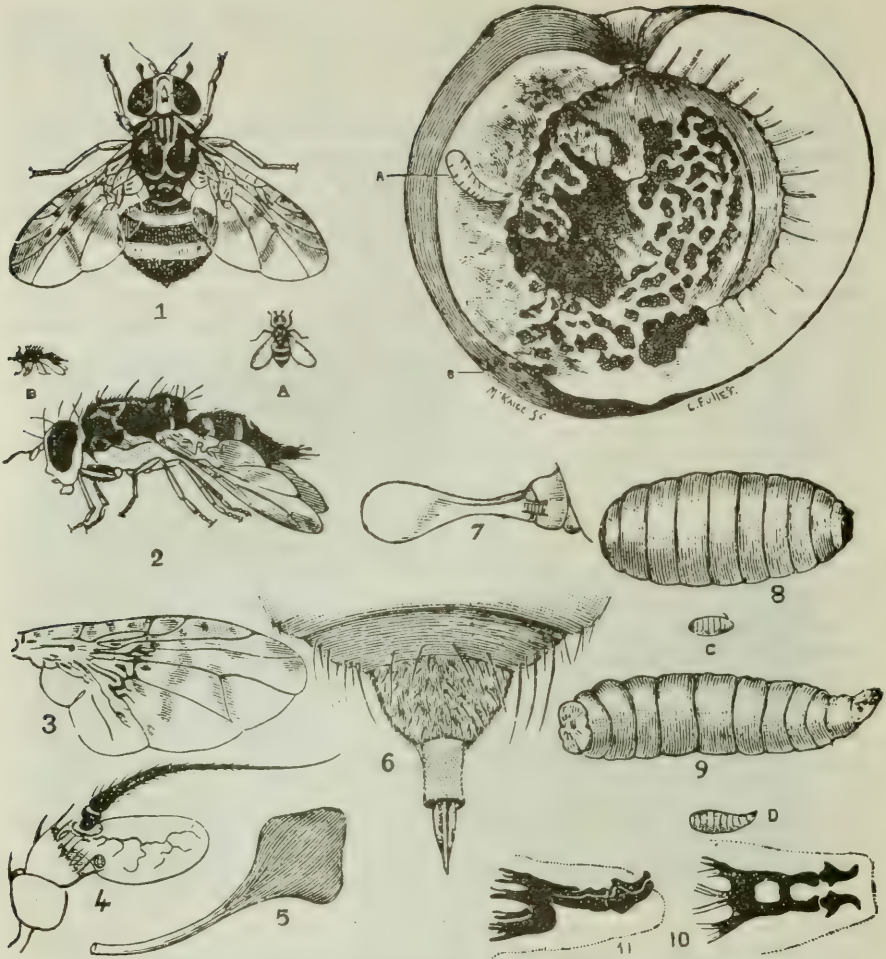
first attracted attention in London as an injurious pest of oranges imported from the Azores. It was recorded as a pest in Spain in 1842, in Algeria in 1858, in Italy in 1863, in Sicily in 1878, in Tunis in 1885, and in South Africa in 1889. It spread to western Australia in 1897, and to eastern Australia in 1898. In 1899 it was found in Tasmania; in 1900 in peach orchards near Paris, France; in 1901 in New Zealand and Brazil. In 1904 it was found a pest in Egypt and in Asia Minor, and in 1905 in Argentina. Between 1909 and 1914 it was discovered in both the eastern and western portions of Africa. In 1910 it was first discovered in the Hawaiian Islands and within two years had spread to every important island of the group. During 1916 the orange, tangerine, peach, pear, and apple crops of the Patros consular district of Greece were badly damaged. In 1865 it made its appearance in Bermuda and in less than five years destroyed a very promising peach industry. The Mediterranean fruit fly is particularly injurious because it attacks many different kinds of fruits, nuts and vegetables. In Hawaii it attacks seventy-two kinds of fruits. A partial list of host fruits includes oranges, grapefruit, lemons, limes, kumquats, tangerines, peaches, apples, figs, apricots, bananas, mangoes, avocados, sapotes, loquats, persimmons, guavas, quinces, papayas, pears, plums, grapes, bell peppers, eggplant, tomatoes, and even cotton bolls and coffee berries.

There is great danger of this insect being introduced into California from Hawaii and only the most stringent quarantine measures diligently applied will prevent its introduction and establishment in this state. As pointed out in this report, fruits from Hawaii infested with fruit fly are being almost daily intercepted at the California ports of entry. That Hawaii is not the only danger point is evidenced by the finding of larvae of the fly in fresh deciduous fruits shipped into California from South Africa via New York City. Apples from Algeria carried into Boston as ships stores were found to be infested with live larvae of the fly.

The importance of using every endeavor to prevent the introduction of this destructive pest is realized when we consider that not only would the fly cause damage to the fruits of California, but its presence in California would cause quarantines to be enforced against this state which would prevent the movement out of the state of all host fruits of the insect. The effects of such a quarantine would be disastrous in the extreme.

Mexican Fruit Fly.

The Mexican fruit fly (*Anastrepha ludens* Loew) often referred to as the Mexican orange maggot, is officially recorded as occurring only in Mexico, but fruits said to have originated in Central America have been found on ships entering California ports, the fruits badly infested with live larvae of the fly. So far as known, this insect attacks only oranges, grapefruit, limes, peaches, guavas, and plums, and, while it is primarily a pest for oranges and peaches, close study will probably prove that it attacks fruits not now known as hosts. Fruits infested with the Mexican fruit fly are often found on vessels arriving at California ports from Mexico. An interesting as well as alarming occurrence during the biennium covered by this report was the finding



A QUARANTINE PROBLEM.

FIG. 213—The Mediterranean fruit fly (*Ceratitis capitata*). a, maggot; b, holes where maggots have escaped; 1, male fly; A same (natural size), viewed from above; 2, female fly, viewed from side; B, same, natural size; 3, wing of fly; 4, antenna; 5, clubbed appendage from head of male; 6, terminal segments of female's abdomen, showing the ovipositor; 7, halter; 8, pupa, or chrysalis; c, same, natural size; 9, larva, or maggot; d, same, natural size; 10 and 11, hooked mandibles of larva. (Fuller.)

by Mr. L. E. French of several lots of hosts of the Mexican fruit fly in automobiles coming into California by way of Tia Juana.

Melon Fly.

The melon fly (*Bactrocera cucurbitae* Coq.) is a pest of vegetables, particularly of cucumbers, squashes, pumpkins, tomatoes, string beans, cow peas, watermelons, cantaloupes, chavote, and other vegetable marrows belonging to the cucumber family. The melon fly was first known to science in 1898 when it was discovered in the Hawaiian Islands to

which it had spread from either China or Japan. At present it is known to exist in Hawaii, China, Japan, Philippine Islands, Java, Tunis, Northern Australia, Ceylon, and India. The fly in Hawaii has put a stop to the free cultivation of the vegetables listed as hosts. Watermelons and cantaloupes particularly can not be grown unless the fruits are protected by covering as soon as the blossoms open. Often the vines are killed back by the maggots, and even watermelon seedlings may be ruined by the maggots developing in the taproot. During the summer months in Hawaii, according to Dr. E. A. Back, it is impossible to grow tomatoes, pumpkins or squashes. The vines may produce a rank, luxuriant growth and bloom profusely, but the melon fly lays its eggs in the undeveloped ovary of the bloom, or in the young fruit, and



WORK OF THE MELON FLY.

FIG. 214—Cucumbers damaged by the melon fly (*Bactrocera cucurbitae*).
(Back. U. S. Bur. Entom.)

the maggots hatching prevent the maturing of the fruit. As indicating the extent of infestations, as many as 650 maggots have been reared from a pumpkin no more than four inches long. The melon fly would undoubtedly cause great damage if established in California and only the closest inspection of California ports has thus far prevented its entry. No hosts of any variety are permitted entry to California from Hawaii.

Olive Fruit Fly.

Back says the olive fruit fly (*Dacus oleae* Rossi) is at present a pest in all the regions bordering upon the Mediterranean throughout the northern, eastern and southern parts of Africa, and in western Asia. It attacks only the fruit of the olive and closely related species. It frequently causes untold damage to the olive crops of Italy, Spain and Africa. During October and November, 1916, Back observed the

destruction wrought by this pest in oil or manzanillo olives throughout the Barcelona-Tarragona and the Granada districts of Spain. Scarcely a ripening fruit could be found that was not badly infested. The beautiful eating olives, known in this country as queen olives, grown in the vicinity of Seville, Spain, are often infested. While this insect has not been intercepted at California points, the Federal Horticultural Board has found living specimens of the olive fruit fly in a package of olive seed sent by mail to Washington, D. C., from South Africa and destined for California.

West India Fruit Fly.

The West India fruit fly (*Anastrepha fraterculus* Wied.) occurs throughout the West Indies, Mexico, Central America and South America. It is a pest of prime importance, attacking the peach, mango, orange, pear, plum, persimmon, guava, coffee berries, and a number of other tropical and subtropical fruits. If introduced into this state it would no doubt become a fruit pest of major importance.

Fruit flies are prohibited entry into California by statute, section 5 of the State Quarantine Law providing that: "No person, persons, firm or corporation shall bring or cause to be brought into the State of California any fruit or vegetable or host plant which is now known to be, or hereafter may become a host plant or host fruit of any species of the fruit fly family *Trypetidae* from any country, state or district where such species of *Trypetidae* is known to exist and any such fruit, vegetable, or host plant, together with the container and packing, shall be refused entry and shall be immediately destroyed at the expense of the owner, owners or agents."

In addition to this statute the Federal Horticultural Board has issued a quarantine against the Mediterranean fruit fly and the melon fly of Hawaii, which quarantine is enforced at California ports of entry by California quarantine inspectors who are collaborators of the Federal Horticultural Board with authority to enforce all federal quarantine regulations.

Japanese Beetle.

The Japanese beetle (*Popilia japonica* Newm.) is an insect native to Japan and was first discovered in the United States in Burlington County, New Jersey, in 1916. At the time of the original discovery near Riverton, New Jersey, only about a dozen beetles could be found; since that time the spread has been so great as to be exceedingly alarming. At the present time the infested area in New Jersey and Pennsylvania covers 270 square miles, and the insect is apparently the most serious pest ever introduced into the United States. The beetle has been found attacking 212 different species of plants in the infested area, including practically all kinds of economic and non-economic plants growing in the infested territory. Among the fruit trees attacked, probably in the order of seriousness of attack, are grape, apple, cherry, plum, peach, quince, raspberry and blackberry; among the field crops corn, soy bean, red clover, alfalfa, alsike clover; among truck crops asparagus, sweet potatoes, lima beans and string beans. Ornamental plants, trees and vines are quite generally attacked. The injury caused is the skeletonizing of the foliage which turns brown and drops off the tree. In the case of flowers the petals are eaten and the blossoms riddled. The

insect also feeds on fruits, particularly on apple and peach. During the larval period the insect lives underground and in early spring comes up close to the surface and feeds on roots of grasses, etc. It is during this period that serious injury may be caused to lawns and meadows. As many as 115 grubs have been found in one square foot of soil.

Effective control measures have not yet been worked out and the immense numbers of the beetles make control by poison sprays very difficult. When tree foliage is sprayed with poison sprays by the time any number of beetles are poisoned the trees are defoliated.

Owing to the habit of the insect spending the larval period in the soil the shipment of plants out of an infested nursery is the greatest factor in long distance spread. In New Jersey and Pennsylvania this feature is controlled by federal inspection and certification under a quarantine issued by the Federal Horticultural Board, the states of New Jersey and Pennsylvania cooperating to prevent spread within the two states mentioned. The Japanese beetle will continue to be a menace to California in spite of quarantine and control measures which may be enforced in eastern states, but so long as federal authorities are enabled to maintain an effective quarantine it will probably be unnecessary for California to take individual quarantine action.

Cotton Boll Weevil.

The history and habits of the cotton boll weevil (*Anthonomus grandis* Boh.) are well known to everyone interested in pests and quarantine. Discovered in two counties in the southern end of Texas in 1894, the weevil has now become established in every southern cotton growing state, where the damage is estimated to be well in excess of two hundred millions of dollars annually. During the year 1921 the insect spread to 66,661 square miles of new territory, and since in Arizona there is a variety of cotton boll weevil (*Anthonomus grandis* var. *thurberiae*) infesting wild cotton in the mountainous regions, California is the only cotton growing state in the Union free from every form of cotton boll weevil. This is a fortunate position and one which should be maintained. With this in view, Quarantine Order No. 39, superseding Quarantine Order No. 32 was issued by the Director of Agriculture on August 26, 1922. The revised order is more drastic and stronger in many ways than was the previous order and successful enforcement of its provisions will materially assist in preventing the entry of the cotton boll weevil.

Pink Bollworm.

The pink bollworm (*Pectinophora gossypiella* Saunders) of cotton is even more dangerous as a cotton pest than the cotton boll weevil, and is reported as occurring in small areas in Texas, Louisiana and New Mexico. Accidentally introduced into the southern states, it is adding to the difficulty of producing cotton in states already infested with the boll weevil. The Federal Horticultural Board has undertaken eradication measures in cooperation with the states concerned. Quarantines both state and federal have been issued and effectively enforced. California Quarantine Order No. 39 applies to pink bollworm as well as to cotton boll weevil.

Mexican Bean Beetle.

The Mexican bean beetle (*Epilachna corrupta* Muls.) is supposed to be a native of Mexico or Central America, and has been known for some fifty years. It has been recorded as existing in Colorado and Arizona for a number of years and is reported to occur in Utah. In 1920 the beetle was found in Alabama and now is known to occur in Colorado, Arizona, New Mexico, Texas, Alabama, Georgia, Tennessee, Kentucky, North Carolina and South Carolina. The adult beetles are strong fliers and may readily infest new areas by flight. The eggs, larvae and pupae may be carried on fresh or dried host plants, and could in this manner infest new localities some distance from the present infested territory. The host plants are all varieties of bush and pole table beans, shell beans, snap beans, lima beans, pinto beans and navy beans. Also beggar weed, cow pea, hyacinth bean, soy bean, Adzuki bean, sweet clover and alfalfa.

The insect winters over in the adult stage and in the spring lays its eggs in masses on the under surface of leaves of the host plants. Usually these masses contain from 40 to 60 eggs placed on end. When the larvae appear they feed ravenously on the inside of the leaf eating also the petioles and skeletonizing the leaf. The insect also works on bean pods and the leaves and pods are both caused to drop. While the larvae causes the greater damage, the adult also does great damage. In Alabama Dr. W. E. Hinds reports that in 1920 and 1921 snap beans and shell beans were destroyed 80 per cent; lima beans 65 per cent; California black-eyed peas (grown in Alabama) 25 per cent; field cow peas and soy beans 5 to 10 per cent. The Mexican bean beetle would doubtless be a pest of major importance if introduced into California, and while quarantine action has been considered it has been believed that there is little or no movement of commodities which might carry the beetle from the infested states into California and that inspection could be depended on to prevent its entry into this state.

Alfalfa Weevil.

The alfalfa weevil (*Phytonomus posticus* Gyll.) was first discovered in the United States in 1904 in the vicinity of Salt Lake City, Utah, where it was probably introduced from Italy. It is the most destructive pest of alfalfa occurring in the United States and is now established in Utah, Idaho, Colorado, Wyoming, Oregon and Nevada. Smith says, "The greatest damage resulting from the presence of this insect occurs in the first and second crops. The first crop usually succeeds in making a start in the spring before the young larvae are abundant. However, the alfalfa stems are soon filled with eggs and the larvae hatching from these eggs before the crop is cut sometimes caused total loss. The second crop will usually be a total loss if nothing is done since the abundant larvae found on the first crop at the time of cutting fall to the ground and overwhelm the new shoots of the second crop so that it is entirely prevented from growing and the field remains as barren as though the alfalfa has been suddenly killed." While spraying is a fairly effective control in those states where there is a single brood each year, the mild climate of California might be conducive to more than one

brood and spraying might be rendered ineffective. The Director of Agriculture issued Quarantine Order No. 34, September 30, 1921, which prohibits the entrance into California of all hosts of the insect from the infested territory. The order also provides for the proper supervision of shipments of commodities which might be packed or associated with hosts of the insect, and clothes inspectors with authority to inspect camping equipment, etc., brought into California by other than common carrier transportation. The Quarantine Order has been amended twice since issuance to cover newly infested territory.

Sweet Potato Weevil:

The sweet potato weevil (*Cylas formicarius* Fab.) is an insect which has become established in the southern states within the last few years and has caused damage to sweet potato crops of from 25 to 50 per cent. It is estimated that Texas in 1917 suffered a loss of \$1,800,000, or twenty per cent of the crop of the state; Louisiana with a crop valued at five million dollars lost twelve per cent or \$600,000; Florida lost \$400,000 with a crop of \$4,000,000. The U. S. Department of Agriculture estimates that the total yearly loss due to the ravages of this pest in the three important sweet potato growing states mentioned is \$2,800,000. The annual loss to the Gulf States was estimated in 1912 by Newell to be \$3,500,000.

The insect is at present established in Texas, Louisiana, Florida, Georgia, Alabama and Mississippi. Quarantine Order No. 35 prohibits the entrance into California from the infested areas of sweet potato tubers, sweet potato plants, vines, cuttings, draws and slips and morning-glories and yams, since the insect may be carried in any of the commodities mentioned. The beetles injure the sweet potato by feeding on the leaves, vines, stalks and roots or tubers. The female weevil lays her eggs in the vines and in the stalks near the ground as also in the roots in the field, and continues to work and breed in the roots in storage. The larvae on hatching tunnel through the vines to the roots, the vines die and frequently the roots become badly riddled and filled with excreta imparting such a bitter taste that even swine will not eat them. Within a short time, if the insects are numerous, the roots are completely destroyed. The young larvae eat into the flesh of the potato, leaving an irregular mine or burrow lined with excrement. They burrow and feed throughout the root until their full growth is reached, then construct a more or less oval cavity, at the end of the burrow usually within one-fourth to one-half inch of the surface of the root, and there transforms to pupae. The adults emerge through irregular openings in the skin, many frequently issuing through the same hole.

It is often difficult to detect the presence of the weevil in infested potatoes by inspection since the tubers may be badly infested and present a perfect appearance externally.

Infested potatoes are commonly found in baggage of oriental passengers from China. Federal quarantine prohibits the entry of all varieties of sweet potatoes into the United States from foreign countries.

White Pine Blister Rust.

White pine blister rust (*Cronartium ribicola* Fischer) is native to Europe and its destructiveness has, according to the U. S. Department of Agriculture, prevented the growing of white pine as a forest tree in northern Europe. It was introduced into the eastern United States about twenty years ago on diseased white pine shipped from Europe. White pine blister rust is now established beyond hope of eradication in New England, New York and the Lake states, and has proved to be a formidable enemy to the eastern white pine. Until very recently our great forests of western white pine (*Pinus monticola*) and sugar pine (*P. lambertiana*) have been free from this disease, but in the autumn of 1921 the blister rust was found in western British Columbia and the Puget Sound region of Washington. Western forests of white pine with a stumpage value of \$228,000,000 are now and for the first time directly menaced by the blister rust. They can be saved from extensive invasion only by the prompt, vigorous, and concerted action of everyone in the west.

White pine blister rust is a destructive disease of white pines, i. e., those pines which bear their needles in bundles of five. It is caused by a fungus which can attack the pines only after it has grown on the leaves of wild or cultivated currant or gooseberry bushes. While on the pines the blister rust fungus lives in the bark. The cultivated black currant or English black currant (*Ribes nigrum*) takes the disease more severely and spreads it to pine and to other currant and gooseberry plants much more rapidly than any other wild or cultivated species. The red and white garden currants and the garden gooseberries, as well as most of the wild currants and gooseberries, take the disease readily enough after it is established in a community. However, they are less likely to spread the disease than the black currant.

With the establishment of this disease in the northwest (Washington and British Columbia), the danger to California's white and sugar pine forests is much greater than before. Federal and state (California) quarantines prohibit the entry of hosts of the disease into clean states, but in spite of the educational work which has been carried on violations of the quarantines are more or less frequent.

Chestnut Bark Disease.

Chestnut bark disease (*Endothia parasitica*) has practically wiped out the chestnut industry in eastern United States. It is at present known to occur in Nebraska, Iowa, Michigan, Indiana, Ohio, Maine, New Hampshire, Vermont, New York, Pennsylvania, Virginia, West Virginia, North Carolina, Maryland, Delaware, New Jersey, Rhode Island, Connecticut, and Massachusetts. The disease is absolutely fatal and where it has once gained a firm foothold its eradication is hopeless. In 1911 the damage caused in ten eastern states was estimated at \$25,000,000. The damage has greatly increased since that time. California has a very promising future in the chestnut industry if this destructive disease can be kept out.

Peach Yellows.

Peach yellows is an American disease of the peach which has been responsible for heavy losses in several eastern states where the disease has been prevalent for many years. The disease also occurs in nectarines, almonds and apricots, and probably in plums. According to Bulletin 356 of the New Jersey Agricultural Experiment Station, "It is at present known to exist in Ontario, Canada, and in the United States from Massachusetts south to South Carolina along the Atlantic Coast and west to Michigan, Illinois, Missouri and Kansas. The southern boundary crosses northern Oklahoma and Arkansas, includes most of Tennessee and the northern corner of South Carolina. An isolated area in southern Nevada has been reported as infected." The disease has never become established in California, and all hosts from all infected states are prohibited entry by statute.

Oriental Fruit Moth.

The Oriental fruit moth (*Laspeyresia molesta* Busck) was introduced into the District of Columbia supposedly on a shipment of flowering cherries from Japan prior to the establishment of federal quarantines. It was first thought to be a pest only of peach, cherry, plum, apricot, and several varieties of flowering cherries, but it is now known that it attacks also quince, apple, pear and flowering quince. The insect is now established in the District of Columbia, New Jersey, New York and Connecticut. Severe injury is caused by the larvae to both twigs and fruits. Wood, of the U. S. Department of Agriculture, says, "The character of injury and amount of damage vary at different seasons of the year, and on different food plants. The damage resulting from each of the early generations is separated from that occasioned by the next generation by an interval during which no freshly injured twigs can be found. This interval comes in the period between the attainment of full development by the larvae of one brood and the appearance of the newly-hatched larvae of the next. The interval between the first and second generations and that between the second and third are quite noticeable to one who is making observations in the orchard, but after the third generation the broods of larvae overlap to such an extent that they cannot be thus defined. The injury resulting from each successive generation increases in severity as the season advances, until late summer. The injury to twigs is first noticed in the spring when the young shoots are about six inches long. It is caused by the boring of the larvae which enter near the tip of the twigs or in the petiole or midrib of the leaves. On peach the injury usually shows plainest at midday or in the afternoon, and is characterized at first by a slight wilting of a single leaf or in some cases the whole tip of the twig, and by a very small amount of frass thrown out of the tunnel at the point of entrance.

As the insect feeds it increases in size and the tunnel is enlarged accordingly. As the tunneling proceeds the tip of the twig continues to wilt and finally dies. Usually before the twig has completely dried the insect leaves it to find another feeding place in which to spin a cocoon if it has fully developed. Injury is first noted in the fruit of

peaches about the time the fruit is the size of chestnuts or slightly larger. The larvae bore into the side of the fruit and tunnel through the fruit until they are fully developed, emerging sometimes at the point of entrance but most generally through another hole. Varieties of peaches ripening after the first of August are all subject to severe injury. Fifty per cent or more fruit in an apple orchard (Ben Davis) were injured, and from $1\frac{1}{2}$ bushels of apples 354 larvae were reared."

Due to the habit of the insects hibernating as larvae in a cocoon spun in the most inconspicuous places such as small cracks in the bark, etc., it might easily be overlooked by inspectors when examining nursery stock. It has been taken in quarantine several times in California in oriental fruits and nursery stock, but has not as yet succeeded in gaining a foothold in this state.

Citrus Canker.

Citrus canker (*Pseudomonas citri*) was introduced into the gulf states from Japan and was first discovered in Florida in 1912. No disease of citrus in the United States has shown the evidence which characterizes this disease in the citrus groves in the southern states. Probably no campaign of eradication was ever undertaken with more vigor nor so successfully carried on as the campaign of eradication of citrus canker in Florida by the U. S. Department of Agriculture and the State Plant Board of Florida under the direction and leadership of Wilmon Newell. Though apparently successful, the eradication will be costly for more than 235,000 orchard trees and more than two million nursery trees have been burned to the ground. The disease attacks leaf, branch and fruit, and is fatal to the tree. California quarantine inspectors have found fruits and trees infected with citrus canker arriving at California ports from foreign countries both before and since the discovery of the disease in the gulf states.

CONCLUSION.

It is worthy of note that during the biennium covered by the foregoing report, no major pest has succeeded in gaining a foothold in California. While insect pests and plant diseases are undoubtedly being retarded in their spread in other states, they are nevertheless making progress in distribution, in some cases at an alarming rate despite quarantine and control measures.

With her tremendous agricultural and horticultural interests and with her fortunate condition of freedom from many destructive pests, California should spare no effort to prevent the entrance of insect pests and plant diseases. In order to accomplish this purpose the forces of inspectors at the maritime ports should be so strengthened as to insure thorough inspection of all vessels, baggage and cargo, and freight and express matter which can in any way or in any degree jeopardize California's agriculture and horticulture.

The disinfection of box cars that have carried plant products in any state should be vigorously carried out not only at the ports but at all interior points.

The county horticultural commissioners and inspectors in performing their duties as state quarantine guardians should be given every assistance by the State Department of Agriculture.

Terminal inspection of plant products in the United States mails should be effectively enforced.

Proper recognition should be taken of the importance of inspecting tourists' automobiles entering California from other states, and enough men provided to properly perform this very necessary function at all border points of entry.

Investigation of pests in other states and localities should be made in order that intelligent quarantine action may be taken.

Contact with the Western Plant Quarantine Board should be maintained, and every effort should be made to strengthen this organization to the end that all western agriculture be benefited.

The existing close cooperation with the U. S. Department of Agriculture should be continued, and if possible strengthened for it has most certainly proved mutually advantageous and beneficial.



THE VITICULTURAL SERVICE.

R. L. NOUGARET, *in Charge*.

ANNUAL GRAPE REPORT.

According to legislative enactment the Viticultural Service publishes an annual grape report. Report No. 3 discusses the status of the grape industry of California for the fiscal year ending June 30, 1922. This report contains statistical tables with reference to the 1921 crop of wine, table and raisin grapes. The valuation of the crop is given in respect to each of the three classes of grapes, which amounted all told to \$69,101,730.

The report reviews the progress achieved by California's grape industry during the five years from 1917 to 1921, inclusive, through the presentation of statistical tables showing the size of the different grape crops, the production of industrial wines and grape products other than raisins, the tonnage of the different raisin crops according to variety, the valuation of the yearly grape crops and the increase in the number of cars used in interstate shipments of grapes of the wine and table varieties from 1916, when the first wine grapes were shipped, up to and including the shipments of 1921.

The 1921 interstate shipments of all grapes from California are tabulated monthly for each of the grape growing counties with the object of indicating the car requirements for that year, the time when needed and the period of the peak of shipments.

One of the main features of this annual report is a forecast of the impending car shortage for the shipment of grapes during the 1922 season because of the vast increase in production. The causes of this increase are discussed in detail and figures given in support of the prophecy. An estimate of monthly requirements of refrigerator cars for the vintage of 1922 is given in tabulated form for the three principal shipping divisions of the state, northern, central and southern, indicating that whereas in 1921 the interstate shipments amounted to 30,623 cars, not less than 42,136 cars would be needed in 1922. This shows a surprising increase of approximately 12,000 cars within the short space of one year's time.

With a view to keeping California grape growers informed on various subjects of interest to them, whether of domestic or foreign origin, an appendix is added to this report covering the following subjects: Carlot shipments of eastern grapes from all the states of the Union, California excepted; foreign exports of grapes from Chile, Argentina, and Brazil; statistical tables of imports into the United States of raisins, Zante currants, fresh grapes and wines for 1921, and also for the four preceding years. The report may be obtained upon application to the State Department of Agriculture.

CAR SHORTAGE SERIOUS MENACE TO GRAPE INDUSTRY.

During the vintage of 1921, at a time when the peak of interstate shipments was reached throughout the state, Napa and Sonoma counties, which grow wine grapes almost exclusively, experienced a more serious shortage of cars for shipping grapes out of the state than most other counties. This condition was largely brought about from lack of experience in shipping wine grapes in the fresh state to eastern markets. The shipment of wine grapes in such large quantities was practically a new industry and concerted action was lacking between growers and buyers on the one hand and the transportation companies on the other in determining in advance the tonnage to be shipped and the consequent number of cars needed.

With the object of furnishing the railroads with this information concerning wine grapes for the 1922 vintage, a survey was made early last spring of the coast counties, which grow wine grapes exclusively, to ascertain the acreage and average tonnage per acre. This work was performed by the Viticultural Service with the helpful suggestions of the California Grape Growers' Exchange and the resulting information was furnished the railroads as a preliminary report. The prediction early in the year of a car shortage for interstate shipments of the 1922 crop would have been amply substantiated, but other complications arose to increase this shortage. The grape crop for California turned out to be about 15 per cent greater than normal and uniformly large crops in eastern producing states were responsible for the retention of refrigerator cars on eastern lines part of which in former years came west to help out the California situation. In addition the railroad strikes throughout the country, prior to the grape shipping season, accentuated the car shortage. A considerable portion of the crop of several varieties was left on the vines awaiting cars, principally Tokays, Muscats and Emperors. A small proportion was salvaged at very low prices. Notwithstanding these facts more cars were shipped this season than in 1921, when the interstate shipments amounted to 30,623 cars. This year up to December 4 the number of interstate shipments approximate 45,600 cars, of which about 6,950 were box cars. Box cars were used in an effort to save a part of the crop, when refrigerators could not be obtained, but the results in most cases proved disastrous as the grapes arrived at destination in very poor condition.

The question of inadequate transportation has become the most serious menace to the grape industry. Concerted action on the part of all grape growers and shippers of California is absolutely necessary if the disastrous experience of the past season is to be averted in future years.

GRAPE PESTS AND DISEASES.

Grape Mealybug.

Grape mealybug infestation this year has been light and has caused but slight damage to the grape crop. The insect, however, has continued to spread, according to reports received from San Joaquin County. No efforts should be spared in trying to discover a control for this pest before it becomes universally spread throughout the vineyards of the state.

Grape Phylloxera.

A survey conducted by the Viticultural Service for the purpose of determining phylloxera infestation in counties where as yet the presence of the insect has not been found has given the following results which have been submitted as a report to the Bureau of Pest Control.

Merced County, no infestation found. The older vineyards are established on sandy and sandy loam soils but little susceptible to phylloxera propagation. Vineyards on the heavier type of soils which are susceptible are all too young to show by their growth definite indication of infestation.

San Diego County, no phylloxera found. Old vineyards are established on soils fairly susceptible to phylloxera infestation.

Madera County, phylloxera infestation discovered in old wine grape vineyard.

Of the many acres planted to wine grapes in seriously infested localities but a relatively small acreage has been planted on resistant root stock. A general survey of the State to ascertain the total acreage planted on resistant roots, the variety of resistant vines used, and the practical results obtained in regard to the nature of the soils and localities, is one of the most valuable services which can be rendered to the grape industry. This survey has never been made and the lack of this information is one of the principal reasons why so little planting is done on resistant roots.

Black Mildew.

This vine disease, black mildew, the cause of which is unknown, also called Spanish measles, is now being studied through the efforts made by the Horticultural Commissioner of Fresno County and the Sun-Maid Raisin Growers in having a pathologist assigned by the U. S. Department of Agriculture to investigate grape diseases.

Nematode.

The infestation of grape vine roots by the nematode seemed, until recently, be confined to nursery stock. For the past several years nurseries have sustained annual losses of several hundred thousands of rooted grapevines.

These vines were condemned by horticultural authorities because of rootknot caused by nematode. Upon further investigations carried out this year several vineyards established on sandy soils, were found to be stunted and on the decline, due to nematode infestation of their roots. The Viticultural Service established last spring a small grapevine nursery in Orange County on rich sandy loam soil known to be heavily infested with nematode. Twelve varieties of vinifera grapes commercially grown in California and twelve varieties of phylloxera-resistant vines were planted in the nursery for the purpose of discovering the degrees of susceptibility, or immunity, to nematode of the various varieties of commercially grown grapes. It is the hope to continue this work until practical results are forthcoming.

THE DIVISION OF CHEMISTRY.

GEO. P. GRAY, *Chief.*

FUNCTION OF DIVISION DEFINED.

The clearly defined functions of the Division of Chemistry are to be responsible for all the chemistry work required by the department; and to carry out the instructions of the Director of Agriculture in the administration of those laws, the major part of which consists of the examination and analysis of products offered for sale.

Concretely stated, the activities of the division are as follows:

1. Administration of the Fertilizer Law:
 - a. Registering and licensing manufacturers and dealers.
 - b. Collection of tonnage taxes.
 - c. Sampling and analyzing all brands of commercial fertilizers offered for sale and publishing the results.
 - d. Prosecuting those who sell commercial fertilizer without license or payment of tonnage taxes.
 - e. Prosecuting those who sell commercial fertilizer without proper labels, which is below the guaranteed analysis; and those who sell animal manures with artificially added sand or water.
2. Administration of the Economic Poison Law:
 - a. Registering and licensing manufacturers and dealers.
 - b. Sampling and analyzing substances offered for sale in the state to be used for the control of insects, fungi, weeds and rodents, and publishing the results.
 - c. Prosecuting those who sell economic poisons without license.
 - d. Prosecuting those who sell adulterated or misbranded economic poisons.
3. Chemical and bacteriological examination of dairy products as required by the Dairy Inspection service of the Division of Animal Industry and furnishing expert testimony in court cases.
4. Testing and certification of all instruments used by creameries to determine the percentage of butterfat in milk and cream.
5. Analysis of miscellaneous substances required by other divisions of the Department. This has included the analysis of fruits for the Bureau of Standardization, and toxicological examinations of stomach contents and various organs of cattle and other live stock, feed, and water in suspected cases of poisoning for the Division of Animal Industry.
6. Testing of instruments and supplying standard solutions for all County Horticultural Commissioners making the 8 to 1 test to determine the ripeness of oranges, and instructing these officials and their deputies and inspectors in the technique of making the test.
7. Public service:
 - a. The analysis of economic poisons, fertilizers, and allied substances such as agricultural lime, gypsum, and so-called soil stimulants for public officials and individuals.
 - b. Analysis of milk and cream for individuals.
 - c. Correspondence, personal visits and conferences pertaining to the activities outlined.
8. Investigations:
 - a. Chemical and bacteriological investigations to improve the quality of dairy products and to prevent and detect spoilage.
 - b. Chemical investigations to obtain information when needed for the intelligent enforcement of the various laws administered by the Department.

The foregoing outline has been followed in the preparation of the following report:

ADMINISTRATION OF THE FERTILIZER LAW.

A detailed report of the administration of the Fertilizer Law for the fiscal year ended June 30, 1922, prepared by Mr. Geo. E. Colby, chemist and assistant chief of the division, was published as Special Publication No. 29 of the department. This report is briefly summarized as follows:

Registering and Licensing Manufacturers and Dealers.

During the year, 56 individuals and firms registered with the department were authorized to sell a total of 208 brands of fertilizers, not including samples and "specials" compounded to order. These 208 brands are classified as follows:

Nitrogenous phosphates with potash (a few without potash) -----	151
Superphosphates -----	2
Bone and tankages -----	23
Blood, cottonseed meal, fish and chemicals -----	32
	208

Fertilizer Tonnage.

The use of fertilizers in the state is steadily on the increase, as may be seen from the reported tonnage for the past three years.

Section 8 of the fertilizer law requires a quarterly sworn statement of the amount of commercial fertilizer sold by each registered manufacturer and dealer. The following tabulation of the reports will serve to give a general idea of the movement of fertilizers for the different seasons for three years during which the fertilizer law has been administered by the State Department of Agriculture.

Fertilizer Tonnage Reported by Quarters for the Years Indicated.

Quarter ended	Fiscal year ended June 30		
	1920	1921	1922
September 30 -----	8,726	10,767	11,563
December 31 -----	13,002	16,471	16,459
March 31 -----	27,351	31,892	33,033
June 30 -----	11,791	12,715	20,215
Totals -----	60,870	71,845	81,270

Reports of Analyses.

The Fertilizer Law requires that each lot of fertilizer shall be labeled stating the guaranteed percentages of nitrogen, phosphoric acid, and potash, and the sources from which these components are derived. Inspectors of the division collected 539 samples of fertilizers from manufacturers, dealers and purchasers. These were analyzed in the laboratory to determine their compliance or non-compliance with the guarantee stated on the labels.

Nearly half of these samples (213) were taken up from purchasers and within ten days a report of analysis was made to the buyer and a copy also sent to the manufacturer and agent. While this method of inspection is much more expensive than the drawing of samples at warehouses, it is believed to be of such effectiveness as to fully justify the additional expense. The producer who is confident that his goods

will pass inspection welcomes this sort of inspection knowing that an official report that the sample "passes" goes a long way in making a satisfied customer. On the other hand, the producer who is doubtful about compliance with guarantee, or the one who is trying to "get something by" does not relish a "deficient" report placed in the hands of his customer, and the consequent rebate in the purchase price which the customer usually demands.

Prosecutions.

The inspection service for the division has been materially increased during the year by the addition of two field men and the appointment of Mr. T. M. Pierce as chief inspector with headquarters at Sacramento. One inspector has been assigned to the territory south of the Tehachapi mountains with headquarters at 1028 Pacific Finance Building, Los Angeles.

In addition to the routine collection of samples, the inspectors have investigated the sales of non-licensed and mislabeled fertilizer shipments. It has been necessary in some instances to resort to court action for violations of the provisions of the law covering registration and labeling. In one instance a manufacturer was fined \$250 for failure to label his product. In no instance has the division overlooked the opportunity to investigate sales reported to be in violation of the labeling or registration provisions of the law and so effectively has this work been carried out that it is now believed that there is practically no unlicensed goods on the market at the present time. Under the improved inspection service the division is able to make an investigation within forty-eight hours after the information is received.

In accordance with the policy of the division in enforcing those provisions of the law concerning the maintenance of guarantees, a new system of records has been installed which will show the daily standing of the various brands and kinds of fertilizer registered as the analyses of the samples are reported from the laboratory. The inspectors will concentrate their attention to those brands and kinds, the analyses of which indicate that they are not being kept up to the guaranteed standard.

Vigorous investigation of the adulteration and sale of products under the original tags of licensed manufacturers by unscrupulous agents and retailers will be carried out during the coming year. Every possible protection will be given the consumer and the registered dealer against this fraudulent practice.

Red quarantine tags have been provided and will be placed by the inspectors on all lots of mislabeled fertilizers being offered for sale by retailers and agents. The removal of the lot before the tags have been taken off by the inspector will be *prima facie* evidence of the wilful intent on the part of such retailer to violate section one of the law and complaint will be filed by the department without delay. This method of procedure is a means of preventing an unintentional violation of law and also of informing the registered manufacturer that his employees have neglected to properly tag the goods before shipment to the retailer.

Inspectors have been advised that, while it is their orders to make a complete investigation of all cases of violation of law and to secure evidence for possible court action, it is also an important part of their duty to visit and assist in every possible way the manufacturers of and dealers in commercial fertilizers in their territory to comply with the law. To prevent violations rather than to detect crimes is the law enforcement policy of the inspection service of this division.

ADMINISTRATION OF THE ECONOMIC POISON ACT.

The California Economic Poison Act of 1921 is much more complicated and covers a much wider range of products than the Fertilizer Law. This law only came into operation on August 2, 1921, and includes several features not covered by any other law in the United States. The California Insecticide and Fungicide Law, which was repealed by the Economic Poison Act, was supported by an annual appropriation of five thousand dollars, a sum totally inadequate for its enforcement. Furthermore, this law did not provide any form of regulation of the sale of weed and rodent poisons. The newer law reenacts most of the important provisions of the repealed Insecticide and Fungicide Law in regard to adulteration and misbranding. The new features embodied are the regulation of the manufacture and sale of both rodent and weed poisons which heretofore had not been covered by any law in this country. Another interesting feature of this law is that the Director of Agriculture is given authority to cancel a license or refuse a license for the sale of any economic poison (insecticide, fungicide, herbicide or rodenticide) which has been shown to be either worthless for the control of pests or seriously injurious to vegetation or domestic animals. It also gives the director authority to revoke the license of any one who repeatedly violates the law.

In the administration of this law the procedure adopted was:

First, to pay especial attention to the registration of manufacturers and dealers and insist that every brand, trademark and kind of economic poison offered for sale in the state be registered with the department;

Second, to see that each is properly labeled;

Third, that the contents of the package complies with the guarantee on the label; and

Lastly, to investigate the effectiveness or injuriousness of all doubtful products looking toward the cancellation of license and thus prohibiting their sale if found to be worthless or seriously injurious to agriculture.

Registering and Licensing Manufacturers and Dealers.

The first item on the program has received by far the greatest amount of time and energy and has assumed much larger proportions than anticipated. The registration of all manufacturers who are doing business in the state has been accomplished without the necessity of court action, except in two instances.

The number and classification of licenses issued to date are shown below:

Regular paid licenses	173
Exempted fee licenses to County officials selling at cost	34
Manufacturers of household remedies selling less than \$500 per annum--	42
Total	249

The total number of products registered by these 249 licensees is 1057, and are of such a diverse character that some of them are stocked by nearly every class of merchant in the state.

Reports of Analyses.

The sampling and analysing of economic poisons during this and the previous year were carried out primarily for the purpose of making a general survey of the whole field in order to determine what class of materials should receive special attention. The results of these examinations have been tabulated and are now in the hands of the printer and will be available for distribution as a special publication of the Department. The scope of this work may be judged by the following tabulation of analysis made:

ECONOMIC POISONS EXAMINED.

For Period July 1, 1920, to June 30, 1922.

	Total number samples examined	Total number official samples
Arsenicals:		
<i>Insoluble</i> —		
(a) Dry lead arsenate	26	19
(b) Lead arsenate paste	2	1
(c) Calcium arsenate	1	0
(d) Paris green	3	1
(e) Zinc arsenite	1	1
<i>Soluble</i> —		
Sodium Arsenite		
* (a) Ant poisons	8	7
(b) Herbicides (weed poisons)	8	3
"White arsenic" (grasshopper poison)	3	3
Insoluble Copper Compounds:		
Bordeaux Mixture	17	16
Cyanides:		
(a) Liquid Hydrocyanic (Prussic) Acid	19	19
(b) Potassium Cyanide	1	0
Sulfur and Sulfur Compounds:		
(a) Sulfur (Insecticide and Fungicide)	12	3
(b) Lime-Sulfur Solution	21	6
(c) Dry Lime-Sulfur	17	10
(d) Soda-Sulfur	5	4
(e) Barium-Sulfur (B. T. S.)	4	3
Oils:		
(a) Miscible Oils and Emulsions	23	20
(b) Insecticide Oils (Petrolic & Tar)	8	3
Vegetable Poisons:		
<i>Nicotinic Preparations</i> —		
(a) Nico and Nicotine Dusts	38	23
(b) Nicotine-Sulfur Dusts	32	18
(c) Nicotine and Soap	4	1
(d) Nicotine-Sulfur Pastes	2	2
(e) Nicotine-Sulfur-Lead Arsenate Dusts	4	4
(f) Tobacco Dusts	24	12
(g) Liquid Tobacco Preparations	6	6
<i>Strychnine Preparations</i> —		
(a) Poisoned Grain	20	3
(b) Poisoned Dried Fruit	2	1
(c) Tablets	1	0
Miscellaneous Proprietary:	43	16
Total number samples analyzed	355	205

*Including two antimony, tartar emetic.

The time of the inspectors for the past year has been taken up largely in clearing the market of old and worthless economic poisons which were sold and delivered previous to the enforcement of the law, the manufacturers of which have long since gone out of business. This work is nearly completed and the materials now being offered for sale are, in general, stocks which have been inspected and passed by the department.

It is the intention of the inspection service to investigate the various materials just previous to the season in which they will be used. In this way the consumer will be sure of obtaining material for use which is up to standard. It also will enable the department to determine as to whether materials are available on the market in time to obtain the greatest advantage in the control of the several pests for which they are used.

It also is planned to offer the services of the inspectors and laboratory to the consumer and to take up samples of material in the orchard at the time of application in order that such consumer may have the advantage of the chemical analysis as a check on the results obtained. A large number of requests have been made for this latter service but, due to the inadequate financial support of the law, it has not been possible to install this service.

Prosecutions.

The Division of Chemistry has filed complaint only in two instances and both were for offering an economic poison for sale without having first registered with this department. Both parties filed against have now registered and otherwise complied with the law.

While a number of instances have come to the attention of the division which could be used as the basis of court action, it has seemed the best policy to give all of the manufacturers and dealers an opportunity to become fully acquainted with the law before taking legal action.

The survey of materials which has been discussed in the foregoing is to be used as the basis of further inspection by the division. Whenever it appears that it is a customary practice for any company to market an adulterated or misbranded economic poison, they will be notified of the fact. If after notification steps are not taken to improve conditions, complaint will be filed against the firm.

OPERATION OF THE DAIRY LABORATORY.¹

The dairy laboratory is operated by the Division of Chemistry for the purpose of making chemical and bacteriological examination of dairy products required for the enforcement of the dairy laws of the state and to assist producers and manufacturers in complying with these laws.

The work for the period January 1 to December 1, 1922, may be tabulated under the following heads:

1. Examination of dairy products for the maintenance of the standards established by law.
2. Examination of milk and cream for checking the accuracy of factory testing.

¹C. F. Hoyt, Chemist in charge.

3. Examination for accuracy and for compliance with legal specifications of testing apparatus.
4. Examination of samples from individuals, (usually as a means of adjusting controversies).
5. Assembling of data as a basis for rulings required by law.
6. Work necessary for the proper carrying out of the dairy laws.
7. Miscellaneous work for the good of the industry.

Laboratory and Equipment.

For doing this work the laboratory was established in new quarters at the opening of the year 1922. It was equipped for chemical and bacteriological work on dairy products and a force for doing the work was assembled. While, of course, the small amount of equipment and supplies already on hand was utilized, practically the complete installation of a new laboratory was involved.

With the establishment of the laboratory in these new quarters the space allotted for the work was divided into four rooms, and plumbing, gas and electricity necessary for laboratory work were installed. Laboratory benches, cabinets and other equipment were built and installed and glassware, chemicals and other supplies were purchased.

For making accurate determinations of values in various dairy products, certain of the more progressive factories have been using an apparatus called a "Mojonnier Tester." As tests made by this department on these dairy products in the past were of necessity made either by a method which was less accurate than that used by the manufacturers, or by a method which consumed a very large amount of time, one of these Mojonnier testers was purchased. Although the first cost of this machine was considerable it places the department on a basis of equality with the more progressive factories and provides means for examining a largely increased number of samples with a maximum of accuracy and a minimum of expenditure of time.

Factories of dairy products are licensed to purchase milk and cream on the butterfat test and the men in the factories who make the tests are under license. Likewise the method of making the test and keeping the records by such concerns is strictly regulated. One of the several requirements is that samples must be retained by the factory for forty-eight hours. Much work is regularly done by this laboratory in checking these tests of milk and cream. Prior to the establishment of the new laboratory the department had never been supplied with any facilities for doing this work which were at all adequate or comparable with the facilities in the better equipped factories. Therefore a steam driven Babcock tester, a gas-heated boiler for generating steam for running this tester and concrete bases for both were installed. Thus the essential conditions are supplied for making routine Babcock tests for butterfat in the same manner as in factories of dairy products, and with a degree of accuracy equal to that in the best of them.

The law of this state establishes standards for all the glassware used for testing in factories of dairy products and provides that it must all be examined for accuracy by this department. Thus, thousands of pieces of glassware are annually examined for accuracy. Such glassware is required by law to be permanently marked. A mark should be

used that is actually permanent, that cannot readily be duplicated and of reasonably good and uniform appearance. Therefore a sand blast with an electrically-driven compressor for supplying compressed air for it has been put in. It is believed that no complaints or criticisms of the method of marking this glassware will be heard hereafter.

Glassware for handling a large number of samples for bacteriological examination has been obtained, and containers suitable for shipping samples for bacteriological examination from points at a distance from Sacramento were devised and have been constructed. Apparatus for taking such samples and containers for same also have been devised and constructed. Therefore the laboratory is now in a position adequately to handle routine work of this nature.

Much other apparatus of a minor character and a supply of chemicals have been acquired by purchase or constructed according to design. These materials are a vital necessity for doing any real chemical or bacteriological work.

In addition to the chemist in charge a force of two chemists, a bacteriologist, a laboratory assistant and a stenographer are employed.

Removal into the new quarters was made as soon as they were made ready for occupancy, about the first of January. As is always the case under similar circumstances, much time had to be consumed in arranging apparatus and putting the place in smooth running order. Nevertheless the ordinary work was continued and preparations were made for handling the larger volume of work required for the actual enforcement of the dairy laws.

Examination of Samples for Maintenance of Legal Standards.

There are legal standards and definitions for the following-named articles:

Milk	Cheese, half skim
Skim milk	Cheese, skim
Condensed milk	Buttermilk
Evaporated milk	Ice cream
Condensed skim milk	Fruit ice cream
Cream	Nut ice cream
Evaporated cream	Ice milk
Milk fat	Goat's milk
Butter	Sheep's milk
Cheese, full cream	

Samples of these products are gathered and submitted by the inspectors of the Dairy Service. Table No. 1 shows the number examined and the results.

Table No. 1.

Article	Above standard	Below standard	Total
Milk -----	97	1	98
Cream -----	18	---	18
Butter -----	112	82	194
Cheese -----	50	30	80
Skim milk -----	5	---	5
Ice cream -----	44	4	48
Evaporated milk -----	11	3	14
	<hr/> 337	<hr/> 120	<hr/> 457

Examination of Samples for Checking Accuracy of Factory Testing.

Samples of milk and cream are gathered and submitted by the inspectors of the Dairy Service from the various factories. As mentioned earlier in this report, the factories are required to hold their samples for forty-eight hours. The inspectors thus are enabled to pick them up and send them in. As this was a recent provision of the law, considerable effort had to be expended in devising proper methods of handling these samples, so that they might reach the laboratory in satisfactory condition for testing. Since these methods were developed these samples have been coming in in rather large numbers. Table No. 2 shows the number tested.

Table No. 2.

Milk -----	53
Cream -----	605
	<hr/> 658

Examination of Testing Apparatus.

It has long been the law in this state that the glassware and other apparatus for testing used by factories of dairy products must be tested for accuracy and for compliance with legal specifications by this department. Through the adoption of the Simpson apparatus for calibrating and the sand blast for marking this glassware, the speed with which the work can be done has been very materially increased. Table No. 3 shows the amount done and the results of the work.

Table No. 3.

	Approved	Not approved	Total
Babcock bottles -----	27,693	923	28,616
Pipettes -----	2,199	542	2,741
Lactometers -----			32
9 g. and 18 g. weights -----			30
	<hr/> 29,892	<hr/> 1,465	<hr/> 31,419

Individual Samples.

A noteworthy development has been that a large number of persons have taken advantage of the facilities supplied by the laboratory for their welfare.

Individual samples come:

1. From persons dissatisfied with their tests at the factory.
2. Where there is the suspicion of disease.
3. From factories where, for instance, one is buying and one is selling milk or cream and their results do not agree.
4. As the result of the activities of local authorities having to do with the milk supply.
5. From various other sources.

Table No. 4.

Milk -----	150
Cream -----	353
Butter -----	11
Cheese -----	10
Skim milk -----	17
Buttermilk -----	17
Ice cream -----	2
Miscellaneous -----	10
Total -----	<hr/> 570

Assembling of Data As a Basis of Rulings.

The last legislature passed a law authorizing the Director of Agriculture to establish a standard of moisture in cheese. In order that the director might have a basis for making an intelligent ruling, the laboratory, in cooperation with the Dairy Service, assembled representative cheeses, analyzed them and submitted the findings to a board of cheese experts who had been assembled for the purpose of considering these results in relation to the scores which they put on the cheeses. As a result of this work a standard has been established for cheddar cheese and standards probably will be issued soon for the California granular type and the jack or Monterey type of cheese.

As already mentioned, the law requires factories of dairy products to hold their samples for forty-eight hours in order that their tests may be checked by this department. The kind of container in which they are held is a matter of much importance for the accuracy of these check tests and a ruling on the matter by the Dairy Service may be required. Consequently considerable work has been done to learn the effect of holding in different kinds of containers.

A matter closely related to this is that of the proper reading of the fat column in the Babcock test on milk. The contention was raised that the present directions for reading worked a hardship on purchasers of a certain class of dairy products and the department was asked to investigate the matter. It was one which closely affected the execution of the law. Therefore a large amount of very careful work was done, involving a comparison of results obtained by several different methods on the same samples. A detailed description would be too long for this report but it will be made in an appropriate place. As a result of the work it may be found necessary to recommend a change in the present law.

Work Necessary for the Proper Carrying Out of the Dairy Laws.

An appreciable amount of time has been consumed by the laboratory force in the study and the trying out of methods suitable for some of the more difficult examinations. Also a considerable amount of time has been consumed in familiarizing newly appointed dairy inspectors with methods to be used in the field, in examining apparatus to be used by them and in preparing reagents for their use. Further time has been spent in the development of methods to enable inspectors more accurately to judge the quality of dairy products which it is their duty to inspect.

One such study has been made with a view to enabling inspectors the better to judge the quality of milk intended for manufacturing purposes. Comparisons have been made between the acid test, the sediment test, a modified alcohol test and the direct count for bacteria on 170 samples of such milk. As a result of this work the value and the limitations of each of these tests is better understood and it is believed that it will be possible shortly to place a definite system in the hands of these men.

Another study relating to the effect of cooling milk and cream has been carried on for the purpose of furnishing inspectors definite information as the basis for a legal requirement it is their duty to enforce.

Miscellaneous Work.

Exhibits have been prepared for the State Fair and for other fairs. Time has been given for the judging of 102 samples of milk and cream entered in competition at the Pacific Slope Dairy Products Show. Some time has been consumed in investigating serious problems of a chemical or bacteriological nature which have arisen in certain factories of dairy products.

Summary of Work.

Table 5 shows the work done on the various classes of products throughout the year.

TABLE 5. *Samples Examined.*

Milk	602
Cream	1034
Butter	205
Cheese	126
Skim milk	22
Buttermilk	17
Ice Cream	50
Evaporated Milk	14
Neutralizers	3
Miscellaneous	10
Butter substitutes	10
Bacteriological Examinations	1361
Total	3454
Pieces of apparatus examined	31,419

CHEMICAL WORK FOR OTHER DIVISIONS.

The Division of Chemistry acts in an advisory capacity on chemical matters for the other divisions of the department. While comparatively few samples have been analyzed, this work has consumed no small portion of the time of the division. No special provision is made in the budget for work of this type and the work done is supported by funds available to the division for other purposes. If this type of work is enlarged in order to fully meet the demands, a provision should be made in the budget.

Testing Instruments for County Officials.

The division has furnished standard solutions to all County Horticultural Commissioners which are required to make the 8 to 1 test to determine the ripeness of oranges. Previous to the shipping season a chemist has visited each horticultural commissioner and given instructions to these officials, their deputies and inspectors in the technique of making the test and has checked up burettes and hydrometers used in making the test. It has been necessary to depend upon the Bureau of Standardization to meet the necessary traveling expenses for this work.

Public Service.

The division has handled 205 samples as a public service. This work has been done for county horticultural commissioners and farm advisers to supply them with information concerning economic poisons and fertilizers offered for sale in their territory.

Soil Amendments.

In connection with the enforcement of the Fertilizer Law, the sale of a variety of minerals under the guise of commercial fertilizers has been energetically investigated by the division. During the past fiscal year 35 samples of lime, marl, gypsum and sulphur were analyzed by the division in order to determine to what extent the growers were being supplied with a high grade material. Publicity given this matter has caused a very great improvement in the quality of these minerals sold for the improvement of the soil. Some of them which were formerly sold as commercial fertilizers and advertised that they contained nitrogen, phosphoric acid and potash have discontinued these misleading advertisements. An effort is now being made by many of these companies to market their products on their merits rather than as commercial fertilizers.

The most important result of this investigation is that the producers themselves now see the desirability of some form of state law which will regulate the sale of minerals of this character. A conference was called of all of the producers of lime, marl, gypsum, sulphur and similar materials, at which the matter of legislation was thoroughly discussed. The conference was attended by about sixteen persons and was fully representative of the industries involved. It was unanimously voted at this conference that some form of legislation should be enacted in order to raise the standard of the products marketed and to place the competing companies on a more equal footing.

The chief of the Division of Chemistry was requested at this conference to appoint a committee of five to consider the matter more in detail. This committee met and went into the matter rather carefully, and is to confer with a similar committee appointed in the same manner composed of representative fertilizer manufacturers. The result of these meetings will doubtless be that a bill will be presented at the next session of the legislature designed to regulate the production and sale of natural minerals sold to increase the productivity of crops.

FERTILIZER CONFERENCES.

The custom has been established to call a semi-annual conference of all of the registered fertilizer manufacturers and dealers to discuss the administration of the Fertilizer Law. These conferences have resulted in a great deal of good and many matters which could have caused serious misunderstandings between the manufacturers and the department have been smoothed out in this way. The division feels that the majority of those engaged in the fertilizer industry are heartily in favor of the enforcement of the Fertilizer Act, and it is their desire to assist the department in its enforcement. This fact is indicated by a resolution adopted at the last conference as follows:

Whereas, The fertilizer manufacturers of the State of California have received courteous cooperation and helpful suggestions and treatment from the hands of the State Fertilizer Control officials headed by Prof. Geo. P. Gray, all of which have contributed splendidly to the fertilizer industry of the state and at the same time safeguarded the consumer, therefore be it

Resolved, That the representatives of the California fertilizer industry express to Prof. Gray and his associates of the Control their sincere appreciation and to offer to them their assurance of their own cooperation in the future.

A similar series of conferences is planned for the registered economic poison manufacturers and dealers.

SOURCES OF INCOME.

The administration of the Fertilizer Law is entirely self-supporting from license fees and tonnage taxes required by the law. The income is sufficient to provide for the energetic enforcement of this law. In most respects a law supported in this manner is ideal. As it is, the final result is a direct tax upon those who are benefited and the state at large is not obliged to pay for the improvement in the standard of fertilizers marketed.

The Economic Poison Law has been supported by an appropriation of \$5,000 annually carried over from the repealed Insecticide and Fungicide Act. In addition to this, the law requires a registration fee of \$50 for each firm registered. At the time of preparing this report 164 paid licenses have been issued. The net income therefore for the current year has been \$13,200. This amount, however, is wholly inadequate to effectively enforce this law. The products offered for sale are of such diverse character as to require the services of several skilled chemists in order to gain a knowledge of their composition and characteristics and to determine their value in pest control.

The Director of Agriculture has authority under this law to cancel a license or refuse a license for any economic poison which is worthless or which is seriously detrimental to agriculture. This feature was added to the law in order to provide for the suppression of the sale of such products which, although known to be worthless, are able to comply with all of the technical labeling requirements. It is fully realized, however, that this authority is not to be considered lightly and that before this authority is exercised it must be founded upon a very careful and impartial investigation. If this law is fully effective in this respect, it will be necessary to provide for funds to carry on investigations sufficient to warrant taking action against proven worthless materials.

In order to administer the Economic Poison Act and to provide for the miscellaneous work of the department, it will be necessary for the state to provide a substantial appropriation for the Division of Chemistry.

For carrying on the work of the dairy laboratory there was appropriated for the present biennium the sum of \$29,730. Fees for the examination of glassware are fixed by law at five cents for each piece examined. The sum derived from these fees for the fiscal year ended June 30th last amounted to \$1,254.25.

It may be said that the work of the dairy laboratory in the enforcement of the laws relating to dairy products depends for its effectiveness very largely on adequate laboratory support. To supply that support and to handle the increasing volume of work in any adequate way, without the employment of temporary help as in the past, additional facilities are needed and the force ought to be increased by at least two men.

DIVISION OF ANIMAL INDUSTRY.

REPORT OF CHIEF OF DIVISION.

By J. P. IVERSON¹.

ANNUAL LOSSES FROM ANIMAL DISEASES.

The United States Department of Agriculture in 1915 estimated that the annual loss from animal diseases in the United States at large, was from 200 to 250 million dollars. By calculating the relative per cent of swine, dairy and beef cattle, poultry and other classes of live stock in California, the losses on farms from animal diseases in this state may be roughly computed to represent about three millions of dollars annually. These losses are due not alone to the actual death of the animals, for shrinkage in values due to skin parasites is a very large item, and the continual annoyance produced by lice on cattle or hogs greatly reduces the gains in weight that normally should be made by young animals. The lowering of the vitality by skin parasites, it must be remembered, also permits other and more serious diseases to gain a foothold.

As usual during the year 1921-1922, a large portion of the time and funds of the Division of Animal Industry have been consumed in carrying on the routine disease control work among our live stock. Table 1 "Routine Disease Control Report" is a summary and indicates the amount of work accomplished under these special provisions.

TABLE 1. *Routine Disease Control Report.*
1921-1922.

Month	Tuberculin testing				Sheep scab control work			Specimens examined in state laboratory
	Herds tested	Animals tested	Reactors	Special field investi- gations	Inspected	Dipped		
November -----	761	6,734	340	15	207,828	51,581		12
December -----	948	9,068	361	20	192,791	30,789		8
January -----	1,560	10,009	537	20	79,198			2
February -----	1,263	8,986	712	20	40,632	965		5
March -----	1,485	9,638	928	10	443,204	35,394		7
April -----	1,226	8,022	652	22	325,210	23,569		6
May -----	868	8,620	536	16	291,734	113,083		6
June -----	881	10,876	586	17	143,222	49,055		2
July -----	1,198	10,775	705	48	102,714	12,281		3
August -----	1,699	17,483	907	35	66,153	18,627		8

Tuberculin testing is conducted as provided for under the Pure Milk Law, requiring all milk to be from tuberculin tested cows or to be pasteurized. (See special detailed discussion of tuberculosis eradication.) Sheep scab (Fig. 215) has decreased some during the past year but the disease is by no means eradicated. The infecting agent—the scab parasite—(Fig. 216) is very elusive. The heavy wool of sheep makes it especially difficult to destroy scab infestations although if the sheep are given two dippings in the standard baths required by this state and the United States Bureau of Animal Industry the parasite generally is completely eradicated. The chief difficulty arises in properly dipping every sheep in the band. If a single animal escapes or is improperly dipped it will in a short time reinfest the entire band of animals. Table 2 shows the number of investigations made of special diseases of live stock during the year by the month.

¹Chief of Division.

This work has been accomplished through the appropriation of special funds for controlling and eradicating transmissible diseases of livestock.

TABLE 2. *Investigations Made of Special Diseases of Live Stock During the Year 1921-1922.*

	Rabies.....	Anthrax.....	Blackleg.....	Glanders.....	Hog cholera.....	Diseases of cattle.....	Diseases of hogs.....	Diseases of horses.....	Diseases of sheep.....	Diseases of goats.....	Contagious abortion.....	Hemorrhagic septicemia.....
November.....	3	1	3	3	4	2	1	2	1	---	---	---
December.....	3	---	2	7	3	2	2	1	---	---	---	---
January.....	2	2	1	10	5	3	3	4	---	---	---	---
February.....	2	2	1	8	6	3	---	5	---	---	---	---
March.....	---	---	2	1	4	9	1	---	---	---	1	---
April.....	2	1	1	3	6	3	1	2	---	---	---	1
May.....	4	3	---	3	11	1	4	2	---	1	---	---
June.....	---	5	---	4	7	7	1	3	---	---	---	---
July.....	---	5	---	8	8	2	1	1	---	---	1	---
August.....	3	16	3	4	12	3	2	2	1	---	---	---

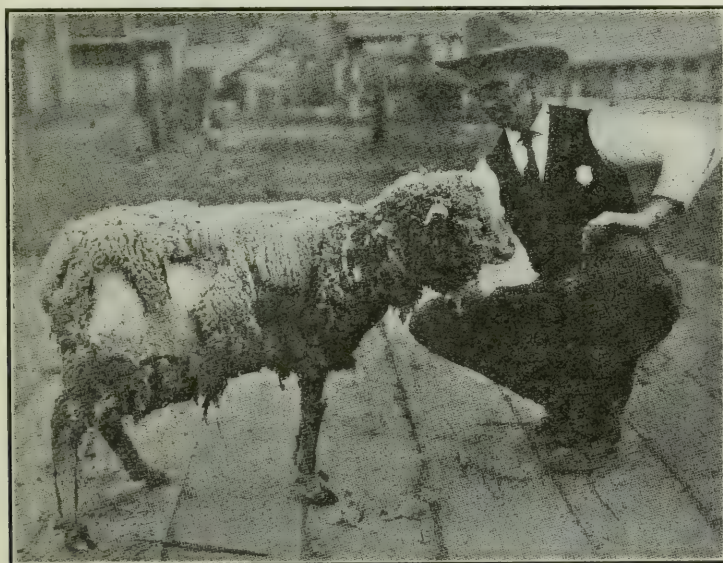


FIG. 215—Sheep scab.

If all investigations of live stock diseases were reported the prevalence of disease would appear much greater. Only two cases of contagious abortion have been investigated by members of the Division of Animal Industry during the year. This must not be taken to indicate that the incidence of this disease is very low, on the contrary it apparently is spreading quite rapidly. Only a few years ago contagious abortion was confined chiefly to the large dairy herds of our Eastern States but the large number of cattle annually imported into California has

brought to this state an increase of this disease. Many dairymen today believe that contagious abortion threatens the cow business probably more than any other menace. The Department of Agriculture does not yet recommend the use of abortion bacterins in the treatment and control of this disease, nevertheless there seems some evidence to support the use of so-called live cultures. It is interesting to note in this connection that during the year 1921-1922 two firms reported the use of 241,500 doses of such biologics in California. These figures will indicate the probable extent of the disease.

An idea of the extent of hog cholera in California can be roughly gleaned from an examination of Table 3, "Biological Products Used to Combat Hog Diseases During 1921-1922." The figures for 1922 would probably be in excess of those given which it must be remembered are by no means complete.

TABLE 3. *Biological Products Used During Year 1921-1922.*¹

Hog cholera serum.....	361,350 doses
Hog cholera clear serum.....	105,000 doses
Hog cholera virus.....	25,500 doses
Mixed infection vaccine.....	27,554 doses

¹This report represents but a small fraction of the actual products probably used. Only a small number of reports are made on the biologics used.

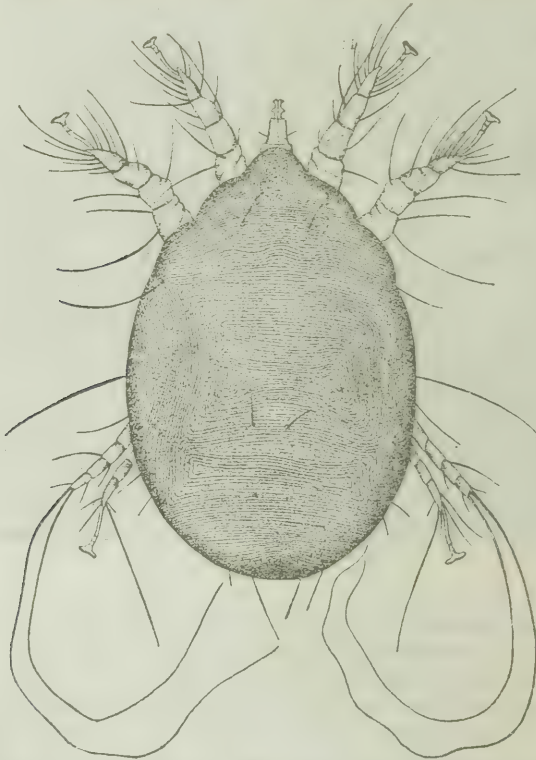


FIG. 216—Sheep-scab mite (*Psoroptes ovis*). Female. Dorsal view, greatly enlarged. (After Salmon and Stiles, 1898.)

The use of anti-anthrax serum and spore which has come into almost general use among live stock men during the past few years probably amounts to many hundred thousand cubic centimeters. It has been found that cattle, horses, swine and other livestock on anthrax infected grounds are in extreme danger of contracting the disease during the anthrax season unless prophylactic vaccination is resorted to. Immediate burning of animals that have died of this disease is imperative in addition to vaccination.

During the past summer several cases of anthrax have occurred in man in the northern part of this state. These cases emphasize the need of the greatest care being exercised by persons handling animals suspected of having died of the disease. Anthrax is one of the oldest known bacterial infections and is notoriously the most fatal of all dis-

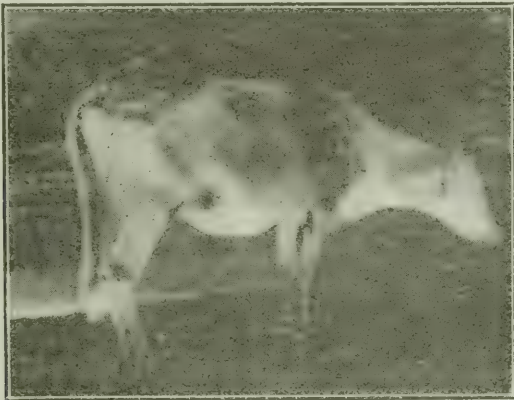


FIG. 217—Texas fever ticks attached to skin of cow.
Note the run down, emaciated condition of the animal.

cases in animals. Fortunately it often runs a benign course in man—seeming to localize and develop so-called carbuncles which condition has been found to often respond to treatment with anti-anthrax serum. When the disease becomes generalized as it usually does in animals, death results in from a few hours to a day or two at the most.

Blackleg continues throughout the state. Reports of losses, however, are becoming more and more infrequent since the introduction of the "Blackleg Aggressor" treatment. All owners of young cattle in districts known to harbor this disease now vaccinate regularly each year before the disease appears.

The Texas fever tick eradication work can be pointed to with much pride by California as it represents an accomplished fact. The disease (once involving about one-half of this state) has actually been eliminated, thus saving our live stock growers losses of many thousands of dollars. Figure 217 shows the serious effect of the Texas fever tick on a cow.

CATTLE SCAB.

During the past year a serious disease has threatened the cattle business of California. For many years cattle scab has been present in the United States and most of the foreign countries. It is quite remarkable that this disease has never yet secured a foothold in this state. Climatic conditions would be especially favorable for this disease here in California and it is little wonder that the Live Stock Quarantine Service became seriously alarmed on learning that a peculiar skin infection had

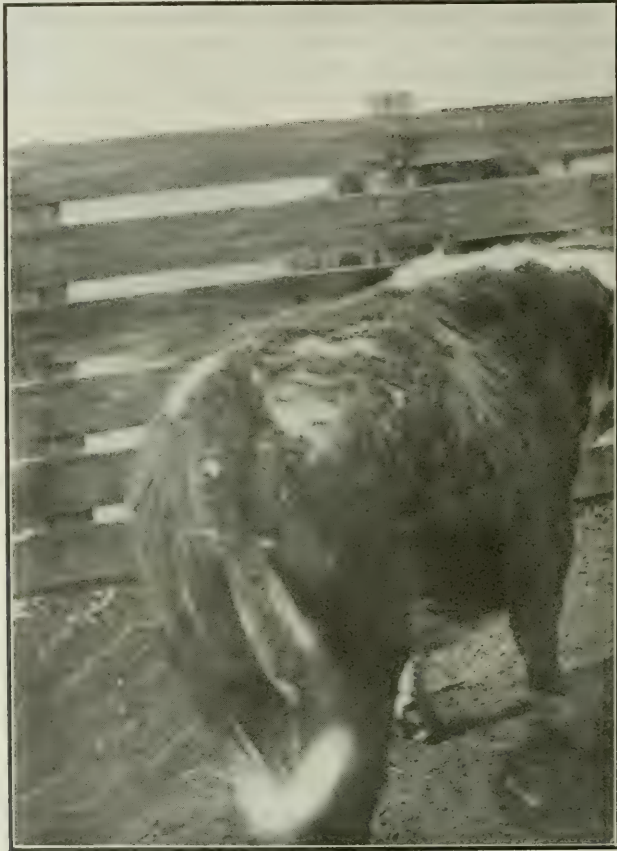


FIG. 218.—Effect of cattle scab on range cattle.

been reported found on a number of bulls that had recently been imported from Nevada. An experienced inspector from the Department of Agriculture was immediately detailed to make a thorough investigation of the situation and a diagnosis of typical cattle scab was made. Efforts to ascertain the point of origin of these particular animals resulted in tracing them from certain sections in Nevada. It was further found that other shipments had been sent to California and a campaign was started to run down each to its destination. As fast as

these were located the owners were required to immediately dip all diseased or exposed cattle in accordance with the standard regulations bearing on the control of this disease. After about four months of intensive work this procedure resulted in practically eliminating the disease from California. It was believed by those in charge that the campaign should not stop as long as there was danger of reinfestation from our neighboring state. A quarantine was therefore proclaimed against all cattle in two counties of Nevada entering this state. This immediately brought forth serious opposition from many of the large cattle raisers in Nevada who believed that California was taking undue interest in their affairs. The Nevada state live stock quarantine officer was notified that if shipments of cattle were to come to the California markets in the future, immediate steps must be taken to wipe out this disease from their state. Since a large proportion of Nevada cattle are sold in California, this meant that the Nevada live stock people would have to acquiesce to the demand of this state. Careful supervision of the dipping of scabby cattle is extremely important consequently inspectors were sent to Nevada to oversee the work at points where the disease was known to exist, thereby causing considerable expense to the Division of Animal Industry. It was believed that it would be to our interests to assist that state in stamping out the disease as quickly as possible otherwise it would be continually threatening our border. As a consequence the disease is now believed to be eradicated from the state of Nevada as well as California.



TUBERCULOSIS ERADICATION WORK.

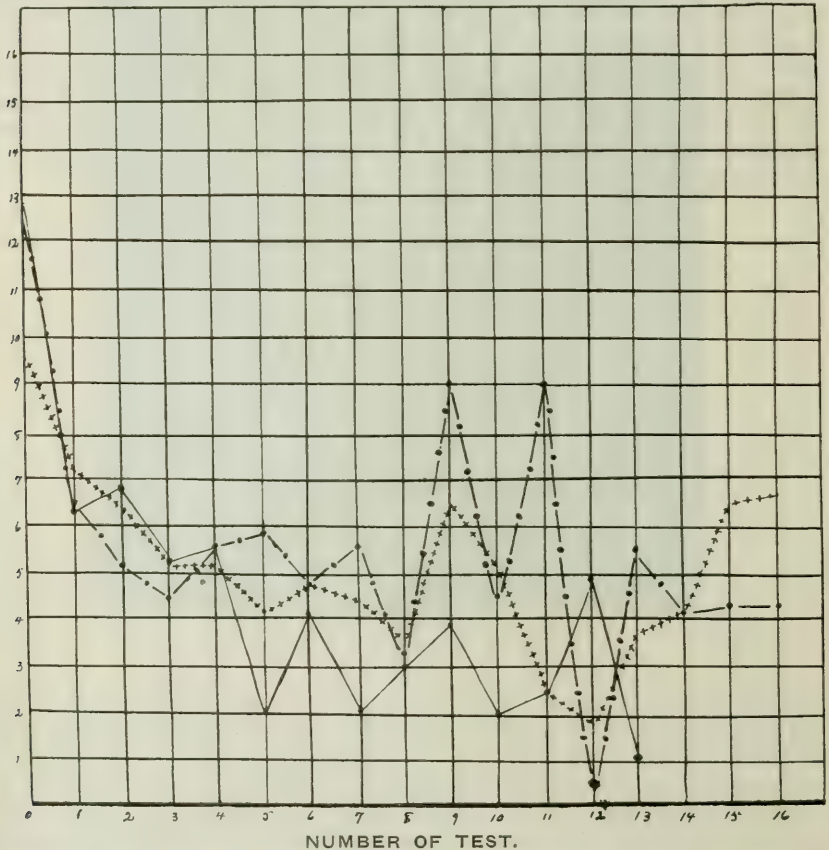
By J. G. JACKLEY.¹

Three distinct projects are in operation in this state aiming toward the eradication of tuberculosis from our domestic animals: (1) Tuberculin testing as conducted under the auspices of the Pure Milk Law entirely under state supervision; (2) federal-state tuberculosis eradication (cooperative) "Accredited Herds"; (3) federal-state (cooperative) tuberculosis eradication "free areas." These three measures will be discussed separately since they are handled as individual projects.

The Pure Milk Law has been in operation since 1916 during which time 405,697 cattle have been tested (Table 7). Of this number 370,573

CHART I—"RISE AND FALL" PER CENT OF REACTORS AS FOUND ON DIFFERENT TESTS (ALSO CALLED RETESTS).

A few badly infected herds will raise the average very quickly in any retest of from the tenth on upward. The higher the number of retest the fewer the cattle tested. See Table No. 2.



LEGEND: + + + + Percentage of reactors from October 1, 1916, to September 1, 1922.
 Percentage of reactors from January 1 to September 1, 1922.
 — — — — Percentage of reactors reported last year.

¹Assistant Chief, Division of Animal Industry.

were free from the disease. Thus it will be seen that 35,124 cattle reacted or somewhat over 8 per cent. It must be remembered, however, that many of these cattle had been tested and retested a number of times so that the actual per cent of reactors in cattle in California would probably be somewhat higher (see chart 1). It will be observed that on all first tests (1916-1922) the reactors run about 9.5 per cent. During the period, January 1-September 1, 1922, the percentage of reactors ran up almost to 13. Comparatively few cattle have received the 16-18th test and it will be seen that rather erratic jumps occur sometimes in the curves as the test numbers become higher. Fewer cattle are tested at each succeeding retest and thus a single herd with a number of reactors may quickly increase the average per cent for any of the higher tests. According to Table 2 the number of cattle given the first test for the period 1916-1922 is 157,309 and for the period January-September, 1922, 21,491. Only 118 cattle have been given the 17th test. Of that number 46 were tested during the January-September, 1922 period.

TABLE 1. *Summary of Tuberculin Testing [For the Period October 1, 1916, to September 1, 1922].*

Cattle tested	405,697
Cattle free	370,573
Herds tested	47,618
Herds free	37,058
Herds of ten animals or less	39,326
Herds of ten animals or less free	34,355
Herds of more than ten animals	8,292
Herds of more than ten animals free	2,703

Total Tested for Year [January 1 to September 1, 1922].

Cattle tested	74,623
Cattle free	69,009
Herds tested	9,666
Herds free	7,693
Herds of ten animals or less	8,069
Herds of ten animals or less free	7,021
Herds of more than ten animals	1,597
Herds of more than ten animals free	672

TABLE 2. *Percentage Reactors.*

No. of test	Oct. 1, 1916, to Sept. 1, 1922		Jan. 1, 1922, to Sept. 1, 1922		Month of August 1922	
	Total No. animals tested	Per cent reactors	Total No. animals tested	Per cent reactors	Total No. animals tested	Per cent reactors
1	157,309	9.5	21,491	12.6	3,131	9.9
2	92,414	7.1	14,414	6.6	2,653	6.0
3	49,653	6.3	8,795	5.2	1,918	5.0
4	37,645	5.2	7,765	4.5	1,334	2.3
5	23,495	5.2	6,144	5.6	796	6.4
6	18,110	4.1	4,554	5.9	1,025	5.3
7	9,274	4.7	2,365	4.7	599	6.3
8	6,641	4.4	3,243	5.4	629	7.7
9	5,348	3.6	2,510	3.3	1,336	1.5
10	2,965	6.5	1,322	9.0	336	6.5
11	1,149	5.1	329	4.5	329	4.5
12	760	2.5	77	9.0	---	---
13	611	1.8	186	0.5	---	---
14	845	3.7	196	5.6	---	---
15	608	4.1	243	4.1	---	---
16	290	6.5	46	4.3	---	---
17	118	6.7	46	4.3	---	---

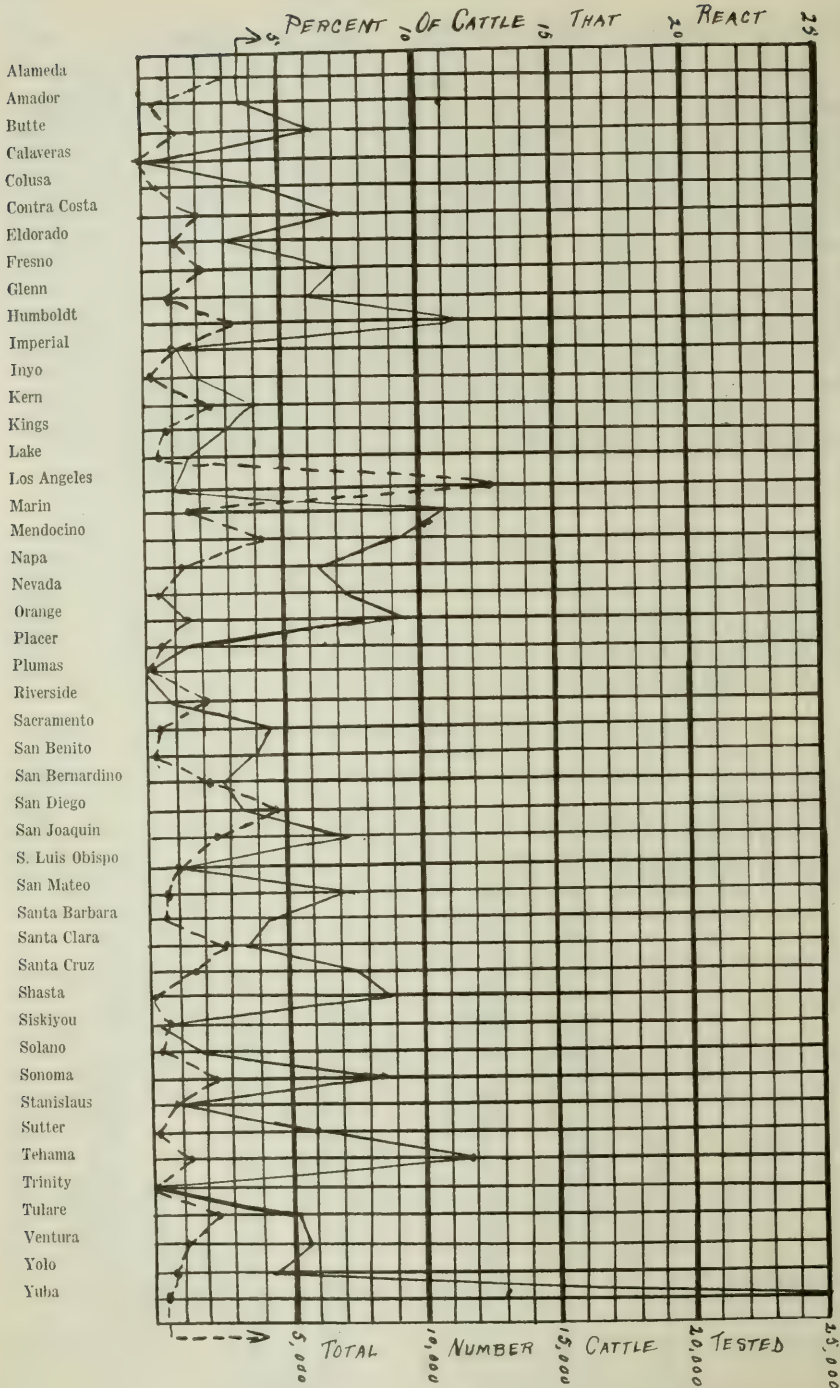


CHART 2—PERCENTAGE OF REACTORS FOUND IN CATTLE TESTED UNDER STATE SUPERVISION IN EACH COUNTY FROM JANUARY 1 TO SEPTEMBER 1, 1922.

The Pure Milk Law was inaugurated as a public health measure and was not primarily intended to very materially reduce or eradicate tuberculosis from cattle. Happily, however, it has had a twofold effect. It has protected the milk-consuming public from the danger of infection that might have occurred by way of market milk and at the same time has appreciably reduced tuberculosis among our dairy cattle.

The department maintains a follow-up card-index system showing the disposition of all cattle that react to the tuberculin test as applied by the veterinary inspectors of the Department of Agriculture. It is not mandatory that reacting cattle be destroyed—they may be sold to any person or concern who will pasteurize milk from the animal before offering it for sale. It is an interesting fact that fully 25 per cent of all cattle that react are disposed of for slaughter.

It is a known fact that an apparently healthy tuberculous milch cow may within a few days develop into what is called an open case of tuberculosis and during which time she may be disseminating tubercle bacilli in vast numbers. For the protection of the consumer of raw milk, the California Pure Milk Law requires that all dairy cows reacting to the tuberculin test be removed immediately from the herd producing milk to be sold in the raw state.

Many cows which react to the tuberculin test may never die of the disease. Some of them have been known to live four, five or even six years before "breaking down." They may, however, have a tuberculous "break down" at any time.

Chart 2 indicates the percentage of reactors found and number of cattle tested during the period January-September, 1922, by counties.

The federal-state accredited herd work is making good headway considering the short time it has been in effect. The law permitting the work was passed during the last legislature, but it was only about January of this year that the final agreement was signed by the United States Bureau of Tuberculosis Eradication and the California Department of Agriculture. Since then 40 herds have been tested representing 4072 head of cattle (Table 3).

The number of applications coming in have been in excess of our expectations. In many cases it has been necessary to delay the testing due to the fact that a sufficient number of inspectors was not available to carry on the work. As fast as it is possible, however, these herds are being given attention.

The accredited herd work permits any owner of a herd anywhere in the state to have his herd tested by the state and federal government free of charge provided he will agree in turn to abide by the rules and regulations outlined for this work.

Chart 3 has been prepared from the monthly reports issued by the U. S. Bureau of Animal Industry and shows the number of cattle tested and percentage of reactors found in each state as a result of the accredited herd work. The percentage of reactors found in California during this one month runs about 4.5. This figure is no doubt somewhat low for a general average of the state. It does demonstrate, however, that many California herds are comparatively free from this disease. It might be further added that many of California's best herds have long been tested under state supervision before the federal accredited

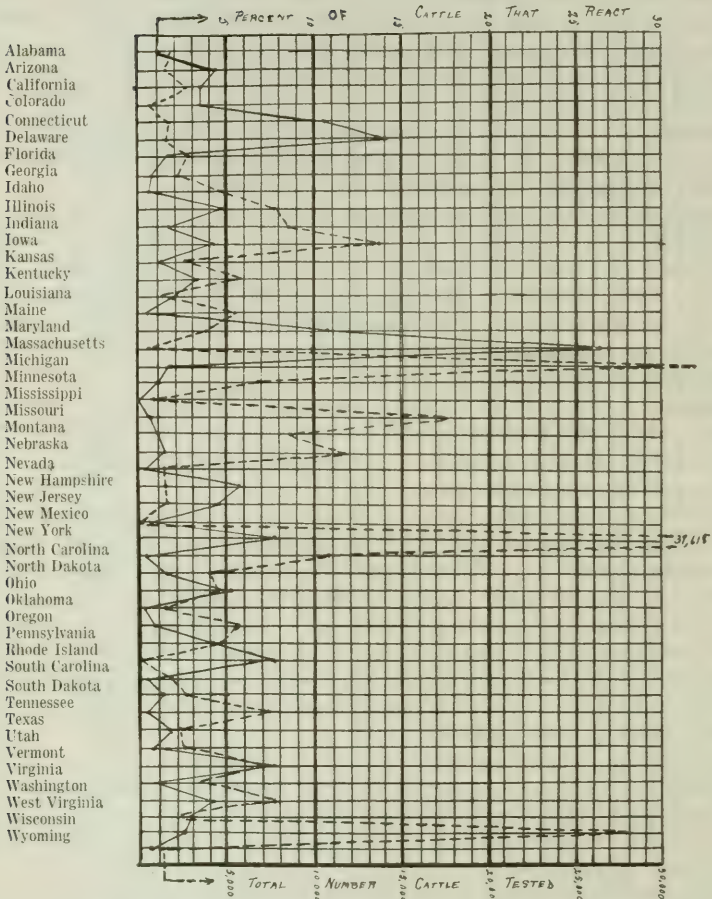


CHART 3—THE FEDERAL ACCREDITED HERD WORK.
 PERCENTAGE OF REACTORS FOUND IN CATTLE TESTED BY THE UNITED STATES BUREAU OF ANIMAL INDUSTRY IN EACH STATE DURING THE MONTH OF AUGUST, 1922.

LEGEND: - - - - - Total number of cattle tested.
 ——— Percentage of reactors found.

herd plan was taken up. These herds should have little difficulty in gaining a place on the federal accredited herd lists.

The accompanying regulations governing the disposition of cattle which have reacted to the tuberculin test in federal-state accredited herd work have been issued by the California Department of Agriculture and the United States Department of Agriculture, and will indicate what is expected of the owner of cattle in order to receive assistance.

TABLE 3. *Herds Under Federal-State Supervision in California.*

County	Number Herds	Number Animals
Alameda -----	2	142
Colusa -----	1	36
Contra Costa -----	1	283
Glenn -----	3	46
Humboldt -----	5	157
Los Angeles -----	2	226
Marin -----	2	593
Mendocino -----	1	151
Merced -----	1	21
Monterey -----	1	218
Napa -----	2	214
Riverside -----	1	26
Sacramento -----	1	45
San Benito -----	1	348
San Bernardino -----	1	36
San Joaquin -----	3	91
San Luis Obispo -----	1	5
Santa Clara -----	2	20
Santa Cruz -----	1	19
Solano -----	2	946
Sonoma -----	4	335
Stanislaus -----	1	22
Yolo -----	1	92
Totals -----	40	4072

Two additional accredited herd agreements have been received, one from Sonoma County and one from Los Angeles County, but no tests have been conducted for the applicants yet.

“Cattle which have reacted to the tuberculin test in a herd tested under accredited herd agreement, shall be marked for identification by branding the letter ‘T’ on the left jaw, not less than two nor more than three inches high, and attaching to the left ear a metal tag bearing a serial number and the inscription, ‘Cal. Reacted,’ or a similar federal tag, and shall be immediately isolated from the balance of the herd. Valuable pure-bred reacting cattle may be removed from the farm for purposes other than immediate slaughter, under permit from the State Department of Agriculture, Division of Animal Industry. Such cattle shall be placed in quarantine at destination and shall not be moved from the quarantined premises except upon permit from the State Department of Agriculture, Division of Animal Industry. Reactors from a herd in the process of accreditation, which are not disposed of by quarantine, shall be removed for slaughter within a reasonable time to an establishment where state or federal meat inspection is maintained and shall there be slaughtered under such inspection.”

At the present time no provisions are made in this state for the payment of indemnity to owners of cattle reacting to the test. In some states such indemnity funds are provided and the owners are partially

reimbursed for their losses, the appraisals being made in various ways. Since no funds have been provided for this purpose by our legislature, consideration can be properly given the matter if a bill be introduced at the coming legislative session.

The accredited herd work project of itself will probably never completely eradicate the disease from any state. The work is purely optional with the various live stock breeders and even though a large per cent of the stockmen in the state might have their herds tested, a few remaining unscrupulous stockmen who had not the best interests of the industry at heart could persist in keeping tuberculous cattle and selling them, therefore, the federal government has for several years been fostering and urging the so-called free area method of eradication.

The Free Area Work. A county is generally taken as the unit in the free area work. Agreements must be signed by practically 90 per cent of all the livestock owners in the county asking that eradication work be inaugurated. The cooperating state and federal governments then test all cattle in the county. Reactors must be branded with a "T" on the left jaw and must be slaughtered or removed from the area within thirty days. No cattle may enter or be removed from a free area without first being tuberculin tested and passed by a state inspector. Such an area it is evident will in due time become free of the disease. It may be considerable of a hardship for the time being but the advantage in the long run will far more than compensate for the temporary inconvenience and loss.

Considerable opposition was voiced against the California free area bill at the last legislature. The objection was brought by those who were not familiar with its purpose and intent. The idea, however, was not an innovation by this state, the federal government had tried the method in a number of eastern states and had proved it to be satisfactory in every way. Owing to the nature and extent of this method of tuberculosis eradication, the department has been conservative in extending the benefits of the law to areas. A considerable number of counties have requested the application of the law but principally on account of lack of help the work is as yet confined to two counties and a portion of another. The accompanying tabulation (Table 4) will show the number of herds tested and the cattle tested in the two counties where the area work is now in operation together with data for that portion of Mendocino County called Round Valley where area work is being conducted. Rules affecting this work are included in the regulations governing the disposition of cattle which react to the tuberculin test in tuberculosis eradication or free areas, issued by the California Department of Agriculture, Division of Animal Industry.

TABLE 4. *Free-Area Herds in California.*

County	Number Herds	Number Animals
Lassen -----	229	2329
Mendocino -----	70	990
Modoc -----	466	5163
	765	8482

Five additional agreements for the tuberculin testing of cattle have been received from Round Valley, Mendocino County, covering 71 animals, but no tests have been conducted for the applicants yet.

Disposition of Reactors. Cattle which have reacted to the tuberculin test within an eradication or free area and marked for identification by branding the letter "T" on the left jaw, not less than two nor more than three inches high, and attaching to the left ear a metal tag bearing a serial number and the inscription, "Cal. Reacted" or a similar federal tag, shall be slaughtered within thirty days after the owner or person in control has been notified of such reaction, provided, registered purebred cattle or high-producing grade cows may, upon permit from the State Department of Agriculture, Division of Animal Industry, be removed from the eradication or free area for purpose other than immediate slaughter when the following conditions have been complied with.

Movement of Tuberculous Cattle for Purpose Other than Slaughter. Application for permit shall be made in writing to the chief of the Division of Animal Industry, California Department of Agriculture, or to his duly authorized representative and shall give the following information: Name and address of consignor, and point from which shipment is to be made; description and tag number of cattle to be shipped; name and address of consignee, and point to which cattle are to be shipped. Such cattle shall be placed in quarantine at destination and shall not be removed from the quarantined premises except upon permit from the State Department of Agriculture, Division of Animal Industry.

Movement of Tuberculous Cattle for Slaughter. Cattle which have reacted to the tuberculin test within an eradication or free area may be shipped, transported or moved for immediate slaughter only to an establishment or stockyard where federal, state or other approved meat inspection is maintained and shall there be slaughtered under such inspection. Cattle which have reacted to the tuberculin test shall not be shipped or transported in cars or compartments of boats containing healthy cattle or hogs unless all the animals are for immediate slaughter or unless the tubercular cattle are separated from the other animals by a securely fixed wood partition.

The car or the compartment of the boat in which tuberculous cattle have been transported shall be cleaned and disinfected under state or United States Bureau of Animal Industry supervision by the final carrier at destination in accordance with the regulations of the United States Bureau of Animal Industry.

The area work in Round Valley, Mendocino County, was rendered necessary because of the insistent demand on the part of the dairymen of this district who had not been able to secure the approval of the other live stock men in the county. These dairymen therefore requested the Department of Agriculture to give them special consideration by declaring their district to be a free area. The following proclamation was therefore issued in August, 1922, and since that time approximately 1000 head of cattle have been tested in this district.

PROCLAMATION.

August 24, 1922.

Whereas, The Director of Agriculture of the State of California has ascertained that the citizens of Round Valley, County of Mendocino, State of California, are desirous of freeing their cattle of tuberculosis and preventing the introduction of this disease by cattle so affected originating elsewhere in California, and safeguarding the health of live stock located in said valley; and

Whereas, under and by virtue of an act of the legislature of the State of California entitled, "An act to protect domestic live stock from contagious and infectious diseases * * *" approved June 3, 1921, the Director of Agriculture of the State of California, with the approval of the Governor, in order to circumscribe and prevent the spread or communication of said disease of tuberculosis in cattle, has, on this twenty-fourth day of August, 1922, made and established the following rules and regulations governing movements of cattle into Round Valley, County of Mendocino, State of California;

From and after this twenty-fourth day of August, 1922, every person, company, corporation, their agents and employees are hereby prohibited from transporting, driving, trailing, or grazing or from permitting to be transported, driven, trailed, or grazed any cattle originating or being without the aforesaid Round Valley in the State of California, unless such cattle have first been inspected and tuberculin tested by an agent of the United States Bureau of Animal Industry, California Department of Agriculture, or by a veterinarian licensed to practice in the State of California, and are accompanied by a certificate issued by such agent or veterinarian stating that said cattle are free from contagious and infectious diseases and tuberculosis; provided, however, permission be obtained in advance from the California Department of Agriculture to bring such cattle into Round Valley, County of Mendocino, State of California.

Now, Therefore, I, G. H. Hecke, as Director of Agriculture of the State of California, by virtue of the authority vested in me by law, do hereby proclaim Round Valley, first mentioned in this proclamation, quarantined within and by the State of California; and further hereby proclaim the foregoing rules and regulations prescribed by me as Director of Agriculture for the maintenance and enforcement of such quarantine to be legal and binding rules and regulations within the State of California, and I do further proclaim that said rules and regulations shall be maintained and enforced within the State of California, and that a violation thereof shall subject all persons so violating any of said rules and regulations to the penalties provided for in section six of the said act of the legislature of the State of California entitled, "An act to protect domestic live stock from contagious and infectious diseases, etc., * * *"



HOG CHOLERA AND HOG RAISING IN CALIFORNIA.

By J. G. JACKLEY.

California has not generally been looked upon as a hog raising state. The belief has been held that good pork could not be produced outside of the corn belt. Undoubtedly corn is an excellent fattening grain for hogs and in the past the large corn growing area of the middle west has exceeded other sections of the country in the production of hogs. This is not due entirely to the superior qualities of corn as a feed for hogs, but in a large measure to the fact that the middle western farmer is forced to market his corn via the hog if he is to get a fair return for his grain. Such large numbers of hogs have been produced in the middle west in the past that it is little wonder that section should have lead in the production of prize winning hogs at the international stock shows and other competitive fields.

During the last few years, it has been shown as the result of experiments conducted by the California Agricultural Experiment Station at Davis, that as good hogs can be grown in California as anywhere, using only those products that grow most luxuriantly in this state, i. e. alfalfa and barley.

It has been stated that alfalfa produces soft, oily pork, so too, the statement has been made with reference to the feeding of beans and peanuts but such statements must be taken cautiously. It is not fair to condemn a given food when used exclusively or in too generous quantities. Many of the hog raisers in California have not given the subject of feeding the careful thought that should have been given it. It is now well established that any feed no matter how good, when fed exclusively may actually become a menace and fail completely for the purpose intended. In the experimental feeding of laboratory animals (pigeons, white rats or mice) an exclusive diet of corn or wheat products results in stunting and unthriftiness which in time may develop into certain so-called deficiency disease; hence the rancher who proposes to raise hogs in California by turning out his hogs into a large alfalfa field as a sole feed must not expect them to develop into superior hogs or superior pork. It is absolutely imperative that a supplementary ration of grain be supplied. In this state barley is that grain par excellence. For the younger pigs nothing is more growth stimulating than a liberal allowance of skimmed milk or buttermilk. Later on a ration of barley, either rolled or soaked, should supplement the alfalfa, gradually increasing the grain as the marketable age nears. Hogs receiving barley together with alfalfa will do well, grow rapidly and will produce good solid firm pork.

The use of a varied diet for any class of livestock is not only necessary from the standpoint of the production of good meat, but it is very important from the standpoint of the health of the animal. Outbreaks of disease on many occasions have been traced to a faulty or deficient diet. Often an owner believes that some one is maliciously trying to poison his hogs or that a specific infection is causing his loss when he himself is poisoning his animal with a narrow unbalanced ration. Such a defective ration will result in lowering of the vitality of the animal

to such a degree that its resistance to minor infections may be completely lost; such animals may develop sore mouths, ulcerated eyes, scours and other conditions which are forerunners of the more serious infection, hog cholera.

Those who have given the subject of hog diseases most attention have practically concluded that the one and only real dangerous disease of hogs is hog cholera. If hog cholera can be kept from a band of hogs there is no other disease in this state which seriously interferes with the hog raising business. If every hog raiser who is feeding garbage or frequently bringing in new hogs from different parts of the country or who is in a district where hog cholera exists would immediately vaccinate his hogs in accordance with the standard methods, the disease could be wiped out in this state or at least held down to a very low mortality. For a number of years all hog raisers were vaccinating very methodically with the result that the disease had shown a decided decrease. This decrease, however, caused many hog men to become lax in the vaccination of new litters with the result that the more recent crops of hogs have not been receiving the proper prophylactic protection.

HOG CHOLERA.

Recent investigations in California have shown that hog cholera is spreading in certain districts due apparently to lack of appreciation by hog owners of the importance of early recognition of the disease. This situation is probably due in part to the objection of some hog owners to the placing of a quarantine on their premises when the disease is discovered. The more progressive breeders however realize that this is a necessary precautionary measure if widespread "flare-ups" are to be prevented. While outbreaks of this disease may occur sporadically in any part of the state, there is no excuse for a general spread throughout any given territory if hog owners will properly dispose of animals that have died of cholera and will avail themselves of existing prophylactic measures.

In some instances the presence of disease in herds was not reported to this office until after the lapse of two or three weeks, by which time all the susceptible animals were infected. It must be understood that there is no cure for cholera. Drugs and chemicals of all kinds have proved worthless, either as a cure or preventive. Proper anti-hog cholera vaccination however is effective in protecting hogs from contracting the disease but is of no value when given to a hog already visibly sick with the disease.

An outbreak of cholera is usually preceded by the death of a single hog in a herd, followed after the usual period of incubation by the appearance of sickness in a number of hogs exposed. Frequently no attention is paid to the death of the first hog as the owner does not suspect cholera but when a number die he is worried and seeks assistance. A high temperature ranging from 105 to 108 in a hog showing extreme prostration as evidenced by a staggering gait, should prompt a suspicion of hog cholera. Immediate action at this stage of the infection should result in saving the rest of the animals. No time, however, should expire between the appearance of cholera and vaccination; else both the hogs and cost of vaccination may be lost.

In order to prevent the spread of cholera to healthy herds it is necessary that all infected hogs be confined in small enclosures. A cholera hog should not be allowed on range or in fields where it may come in contact with non-infected hogs. Flies and insects may carry the infective discharges from the eyes and noses of sick pigs. Sick animals should be kept strictly isolated. Animals that have died should be burned together with any loose litter or refuse in pens and yards. The practice of hauling the carcasses off to the woods or fields or burying them in shallow graves shows an utter indifference toward the welfare of other hog owners in the community. Spray hog houses and fences with five per cent solution of any good coal-tar disinfectant.

Hog Cholera Specialist Stationed in California by United States Department of Agriculture.

The cooperation of all hog owners is requested by the Division of Animal Industry in controlling the spread of this disease. Call your local veterinarian or notify the State Department of Agriculture by letter or telephone. The United States Department of Agriculture has stationed in California a hog cholera expert who functions jointly with the State Department of Agriculture at Sacramento and the University. Upon request he will investigate and advise hog owners regarding any suspected outbreak of hog cholera. The services of the field veterinarians of the California Department of Agriculture are also available to hog raisers in combating this or any other infectious disease.

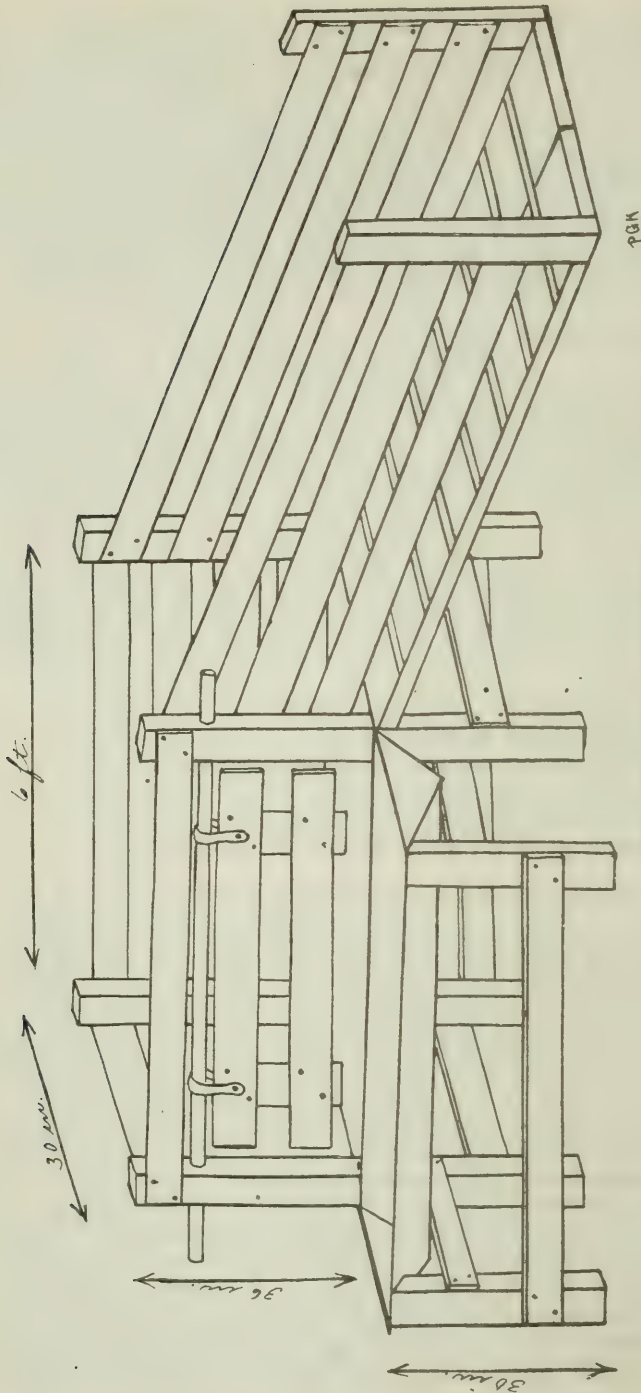
Hog owners should bear in mind the following points:

1. Early diagnosis is imperative.
2. Suspect cholera when the first pigs become sick.
3. Isolate affected animals at once.
4. Burn all cholera carcasses immediately.
5. Disinfect premises after removal of sick animals.

Hog Catch Pen; a Convenient and a Labor-Saving Device.

Many hog feeders find the duty of vaccination both irksome and time-consuming due to the fact that they have not the proper equipment for doing this work expeditiously. A so-called hog catch pen has been introduced in this state by Doctor Robert Jay of the United States Department of Agriculture cooperating with this department, which simplifies and lightens the problem of hog handling. Figure 219 shows a sketch of this catch pen which can be made up for a few dollars by any hog owner and which will prove to be worth its value many times over for any purpose where hogs must be caught and handled which frequently becomes necessary.

The pen consists of a small chute thirty inches wide and having cleats nailed to the floor so that the hogs may walk up to a small platform two and one-half by six feet, the chute and pen both being fenced to a height of about three feet. The pen is elevated on legs approximately three feet above the ground. One side of the pen is made in the form of a swinging panel hinged at the top, the bottom being about six inches from the floor. A trough eight inches deep



P.G.K.

FIG. 219—HOG CATCH PEN.

(Suggestion and plans by Dr. Robt. Jay, U. S. Dept. Agr., stationed in California.)

Recommended for hog cholera vaccination, castration or other work requiring handling the pigs.

and six feet long is attached to the floor just outside the pen so that the operator may reach under the swinging panel, catch a hog by the legs, throw him on his side and slide him onto the trough. The hog is easily kept on his back by the two operators, one at each end of the animal and the vaccinator or operator can then do his work easily and quickly. It will be observed that it is not necessary to have any one inside the pen to catch the hog, which is always a very difficult task when large hogs are handled. The animals are not lifted from the floor at any stage of the operation. When a large number of hogs are to be handled this is a very important item in reducing the amount of work.

A Dipping Vat Should be on Every Hog Ranch.

It is a good idea also to have on every hog ranch a dipping vat which should be made preferably of concrete. The vat should have a five per cent solution of creolin or other coaltar dip. Hogs can be run through this without any handling. Hogs that are given an occasional dipping will generally be kept free from lice or other parasites. Figure 220 indicates how such a dipping vat should be constructed. Some hog raisers prefer in lieu of the dipping vat to have a concrete wallow kept full of clean water and on the surface of which is kept a good layer of crude oil. The hogs in getting out of the wallow will always carry with them a small amount of oil which tends to free the animal from parasites and in addition seems to be beneficial to the skin and hair.



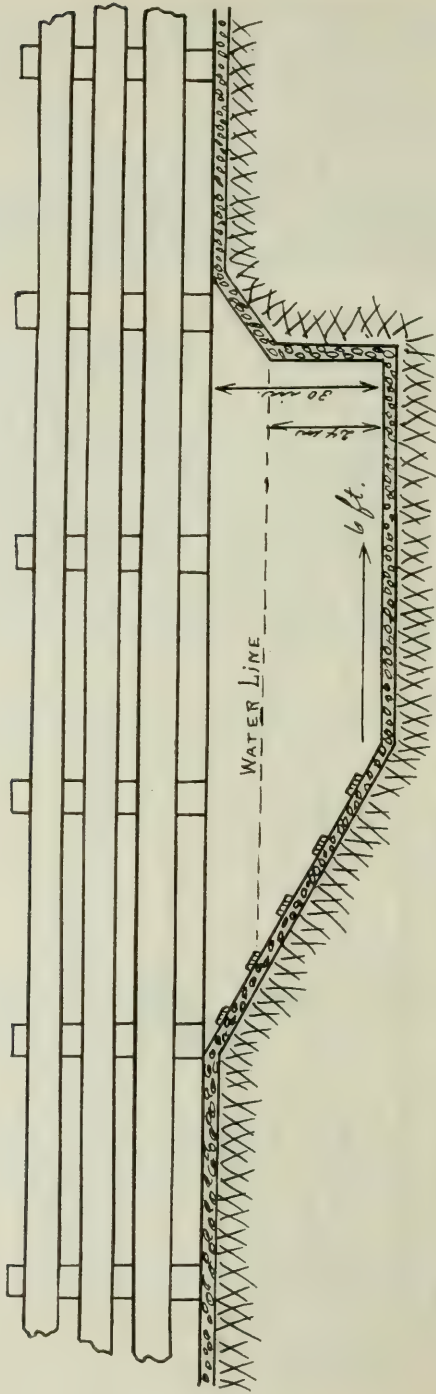


FIG. 220—HOG DIPPING VAT.

For hog lice or other external skin parasites.

THE MILK GOAT IN CALIFORNIA.

By J. G. JACKLEY.

This state is naturally adapted to the raising of milk goats and has many advantages. There are thousands upon thousands of acres of hill and waste lands in our mountainous sections that are not suited to any other use than grazing and for which purpose no other animal is so well adapted as is the milk goat. In addition there are thousands of unsightly vacant lots and backyards in the suburbs of our cities and towns that could become a source of wealth if converted to the purpose of producing milk. The milk goat seems to meet all the requirements of the case, in fact she is the small-unit milk-manufacturing plant that meets all the needs of the individual family.

Probably no animal has been kept longer or more continuously in domesticity than the goat. In the earliest biblical records in Genesis are accounts of herds of goats and undoubtedly most, if not all, of these goats were of the milking variety since there are numerous references that would indicate that milk and milk products were important articles of diet. The milk goat kept pace with the progress of man down through the ages and is today the mainstay for a large share of the population of the old world. Peculiarly, however, the new world has for many years overlooked or under-estimated the value of these small animals. This is probably due to the greater prosperity of the new continent which has developed a rather reckless extravagance and wastefulness.

We are sometimes tempted to conclude that milk is a food for the young and the infirm and not necessary for the adult. This conclusion is not in keeping with the most recent investigations of physiologists and nutrition experts. Doctor Alexis Carrel has shown for example that a chain of cells isolated from the heart of a chick embryo can be kept growing apparently indefinitely with a suitable supply of food material. The cells seem to continue young forever, provided the environment does not become "oppressive" as may be the case when the products of destructive metabolism are not properly removed or when inhibitory substances are introduced. Hence it may be assumed that cell proliferation can and will proceed indefinitely without any other rejuvenating influences other than proper food—in other words, old age can be warded off by the elimination of those foods which cause "oppressive metabolism." Without attempting to ascertain what foods are "oppressive" sufficient evidence has been supplied by our nutrition investigators to demonstrate that milk is essentially "the perfectly balanced ration."

For many generations raw milk from healthy goats has been the chief article of diet of some of the most hardy and rugged people of the world. This should be ample argument for its use.

Thanks to the splendid efforts of our state and national Dairy Council the public is now fairly well informed of the value of milk in the dietary for the growing child. It yet remains to popularize the use of more milk by bringing the cost of this valuable product to within the reach of all. No doubt many families would use milk more freely

if it was being produced in the backyard and did not, therefore, require an immediate cash outlay for every additional pint or quart used. Shortening the distance between the milk manufacturing plant and the consumer should decrease the cost and improve the quality. The keeping of one or two milk goats in the backyard should be the solution of the problem.

Keeping a milk goat is practically comparable to the practice of the family that keeps a small flock of chickens in the backyard. The question often is asked—Are milk goats noisy in town? Not as much so as a half dozen hens. Of course it will depend upon the goat to a certain extent. If she has been accustomed to being in a herd she will worry and cry for a few days when first isolated.

The cost of a single goat or even two goats to the average family will be very much less than the keeping of a single cow and should be more satisfactory, for, by having two goats one may be milking while the other is dry. In the case of a cow, one family could hardly use the milk of an individual animal when she is fresh and to maintain two would be a considerable additional burden. Thus it would appear that every encouragement should be offered to the goat industry especially in the small towns and the urban districts.

Recently while talking with a Swiss dairyman the conversation turned to dairying in his native country and he remarked that over there everybody has goats. He said you can always judge the size of a family in Switzerland by the number of milk goats owned. For each extra child is added an extra goat.

As evidence of the high regard with which the milk goat is held in Switzerland, this dairyman told the following story:

“An American traveling in Switzerland marveled at the performance of a difficult feat of a countryman: who had climbed a very high and dangerous part of a certain mountain—the countryman said, ‘Oh that is easy. Do you see yonder goat standing like a statue on top of that cliff?’

“‘Yes.’

“‘Well if you had lived on the milk of the goat for as many years as I, you, too, would be a climber.’”

The idea he apparently wished to convey was that the milk goat being such a hardy healthful animal herself imparted a rugged constitution to those who used her milk.

Persons who have never used goat milk or who are accustomed to the flavor of cow's milk notice a slight difference in the taste of the goat milk that has been likened to the flavor of the milk of a cocoanut. This individual flavor is due to slight differences in the composition of cow's milk and goat's milk. Aside and apart from the question of any superiority of goat's milk as a food for delicate infants and invalids, the facts of the case are that the milk goat industry is unmistakably progressing rapidly. Interested parties are making inquiries and are anxious to buy either a goat or its milk, and it seems necessary, therefore, to become more familiar with the problem.

What shall be done with the milk goat? This is a question that has been considered for the past several years. The situation finally developed to the point where some action seemed necessary. As a

result a questionnaire was addressed to the milk and dairy inspectors and health officers in our larger towns to ascertain the consensus of opinion. Among other things asked was: 1st, would it be best to draft some uniform regulations which all could accept and adopt or would it be more agreeable to leave the matter remain as at present and each city handle the problem separately. The result was practically an unanimous declaration in favor of the uniform and standard regulations; 2nd, if uniform regulation were desirable, suggestions were solicited as to the most important and necessary features to be incorporated. From the suggestions made there were selected as many as did not conflict with counter suggestions offered by others and a skeleton outline of proposed rules was prepared. This tentative proposal was then sent back for final decision to the different city officials interested. On the basis of this outline was developed Special Publication No. 27 "A Milk Goat In Every Backyard."

Among the chief points of contention were the following:

Should there be a distinction between the so-called goat dairy and the family milk supply? Most authorities agreed that it would be unfair and impracticable to require all the regulation milk handling facilities of the family who had only one or two goats since in such case most of the milk would probably be consumed by the family alone. The quantity of milk sold in most cases would not be sufficient to justify this added expense. It might be interesting to note that the replies varied from demanding that one goat be called a dairy, to others which expressed the desire to exempt up to five or even ten goats. The result is that our regulations stipulate that three or more milk goats constitute a dairy thus exempting one or two goats as the family milk supply.

Bulletin 27 essentially consists of two parts: First, the "Family Milk Supply" (1 or 2 goats) and second, "The Goat Dairy" (3 or more goats) setting forth the customary regulations for the sale and distribution of market milk.

The general outline of equipment and methods given for a goat dairy are practically similar to the requirements for cow dairies. The chief difficulty encountered in this work was the selection of suitable equipment to meet the needs of the milk goat dairyman with from three to six does without entailing unreasonable expense. The predominating idea throughout Bulletin No. 27 has been to describe an equipment for the small dairy which would be so simple and inexpensive that most of it could be home made and yet be efficient to meet all of the requirements of the most approved dairy practice.

MEAT INSPECTION.

By G. W. ROSENBERGER.

Meat is without doubt the most important single food article in the diet of man. This fact has long been recognized. Those nations known to be the largest consumers of meat, according to history, have been the most progressive. The races living largely on vegetable matter—the Chinese for example—have been slow in developing. There are a number of reasons for this superiority of the meat-consuming classes: First, it must be remembered that the proteins and nutrients

in meat are more readily digested; second, they are less of a tax on the body and third, they leave more energy to be expended for other purposes. Less volume of meat is required to sustain the body than if vegetables are used exclusively. Beans and many other leguminous plants furnish protein in more or less concentrated form but in order to secure a sufficient amount of digestible nutrients a large bulk must be handled to supply the body requirements. Herbivorous animals, such as the ox, goat and horse, all have extremely large digestive compartments in which they can store immense amounts of vegetable matter. The human stomach on the other hand is a very small organ having a capacity for a very limited amount of food.

Much controversy has occurred in the past as to the possible danger of over consumption of meat. Some medical men prejudiced against meat have warned the public against a too free use of this valuable food product. No doubt any nutritious food, no matter how desirable, would prove harmful if eaten to excess. However, it would not be wise to discontinue the eating of meat merely because certain individuals abused its use by over consumption.

The presence in meat of the much-discussed vitamins or accessory growth-stimulating substances which have been found in many foods comes up for consideration. It must be admitted that the last word has not been said with reference to the subject of vitamins, but it has been demonstrated that of the three fairly well-known vitamins all are found most abundantly in animal products such as milk and eggs. It has also been shown that these same vitamins are to be found in animal tissue, especially such organs as the heart, liver and kidneys. It is interesting to know that the animal fats have far greater value as sources of vitamins than have vegetable oils.

The new California Meat Inspection Act is progressing very satisfactorily. Various municipalities in the state as well as several counties have made application for this service. During the past year a more or less complete survey has been made of all country slaughterhouses throughout the state. Recommendations have been made advising owners as to any necessary improvements in methods or equipment.

The purpose and intent of the California Department of Agriculture in the meat inspection work is to protect the health of the meat consumer and to aid the butcher to conduct his business in a sanitary manner.

The operators of many small slaughterhouses can not afford expensive equipment but the matter of expense is no excuse for dirty, or slovenly methods. When the buildings and grounds are properly laid out and arranged, it is a simple matter to keep the place clean and sanitary. Only certain fundamental requirements are insisted upon at present. These are: First, screening, to exclude flies and vermin; second, a concrete floor with proper drain and gutter so that waste matter can be readily carried away from the building. (Slaughterhouses with wooden floors permit seepage and invariably a condition of this kind attracts rats); third, hog feeding pens to be a proper distance from the main building.

In the past it has been customary for hogs to run in the lot in which the slaughterhouse was located, the offal being pushed out of the door

to them. In many places hogs and chickens have been permitted to even enter the building and consume the offal. The new regulations require that the feeding of offal to hogs must be done at least 100 feet distant from the slaughterhouse. This requirement keeps the immediate surroundings free from stagnant and putrid insanitary accumulations.

Any slaughterer who expects to engage more extensively in the meat packing business will generally find it is to his interest to rebuild completely rather than to attempt to remodel an obsolete plant. When inspection of meat is to be furnished to any given plant the first essential is a proper equipment. Since meats bearing the state stamp of inspection can be sold in any city in this state, it follows that that stamp must stand for quality, cleanliness and wholesomeness.

Numerous requests have been made for plans and sketches of model slaughterhouses of approved design. To meet this demand a number of plans have been prepared showing excellent arrangements for plants of different capacity so that future growth of the establishment will be cared for without remodeling or changing the existing building.

The following table indicates where state meat inspection is at present in operation (Table 1). Practically all of the larger towns in the state are now under either state, county or municipal meat inspection. There are a number of smaller towns eligible to systematic inspection but as yet they are unable to devise ways and means for carrying on the work. Since only small amounts of meat are handled in country towns, it is suggested by the department that several towns in various districts procure inspection by entering into a cooperative agreement to pay the salary of an inspector.

It often happens that in smaller towns where only a single butcher is operating the need of inspection is greatest. In many cases where butchers have no competition they have been known to be very unscrupulous regarding the class of animals they use for slaughter. It is the purpose of the California Department of Agriculture to make a thorough study of the situation and if possible to offer some solution of the problem.

TABLE 1. *State Meat Inspection.*

Name of city	Name of county	Number of plants operating under state supervision
Fresno	Fresno	3
Fowler	Fresno	1
Corcoran	Kings	1
Hanford	Kings	2
Lemoore	Kings	1
Ripon	San Joaquin	1
Stockton	San Joaquin	8
Petaluma	Sonoma	2
Santa Rosa	Sonoma	1
San Jose	Santa Clara	1
Modesto	Stanislaus	3
Turlock	Stanislaus	2

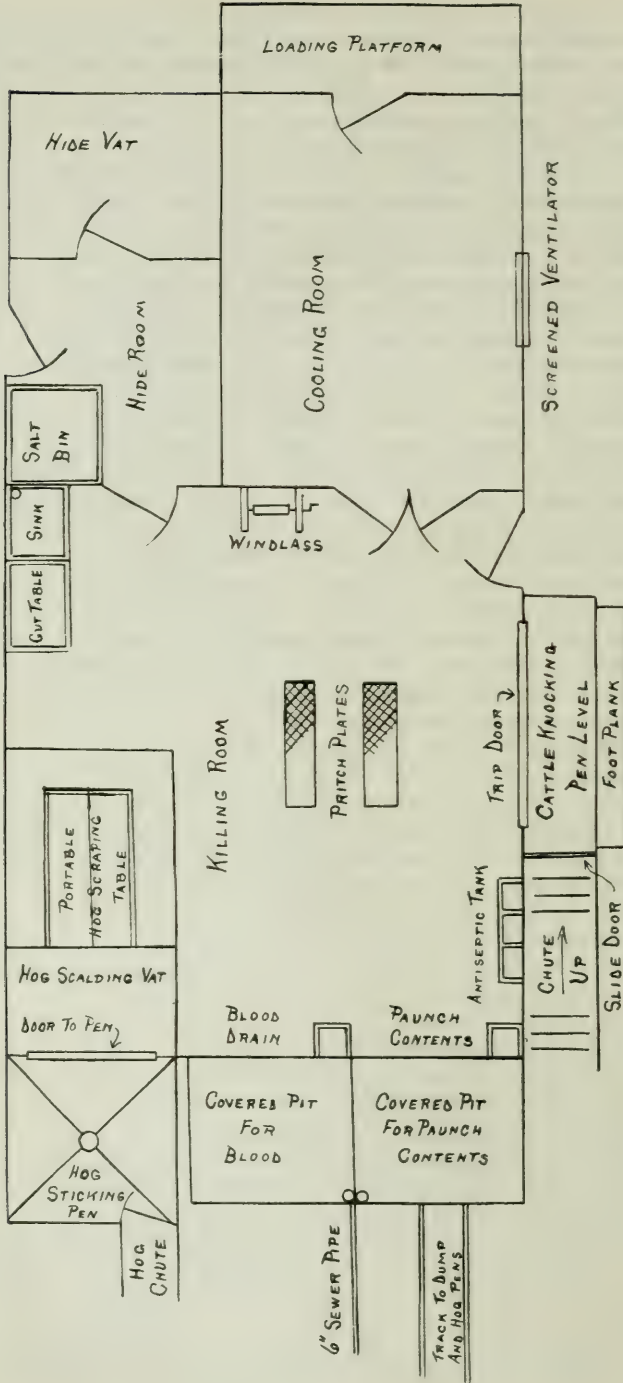


FIG. 221—SKETCH OF THE GROUND FLOOR PLAN OF SMALL SLAUGHTER HOUSE FOR RURAL DISTRICT.

(From an Original Drawing by Dr. George Gordon, Chief, Bureau of Meat Hygiene, State Department of Agriculture.)

In building a new structure it is important that the project conform to certain sanitary regulations and at the same time be so planned that any enlargement in the future can be made without changing the existing building.

TABLE 2. *Ante and Post-Mortem Inspections.*

1921	Ante-mortem passed	Post-mortem passed	Condemned for tallow	Carcasses condemned post-mortem	Parts condemned
July -----	2,589	2,585	0	4	36
August -----	1,829	1,820	0	9	20
September ----	2,208	2,194	0	15	113
<i>Oct. 1921,</i>					
<i>to</i>					
<i>Oct. 1922</i>					
October -----	2,492	2,469	0	22	77
November -----	1,969	1,957	0	12	67
December -----	2,091	2,086	0	5	87
January -----	3,451	3,436	3	16	329
February -----	3,418	3,391	0	20	313
March -----	3,753	3,749	0	19	253
April -----	6,769	6,721	1	58	554
May -----	8,723	8,740	0	62	1,051
June -----	16,983	16,892	2	107	1,724
July -----	14,181	14,074	0	125	2,162
August -----	17,804	17,727	0	98	2,412
September ----	17,544	17,453	0	114	2,779
Totals -----	99,178	98,695	6	658	11,808

Table 2 shows ante-mortem and post-mortem inspections for 1921-22. This work was inaugurated July 1921, but during the past year only has it been intensively developed. It will be noted that the number of carcasses condemned outright have been gradually increasing as the volume of inspection has increased. During the last few months from 15,000 to 18,000 head of meat food animals have been slaughtered under state inspection.

Table 3 gives by months the total pounds of meat inspected and passed.

Table 4 is a résumé of the number of animals inspected by the United States Meat Inspection Service in our larger cities during the period June, 1920, to November 30, 1921. This will be interesting for the purpose of comparison with the volume of state inspection.

The importance of meat inspection and of the live stock industry to California can be ascertained by an examination of Figure 222 and Table 5 which has been prepared from statistical information supplied by the railroads operating in this state. It will be observed that 8,687 carloads of cattle, 5,642 carloads of sheep and goats and 3,565 carloads of swine were consigned to the meat packers during the period named. Roughly speaking these live animals netted the farmers about twenty-five millions of dollars income.

TABLE 3. *State Meat Inspection.*

1921—	Total No. Lbs. condemned	Total No. Lbs. passed
July -----	2,286	252,660
August -----	2,730	211,040
September -----	5,975	239,304
<i>October, 1921, to October, 1922—</i>		
October -----	5,150	277,138
November -----	2,955	234,654
December -----	3,850	186,226
January -----	8,790	509,818
February -----	12,220	522,248
March -----	8,418	679,286
April -----	23,017	1,072,330
May -----	24,743	1,367,002
June -----	36,814	2,608,028
July -----	53,069	2,354,062
August -----	49,664	2,940,418
September -----	63,523	2,967,358
	292,213	15,718,566

TABLE 4. *Statistical table of animals slaughtered under Federal Meat Inspection in California for period June, 1920, to November 30, 1921.*

Species	Number slaughtered	Condemned tuberculosis	Hog cholera	Miscellaneous
Cattle -----	264,593	694	---	419
Calves -----	53,985	7	---	46
Sheep -----	662,688	---	---	922
Goats -----	104	---	---	1
Swine -----	399,870	982	107	833
Totals -----	1,381,240	1,683	107	2,221

TABLE 5. *Carloads of live stock shipped to the larger centers in California for slaughter, 1920-1921.*

(From statistical information kindly submitted by the various railroads in the state.)

Destination	Cattle	Sheep and goats	Swine
San Francisco ¹ -----	4,075	3,702	2,125
Los Angeles -----	3,618	1,505	1,259
Sacramento -----	419	113	37
San Diego -----	175	60	101
San Jose -----	212	78	17
Stockton -----	87	140	15
Bakersfield -----	56	2	10
Fresno -----	45	42	1
Totals -----	8,687	5,642	3,565

¹Note—Includes shipments to Oakland and Berkeley.

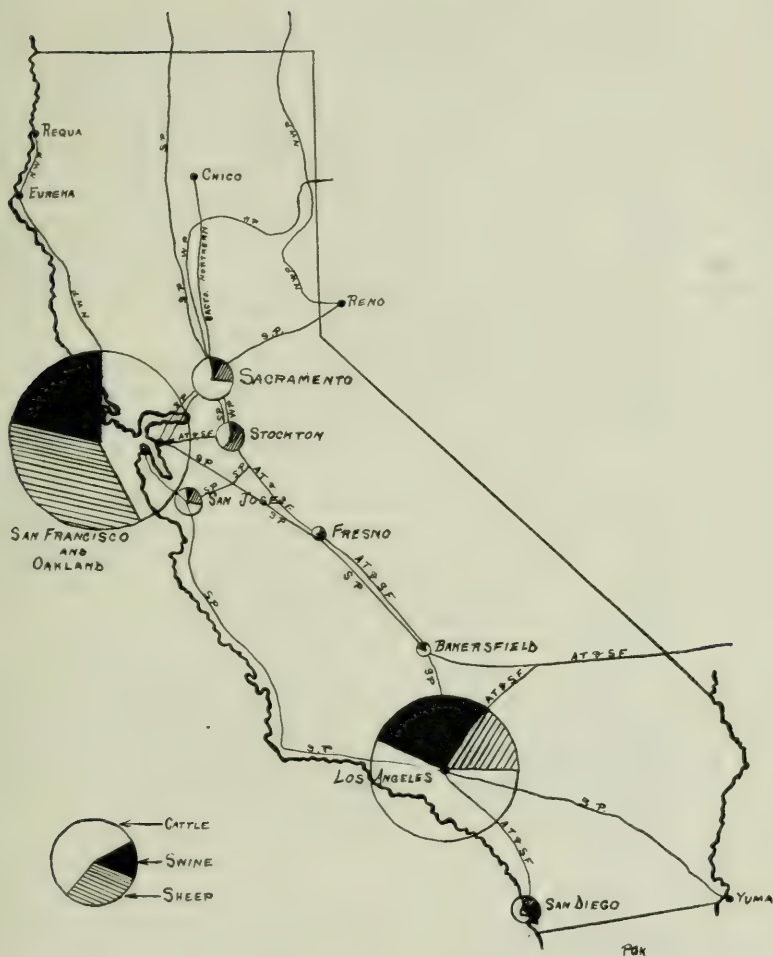


FIG. 222—CATTLE, SHEEP AND SWINE ABSORBED BY THE MEAT PACKING BUSINESS.

See table 5. Carload shipments of livestock received at the places shown on map. (J. G. Jackley.)

POULTRY DISEASES.

By J. G. JACKLEY.

Breeding, feeding and poultry diseases are the three important factors in the successful handling of poultry. The relationship of these factors at first sight might appear well defined whereas in fact they overlap so completely that it is difficult to say where one stops and the other begins. More and more the poultryman is finding that certain methods of feeding and breeding can and does influence disease.

For a number of years the University Experiment Station in conjunction with the poultry division at the University farm have been actively concerned in the study of poultry diseases. They have handled the situation in such a way for the poultrymen that this department has not been called upon for any assistance in the handling of the poultry disease problem. However, the Division of Animal Industry receives frequent inquiries for information on poultry diseases due to the fact that this division has general supervision over the control and eradication of infectious diseases of live stock.

The principal disease reported in this state is chicken-pox. It can generally be satisfactorily controlled and eradicated by the use of a chicken-pox vaccine which, for a number of years, has been prepared and distributed by the University Experiment Station at cost to the poultryman. Apparently chicken-pox is influenced to a certain degree by feeding and cleanliness although it may make its appearance in poultry ranches which have been kept in the very best of condition. There are as yet many phases of this problem that have not been satisfactorily solved. The most essential need of the poultryman is a means of preventing the decimating influence of the disease.

The following table (Table 1) has been supplied by the University Experiment Station and shows the distribution of chicken-pox vaccine during the year 1920 and 1921. In addition to the University, several commercial concerns are also supplying poultrymen with the vaccine, hence it is quite possible that the figures do not represent more than one-half the actual amount of this product dispensed.

TABLE 1. *Sale of Chicken-pox Vaccine.*¹

	Year 1920	Year 1921
Alameda	1,975	7,500
Butte	-----	1,200
Contra Costa	-----	100
Fresno	-----	150
Glenn	1,500	700
Imperial	-----	165
Kern	650	1,555
Kings	-----	750
Los Angeles	11,345	24,650
Marin	-----	1,750
Mendocino	-----	1,050
Merced	-----	950
Monterey	2,650	-----
Napa	-----	100
Orange	2,375	1,450
Placer	1,000	11,290
Riverside	1,450	875
Sacramento	7,275	21,271
San Benito	-----	5,143
San Bernardino	8,720	250
San Diego	26,585	2,605
San Joaquin	3,250	13,910
San Luis Obispo	-----	400
San Mateo	100	-----
Santa Barbara	1,000	900
Santa Clara	-----	900
Santa Cruz	2,050	7,800
Solano	125	-----
Sonoma	113,695	178,190
Stanislaus	1,000	45,740
Sutter	145	900
Tehama	650	-----
Tulare	3,130	1,850
Yolo	986	2,005
Yuba	-----	2,365

The importance of keeping poultry free from lice and mites is so well known to experienced poultry breeders that very rarely information is asked along this line except by beginners. Frequent cleaning of the poultry houses, removal of all litter, a thorough spraying with a 5 per cent creolin or other coal-tar disinfectant, followed by a generous coat of whitewash will generally hold these parasites in check. When buildings have not been kept clean the birds may become so badly infested with lice and mites that separate treatment becomes necessary.

Turkey raising in California for a number of years has been a very lucrative phase of the poultry industry, but, unfortunately, whenever large numbers of birds are brought together disease is likely to make its appearance. Our dry California climate seems ideal for the raising of turkeys due in part to the fact that wet weather is so inimical to young poults. The disease known as blackhead has caused considerable losses to poultry raisers during the past few years especially in the Sacramento Valley and certain counties in the southern part of the state. The same disease practically ruined the once flourishing business of turkey raising in Rhode Island and recently it appears to be threatening the industry in California. During the past year a number of inquiries have been made with reference to the control of this affection.

¹Information kindly supplied by the University of California Experiment Station.

About two years ago doctors H. N. and Paul Wegforth of San Diego, California, reported the finding of a new remedy which had given excellent results in the treatment of blackhead. Their findings were the result of several years of study of the disease. The following summary is taken from their reports and outlines the diagnosis and method of treatment.

BLACKHEAD IN TURKEYS.

For the early diagnosis of the disease, careful inspection of the droppings each day is of great assistance. The first symptom usually noted in a bird coming down with blackhead is a slight lameness of a leg, usually the left one. Just about this time the droppings become liquid, frothy and frequent so that it has frequently happened that detection of such droppings in an enclosure has led to the successful search of a sick turkey. The number of times this early diagnosis has been confirmed by death and subsequent autopsy has not been without benefit. By its use a great many birds were subjected subsequently to treatment at a time when the best results could be expected. The characteristic droppings were the first symptoms in about half of the cases observed and have been typical of the disease in about 75 per cent of the turkeys infected. Following the lameness the turkey becomes sluggish and the head frequently, but not always, becomes discolored, the fleshy parts taking on a bluish green cast. During the course of the next day or two the feathers on the rump begin to rise and later the wings and tail droop; the head is carried less erect and the eyes remain closed most of the time, opening, when they do, slowly and languidly. Death sometimes occurs within 24 hours after the onset, but most commonly the turkey succumbs on the second or third day. Turkeys sacrificed at the different clinical stages have shown a characteristic progression of the infection. If sacrificed early when the bird begins to limp, the caeca alone were noted to be inflamed. Later when the feathers begin to rise over the rumps, involvement of the liver can be found and by the time the wings and tail droop, the liver is usually filled with necrotic areas.

In September, 1919, experiments were begun with the use of ipecac. Out of a flock of 209 birds hatched, only 52 remained. Blackhead was raging in the flock, some of the old birds also being attacked. After separating the sick birds from the rest of the flock they were given 10 drops of fluid extract of ipecac three times a day, continuing this dosage for three days and then decreasing to 10 drops twice a day for three days and finally once a day for the same period. After treating six to eight turkeys it was found the sick birds were recovering and could be put back with the flock. Out of the 52 young birds 32 were attacked by the disease and under the ipecac treatment 29 completely recovered. Of the five old birds contracting the disease at this period and given treatment, three recovered, the other two being far gone when treatment was resorted to.

Without some successful preventive treatment at least 50 per cent of the young birds hatched every season throughout the country will probably succumb to blackhead, so that the potential economic benefit that may be expected to be derived from the proper use of ipecac can easily be imagined. The simplicity of the Wegforth treatment and ease of administration as well as the results to be obtained will commend it to every poultryman.

CATTLE TICK ERADICATION IN CALIFORNIA.

By J. P. IVERSON.

In the year 1906 the southern cattle tick disease known also as "Texas fever" had reached such alarming proportions in the United States that it became necessary for the federal government to declare a quarantine line over which southern cattle could not be moved without first being properly dipped and rendered free from ticks. This action was necessary partly because the disease was spreading rapidly to the northern states. Many southern cattle had developed a marked resistance to the fever but indirectly remained carriers; consequently, when certain of the ticks fed on the blood of these animals and then later on nonresistant cattle, the latter contracted the disease in a highly virulent form. In this way tick infested immune cattle would spread the infective agent in any northern section over which they were transported or grazed.

The federal quarantine line began on the Atlantic Coast near the mouth of the Chesapeake Bay. It extended through into Virginia, included a portion of Tennessee, Arkansas, a part of Oklahoma, most of Texas, following the International Boundary between Mexico and the United States to the California state line. It then extended north along the Colorado River to the Nevada line and across the center of California to the Pacific Ocean. Cattle from any section south of this line could not be shipped to any of the large northern markets unless they were first dipped and then shipped under a special permit in accordance with the standard regulations.

California was one of the first states from which the tick was completely eradicated, the quarantine being removed in 1916. Approximately ten years' time was consumed by the state in exterminating the parasite. This would not have been possible without the whole-hearted support accorded the state and federal officials by the live stock people themselves.

No doubt the lack of enthusiasm and interest on the part of the cattlemen of the south accounts largely for the fact that much of Texas, Louisiana, Alabama, Florida, North Carolina and some of Virginia are yet under federal quarantine almost twenty years having elapsed since the quarantine order was put into effect in those states.

The Texas fever in cattle is due to a small blood parasite called *Piroplasma bigeminum* one of the lowest forms of animal parasites commonly called protozoa. This small parasite is found in the red blood cells of every case of Texas fever. By transferring a small amount of blood from an affected animal to a non-infected animal, the disease is transmitted, thus proving its direct causative effect in the production of the disease.

The natural transmission of these parasites from cow to cow is brought about exclusively by means of the southern cattle tick. This tick attaches itself to the skin of the affected animal and becomes engorged with infected blood. The female may attain a size of almost one-fourth inch in diameter by one-half inch in length. When thoroughly engorged she releases her hold on the skin of the cow, falls to the ground and lays her eggs upon the grass or other growing material near

the ground where they will be protected from the direct rays of the sun, the effects of rain or other elements that would be harmful to them. It is estimated that from one thousand to fifteen hundred eggs are laid by a single tick. These eggs hatch into larvae or seed ticks in from thirteen days to six weeks depending upon the temperature and moisture conditions.

The larvae crawl around on the ground and the lower parts of the grass. They will live for three or four months in this condition. If during this time they have not had an opportunity to fasten themselves upon the skin of horses or cattle they will die. They must have blood which they secure from their host in order to develop into the adult stage. Figure 224 shows the picture of an adult female laying her eggs and the portion of the skin of a cow badly infested with ticks, also a greatly magnified drop of blood from a tick-infested animal showing the small dark bodies within the red blood cells which represent the real parasite that causes the fever.

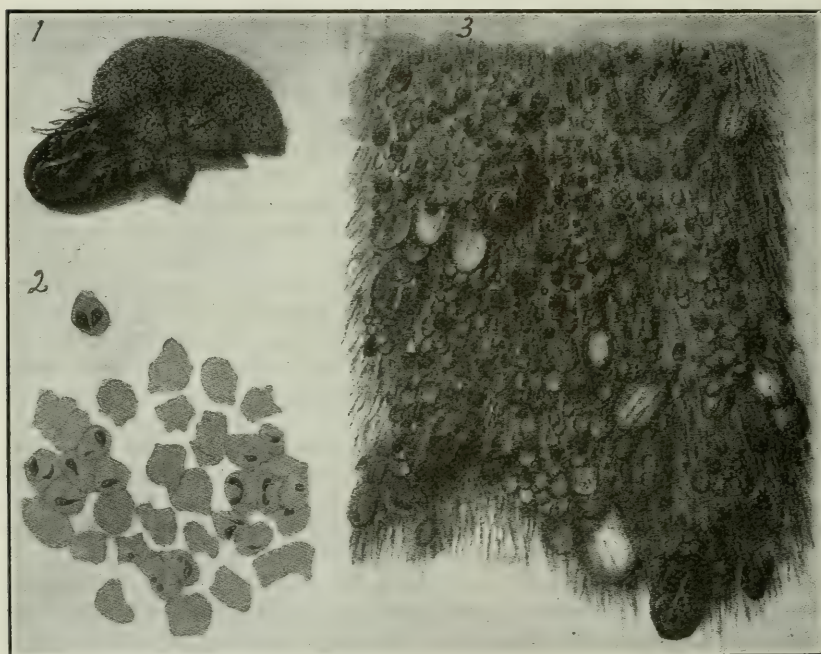
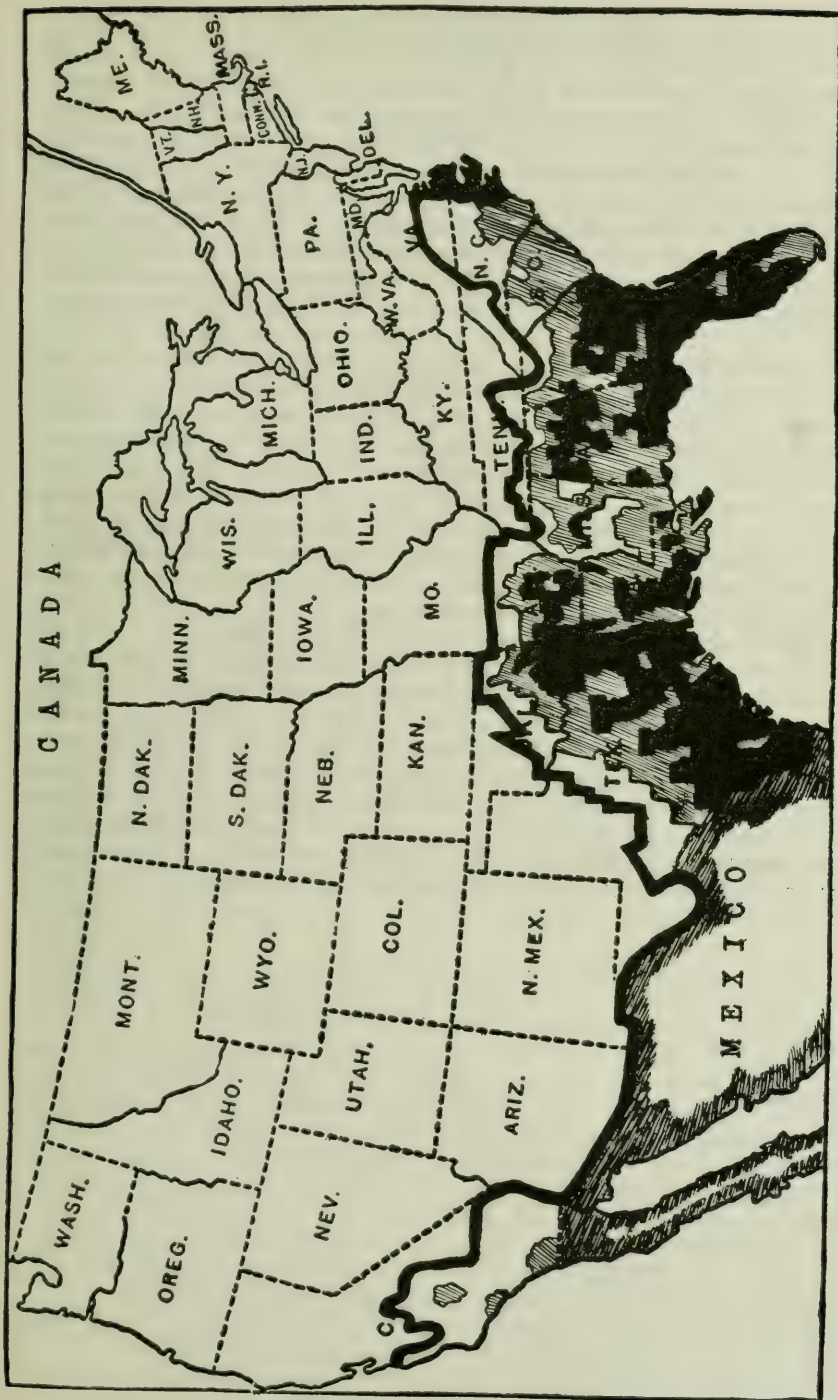


FIG. 224—1. Texas fever tick (female), natural size, laying eggs (as many as 1500 eggs are laid by a single female tick). 2. Blood smear of cow infected with *Piroplasma bigeminum*, the microparasite that is the real cause of the Texas fever. (The small pear shaped bodies within the red blood cells—magnified 1200 diameters). 3. Portion of the skin showing ticks of all sizes.

Today California stands as one of the leaders in the purebred beef and dairy cattle business. Some of the finest cattle in the world are being produced. This condition would have been impossible if the southern cattle tick had not been eliminated.



TEXAS FEVER ERADICATION WORK.

Fig. 223—Heavy black line represents federal quarantine of 1906. White below black line represents free area up to 1914. Shaded portion represents free area up to 1918. Black portion still quarantined, 1918.

The financial loss to the stockmen below this line was not alone confined to the loss of the better northern market prices which in itself, however, was considerable, but a greater and more important loss was experienced by the fact that a large percentage of the infected animals died outright. In addition to this serious loss was added the depreciation in actual value of the individual steer or cow that did not succumb to the attacks of the ticks. Animals badly affected failed to grow or make the proper gain in weight on a given amount of feed. The hides showed the effect of tick infestations by having roughened spots where the ticks had punctured the skin, thus producing small thickened areas. Such hides meant a loss to the tanner because leather produced therefrom was an inferior quality which could not be used in high-grade work.

The United States Bureau of Animal Industry estimates that the badly infested dairy cow will show a decrease in milk yield of from 10 per cent to 25 per cent. With her 600,000 dairy cows it is easy to compute what this would mean to California if the cattle tick had not been eradicated from the state. The loss from milk alone in this state would be, roughly speaking, from ten to fifteen million dollars. The beef cattle business generally would have suffered very seriously during the past few years since the margins of profit have been so slight the added burden of any such loss as that caused by the fever tick would have probably spelled complete ruin to the industry.

By referring to the map of the United States (Fig. 223) it will be seen that in 1914 all of California was free from the southern cattle tick except a portion of San Diego County, another small area in San Joaquin Valley and a little area along the coast. During the same period considerable areas had been rendered free by the federal government in some of the southern states as will be seen by the unshaded portion beneath the heavy line. All that portion lightly shaded has been rendered tick-free since 1914. The portion in black was still under federal quarantine in 1918, including a large area of Texas, Louisiana, Alabama, Florida and a part of North Carolina and Virginia.

STALLION REGISTRATION.

By J. P. IVERSON.

The annual report, Special Publication No. 23, covering the registration of all stallions and jacks in California was issued for the preceding year during May of this year. All licensed male equines used for breeding are listed with name of owner and address. Other information pertaining to the horse industry is included. Copies of Bulletin No. 23 may be secured by writing the Division of Animal Industry, State Department of Agriculture, Sacramento.

To one not familiar with the situation, the breeding of horses in California might appear to be a lost and forgotten art. After carefully analyzing the horse situation in this state, it appears, however, that the art has not been lost but rather that it has been intensified and improved. As the result of a considerable reduction in the actual numbers of stallions being stood at stud in this state, almost 75 per cent of the grade, mongrel and other generally poor stock have been eliminated. The stallions and jacks remaining in the state are, generally speaking, of better type and quality. The motor competition has simply hastened the day of the survival of the fittest. The prime purpose of the stallion registration act when it was originally proposed, was to discourage the owner of the poor or "scrub" animal so that in time the scrub would be eliminated or substituted by better blood.

By referring to Table 1 (Summary by Breeds of Stallions Registered During the Years 1912 to 1921) it will be observed there has been a decided reduction of all breeds but the chief reduction has been through the elimination of the so-called scrub type of animal. The light driving horse has been mostly affected by the automotive industry while the heavy "drafters" have as a rule been but slightly influenced. This class will probably always hold its own in the industrial economy plan. Table 2 (Stallions and Jacks by Breeds for the Year 1921) shows the low proportion of the mongrel, crossbred and grades as compared with the purebred types. Table 3 (Summary of Stallions and Jacks by Counties) indicates the distribution of the licensed stud stock throughout the state.

The introduction of mechanical power has unmistakably affected the horse industry, but it must not be considered to have ruined the industry nor need there be fear that this will occur. There are various reasons for this conclusion, first it is not likely that human ingenuity will ever succeed in producing any form of motive power that will be as highly efficient and as easily maintained as the horse. For the small rancher who has only a few acres to till, the horse must always be most economical and most adaptable. So too, the large rancher now finds that it pays him to have trucks and tractors for the long haul and the heavy work but that it is to his advantage also to maintain a goodly number of well bred draft horses for short hauls and for the many types of lighter work that must constantly be accomplished.

Even with the highly improved condition of our motor industry today, the fact still remains that the average economical working life of the tractor is four years or less. In the case of the horse this working life is easily doubled, in addition to the fact that during this working period brood mares may be used to produce colts that will be ready

for the harness by the time the present working unit must be displaced. Therefore, no matter how much the tractor may be perfected in the future, it will never reproduce itself and can therefore never hope to entirely compete with the horse as an economy machine.

TABLE 1. *Summary by Breeds Stallions Registered During Years 1912-1921.*

Breeds	Number									
	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Arabian			1	3	5	5	3	3	5	5
Belgian	146	159	138	143	114	98	77	54	36	34
Cleveland Bay	1	1								
Clydesdale	29	33	25	22	16	9	8	6	7	3
Crossbred	10	6	2	2	3	4	4	3	2	1
French Coach	26	23	21	10	8	5	4			
French Draft	57	57	48	46	36	29	22	15	8	7
German Coach	65	53	29	32	22	13	7	7	3	2
Grade									66	57
Hackney	2	4	3	3	2					
Mongrel	766	707	547	350	288	209	115	87	67	47
Nonstandard	2	4	3	4	3	3	2	1		
Norman	3	5	4	2	1					
Percheron	419	463	410	437	391	328	247	179	133	121
Saddle	10	7	8	10	9	8	5	2		1
Shire	94	88	71	72	66	46	36	28	15	14
Shetland										1
Standard	165	279	208	186	144	75	42	31	17	14
Suffolk	1	1	1	1						
Thoroughbred	11	15	8	13	16	17	13	14	11	16
Trotter	150	2								
Welsh pony										
Not classified		13	24		9	9	5	5		
Totals	1,957	1,920	1,552	1,336	1,133	858	590	435	370	328
Jacks	77	358	111	295	254	185	173	148	130	140
Grand totals	2,034	2,278	1,663	1,631	1,387	1,043	763	583	500	468

TABLE 2. *Summary Stallions and Jacks by Breeds. Purebred, Grade, Crossbred, and Mongrel.*

	Purebred	Grade	Crossbred	Mongrel
Stallions—				
Arabian	5			
Belgian	34	10		
Clydesdale	8	1		
French Coach		1		
French Draft	7	1		
German Coach	2	1		
Percheron	121	24		
Saddle	1			
Shetland	1			
Shire	14	10		
Standard	14	7		
Thoroughbred	16			
Breed not given		2	1	47
Jacks—				
Breed not given	72	8		60

TABLE 3. Summary of the Number of Stallions and Jacks by Counties.

Counties	Stallions					Jacks				
	Pure-bred	Grade	Cross-bred	Mongrel	Total	Pure-bred	Grade	Cross-bred	Mongrel	Total
Alameda	6	2		1	9					
Butte	2	2		2	6	1			1	2
Calaveras		2			2					
Colusa		2		1	3	2	3		2	7
Contra Costa	8		1		9	1				1
El Dorado		1			1					
Fresno	10	6		4	20	4	1		6	11
Glenn	1			1	2	2			1	3
Humboldt	2	1		4	7				1	1
Imperial				1	1	3			4	7
Inyo	5				5	2				2
Kern	3	3		7	13	5			4	9
Kings	2	3		1	6	2			3	5
Lake				1	1					
Lassen	2				2					
Los Angeles	18			2	20	6			2	8
Madera	1				1	2				2
Marin	2				2					
Mendocino	2	5		1	8				1	1
Merced	4	1			5	1			1	2
Monterey	14	1		1	16	2			2	4
Modoc	1				1					
Napa	4	3			7				1	1
Nevada	1				1					
Orange	1	1			2	4	1		2	7
Placer				1	1					
Plumas	1				1	2				
Riverside	10				10	8			2	10
Sacramento	8	1		1	10	1			1	2
San Benito	4	1		1	6	1				1
San Bernardino	3				3	3				3
San Diego	4	1		5	10	2				2
San Francisco	4				4					
San Joaquin	19	3		1	23	2			7	9
San Luis Obispo	11	3			14	2	1			3
San Mateo	1				1					
Santa Barbara	7	5		1	13	2				2
Santa Clara	7	3		1	11				1	1
Santa Cruz	3				3					
Shasta	2				2				1	1
Sierra	1				1					
Siskiyou	7				7				2	2
Solano	6			1	7	1			1	2
Sonoma	5	3			8					
Stanislaus	6	1		2	9				3	3
Sutter	2	1			2	2			1	3
Tehama	3				3				1	1
Tulare	5			1	6	8			5	13
Tuolumne	2			2	4					
Ventura	8	1		1	10	1	1		2	4
Yolo	3			1	4	2	1		1	4
Yuba	2	2			4	1				1
Totals	223	57	1	47	328	73	8		59	140

DAIRY SERVICE.

DR. J. J. FREY, *Superintendent.*

FUNCTIONS.

The first and most important function of the Dairy Service is the maintenance of a uniform high standard of quality for dairy products. These standards may be based on bacteriology, and pertain to the sanitary condition of dairies, dairy products plants, carriers of dairy products, and to the bacterial content and wholesomeness of the products; or they may be based on the chemical composition of the products. The enforcement of legal standards for maintaining necessary uniformity and high quality, not only constitutes the chief work of the Dairy Service but occupies the greater part of the time of inspectors and necessitates greater expenditure than all other functions combined.

The second important function of the Dairy Service is the regulation of the purchase of milk and cream on the basis of its butterfat content as determined by the Babcock method of testing. The dairy farmer is dependent for his livelihood and prosperity upon the sale of butterfat. The measurement of the amount of butterfat by weighing, sampling and testing the milk or cream which is offered for sale, and the calculation of the amount to be paid are entirely in the hands of the purchaser. Therefore, the farmer's only assurance of a square deal lies in the honesty of the buyer and in the supervision of the weighing, sampling, and testing, of milk and cream, by this department. The honest purchaser likewise is dependent upon the same supervision for protection against unfair competition. The Babcock test is comparatively simple but technical and not understood by most dairymen and, where there is lack of knowledge, suspicion is generally engendered. For this reason it is very common for dairymen to suspect purchasers of fraudulent manipulation of the Babcock test. It is indeed easy for the unscrupulous to commit fraud in work of this nature without danger of having guilt fastened upon them, unless the testing and the recording of results are done under strict regulation and close supervision.

The third important function of the Dairy Service is the regulation of the advertising and labeling of dairy products and their substitutes. Substitutes, much inferior to dairy products in food value, can be produced at considerably less cost than the real article and by shrewd advertising may be foisted upon an unsuspecting public as being suitable to replace dairy products. Laws and regulations with regard to labeling and advertising dairy products and their substitutes are necessary in order to protect the legitimate enterprise against unfair or dishonest competition.

The fourth function of this service is the compilation of dairy statistics. These are valuable to indicate the growth and development of the industry in the various sections of the state and are used extensively by chambers of commerce and county boards of trade in connection with advertising the industry of their communities. Accurate, reliable statistics are indispensable as a basis for intelligently conducted business enterprise and the annual statistical report, which is issued by the Dairy Service, is eagerly awaited each year by all branches of the industry.

A great many other activities or subfunctions, related to one or more of the general functions, as outlined above, are enforced by the Dairy Service under the provisions of the State Dairy Laws. An outline of the work is shown in the following diagram and discussed in detail in the body of this report.

FUNCTIONS.

1. Maintenance of a uniform high standard of quality for California Dairy Products:
 - (a) Factors affecting wholesomeness.
 - (b) Relating to composition.
2. Regulation of butterfat testing.
3. Regulation of labeling and advertising of dairy products and their substitutes.
4. Compilation of dairy statistics.

I. LEGAL STANDARDS.

A. Factors Affecting Wholesomeness.

DAIRIES:

1. Sterilization of utensils.
2. Clean cows and milkers.
3. Protection from dust and flies.
4. Cooling of milk and cream.

FACTORIES:

1. Cleaning and sterilizing of equipment.
2. Accurately controlling pasteurization.
3. Protection of products from contamination.

CARRIERS:

1. Protection of products at stations and in transit.

B. Relating to Composition.

1. MILK—Must contain not less than 3% of milk fat and not less than 8.5% of solids not fat.
2. CREAM—Must contain not less than 18% of milk fat.
3. BUTTER—Must contain not less than 80% milk fat.
4. CHEESE—Must contain not less than 50% of milk fat in water free substance and Cheddar cheese must not contain over 38% moisture.
5. ICE CREAM—Must contain not less than 10% of milk fat and not more than .6 of 1% of pure harmless vegetable gum or gelatine.
6. FRUIT AND NUT ICE CREAM—Must contain not less than 8% of milk fat and not more than .6 of 1% of harmless vegetable gum or gelatine.
7. CONDENSED MILK—Standard same as that set by the U. S. Dept. of Agriculture.
8. CONDENSED SKIM-MILK—Must contain not less than 18% of milk solids.
9. ICE MILK—Must contain not less than 2.4% of milk fat and not more than .6 of 1% of pure harmless vegetable gum or gelatine.
10. MILK FAT—Is the fat of milk and has a Reichert-Meissel number of not less than 24 and specific gravity of not less than .905 (40° C.).

II. REGULATION OF BUTTERFAT TESTING.

1. Examining and licensing all milk and cream testers.
2. Checking purchaser's test on milk and cream.
3. Furnishing test record sheets.
4. Selling test record boxes.
5. Investigating of all complaints.
6. Establishing regulations.

III. REGULATION OF LABELING AND ADVERTISING OF DAIRY PRODUCTS AND THEIR SUBSTITUTES.

1. Regulation of labeling of butter, cheese, market milk and assembled products.
2. Licensing manufacturers, distributors, retailers, bakers and restaurants handling oleomargarine.
3. Regulation of labeling of oleomargarine.
4. Supervision of advertising of oleomargarine.

IV. COMPILATION OF DAIRY STATISTICS.

Total production of butterfat----- 105,446,103 pounds.
 Total wholesale valuation when sold in most valuable form----- \$97,125,339 00

ORGANIZATION AND PERSONNEL.

The Dairy Service is a major subdivision of the Division of Animal Industry of the State Department of Agriculture. Its funds are set up in a separate unit in the budget of the department and the work throughout the state is administered under the direction of the Superintendent, from the Department of Agriculture offices at 1015 L Street, Sacramento, California. To save the time and necessary traveling expense required by frequent trips to the south end of the state and to facilitate prompt service, the work in southern California, comprising Imperial, San Diego, Orange, Riverside, San Bernardino, Inyo, Ventura, Los Angeles and the lower part of Santa Barbara counties are under the immediate supervision of the senior field veterinarian in the southern branch office at 1028 Pacific Finance Building, Los Angeles, California.

There are in the Dairy Service staff at the present time one superintendent, one senior field veterinarian (half time in Los Angeles office), one senior dairy inspector, one market milk specialist, two factory inspectors, twelve full-time and one half-time dairy inspectors, one butter inspector of the United States Bureau of Agricultural Economics (cooperating without pay, collections payable to the federal government), four full-time and three part-time county dairy inspectors (cooperating without pay from state funds), one license clerk, one part-time license clerk (on per diem basis), one full-time assistant license clerk, statistical clerk, two full-time and one half-time stenographers.

The regular dairy inspectors have been located in the densely populated dairy sections, producing products for manufacturing purposes, and at the principal marketing centers. This facilitates receiving point inspection and supervision of dairies where raw materials, entering into these products, are produced.

The number of inspectors now employed is not indicative of the conditions which have existed throughout the year, since the Dairy Service did not fulfil its duties or complete its organization until very recently, and it is only since the close of the fiscal year that the service has become established in an adequate manner.

When the funds became available at the beginning of the seventy-third fiscal year, it would have been unwise to have put into the field immediately a number of new men totally unfamiliar with dairy inspection work. It has required a large part of our attention during the past year to select, and train in actual service, men qualified to conduct the work. Though the demand for increased work was felt throughout the year, more would have been lost than gained by perfunctorily starting a force of inexperienced men to work in the different sections of the state. The organization of the inspection work has proceeded carefully and funds have been expended only when it was certain that they were being used to the best advantage.

Work of the Dairy Inspectors.

The first and principal work of the regular dairy inspectors is to determine whether the dairy products, produced, manufactured and offered for sale in the district to which assigned are in conformity with the legal standards established by the Dairy Law, and the regula-

tions for its enforcement, both as regards their wholesomeness and composition. This is accomplished by making receiving point inspections on milk and cream for manufacturing purposes, by traveling on cream gathering trucks, by taking consumers' samples of market milk and cream when necessary, and by taking samples of all manufactured products at least once each quarter. If any products from the dairy are found below standard it then becomes the duty of the inspector to locate the cause and assist the dairyman to eliminate it. If the dairyman refuses to cooperate after repeated efforts on the part of the inspector, then the police power of the state is used to compel the observance of such fundamental sanitary requirements as are necessary for the protection of the consuming public and the producer of good products as well.

When samples of manufactured products are found by the factory inspector to be persistently under grade, the local inspector is asked to assist in making an investigation to determine the cause. If the product is found low in quality because of poor raw materials, the local inspector, with special assistance if necessary, at once investigates the sources of the poor material and corrects them. If the sample taken by the inspector indicates that the product is below the legal standard of composition, a series of samples is then taken from different sources, and if found to run continuously low, a warning is sent by registered mail, after which another series of samples is taken and if no improvement is noted the police power of the state is used to compel observance.

In addition to making frequent receiving point inspections at all plants in his district, sampling all manufactured products at regular intervals making proper application of the information thus secured and attending to the special work of urgent nature which continually arises, the inspector is expected to make routine visits, as frequently as time will permit, to every dairy in his district. He is thus enabled to become thoroughly familiar with dairy conditions throughout his district, to detect violations that cannot be discovered otherwise, and to consult with dairymen, both imparting and receiving knowledge. Cloth posters, printed in the language most familiar to the dairyman, are placed by inspectors in a conspicuous place on every dairy, calling attention to the dairyman's interest in producing good milk and cream and briefly stating the fundamental requirements of the law. The object of the inspection work and the viewpoint of the inspectors is thereby placed before the dairyman in black and white where it is seen every day. It has been found that this practice influences the dairyman to be more sanitary in his work and certainly leaves him without any excuse to do otherwise.

When visiting receiving stations in connection with his duties relating to the maintenance of legal standards, the inspector, by taking and sending to the dairy laboratory at Sacramento, samples of milk and cream which have been tested by licensed milk and cream testers together with a copy of the results obtained by the tester as recorded on the duplicate test record sheets, and by investigating all complaints from dairymen regarding tests, gives assurance to the dairyman throughout the state that the measurement of butterfat in their products is accurately and honestly done.

In addition to the regular work required of the dairy inspector, he is called upon to perform many miscellaneous duties. These include investigations relative to the advertising and sale of oleomargarine, assistance in gathering dairy statistics, securing evidence necessary in litigation, investigating adulterations of market milk in country towns, removing the reacting cows from dairy herds following the tuberculin test by a veterinarian of the Division of Animal Industry, enforcing labeling requirements, investigating the condition of ice cream containers and other matters relative to the transportation of dairy products.

Summary of Work During Year Ended June 30, 1922.

Inspected and scored:	
Dairies—guided by examination of product.....	2,724
Dairies—unguided by examination of product.....	5,256
Factories	230
Inspected, not scored:	
Dairies—guided by examination of product.....	3,199
Dairies—unguided by examination of product.....	9,376
Factories	733
Improvements secured:	
Milk houses built.....	546
Milk houses improved.....	432
Barns built.....	149
Barns improved	139
Small-top buckets installed.....	1,548
Sterilizing equipment installed.....	531
Cooling equipment installed.....	711
New silos built.....	42
The summary of inspection work conducted on factory platforms is as follows:	
Milk:	
Lot examined for sediment.....	11,082
Lot examined for temperature.....	3,107
Lots rejected	550
Gallons rejected	13,193
Notices of warning sent.....	557
Samples scored	791
Samples tested for fat.....	1,268
Samples tested for specific gravity.....	783
Samples tested for preservatives.....	198
Samples on which bacteria counts were made.....	1,489
Samples sent to laboratory.....	158
Cream:	
Lots graded	17,717
Lots examined for temperature	1,206
Samples tested for fat.....	293
Lots rejected	136
Gallons rejected	1,156
Notices of warning sent	1,082
Samples sent to laboratory	102

Work of the Field Veterinarian.

The inspection of dairies selling milk and cream in cities and towns not having a city milk inspecting department is conducted by field veterinarians in connection with tuberculin tests on raw milk dairies. In territory not assigned to dairy inspectors, veterinarians include in their work of inspection the dairies selling products at wholesale for manufacturing purposes. In conducting this work, field veterinarians are guided by the same instructions issued to dairy inspectors and follow the same procedure as outlined in *The Work of Dairy*

Inspectors. They also give attention to the violations of miscellaneous provisions of the dairy law, such as adulteration, mislabeling of products, the handling of oleomargarine by retailers without licenses, etc.

The Work of the Factory Inspectors.

The work of factory inspectors includes the examination of manufactured dairy products plants for quality, thorough going sanitary inspection of dairy products plants, examining applicants for milk and cream testers' licenses, making miscellaneous investigations requiring special knowledge of manufactured dairy products, and applying the dairy laws generally as they relate to factories.

Official sealed samples of the finished product are taken regularly and forwarded to the dairy laboratory for examination. This corroborates the work of local inspectors and extends the application of the law on legal standards to plants located outside of regular inspectors' districts. In addition to the samples sent to the dairy laboratory at Sacramento one pound prints are taken and after removing markings are forwarded to a central point for scoring by specially qualified judges, to whom the origin of the sample is unknown. The sample is scored while fresh, then placed in storage for two weeks and scored again. In this way plants that are regularly producing under-grade butter are located and can be given necessary assistance in effecting improvement. If the trouble is found to be due to low grade raw materials a dairy inspector is assigned the special task of correcting the supply at its source.

Sanitary inspection of all dairy products plants, includes creameries, cheese factories, market milk plants, ice cream factories, condenseries, sweet cream depots and by-products plants, of which there is a total of 1,241 in the state. Factory inspectors are expected to conduct at least four such inspections a year, on each occasion starting at the receiving platform and following every factory process, taking down the pipe lines and making minute inspections through the entire plant, to the shipping room.

The efficiency of pasteurization, the condition of the recording thermometers and the effectiveness of equipment for cleaning, sterilizing and drying cans are especially noted. Special attention is also given to the method of work and conditions in the testing room, to the presence or absence of factory and testers' licenses, to the accuracy of scales and weights, the condition under which the samples are held, the method of keeping records, the condition of testing equipment and the circumstances under which the work is being done. They are required to give an examination to applicants for testers' licenses and are held responsible for the quality of work done by testers for whom they recommend licenses.

Work of the Market Milk Specialist.

The duties of the market milk specialist include supervision of the work of approved milk inspecting departments and the enforcement of the rules and regulations pertaining thereto; the organization of new inspecting departments and assistance in the enactment of ordinances pertaining thereto; the promotion of uniformity in the quality of market milk and cream; conducting scoring

contests on milk; assistance in inaugurating and conducting milk campaigns; cooperation with state factory inspectors and city officials in maintaining satisfactory market milk plants; assistance to field veterinarians in the application of the provisions of the pure milk law relating to the market milk supply of small cities and towns and special investigations in places where the milk supply is reported as unsatisfactory.

Clerical Work.

The issuance of licenses to manufacturers, distributors and retailers of oleomargarine and to bakers and restaurants using it, is very largely of a clerical nature and if conducted in a satisfactory manner requires the full time of about three persons. At present the work is conducted by a license clerk with one assistant and the part time assistance of another. One clerk is assigned to the accumulation and tabulation of statistics. Another clerk is assigned to distributing and filing forms and reports of which there are almost forty different kinds. This clerk also attends to mailing supplies and equipment from the office to inspectors, dairy products plants and others when occasion demands, and handles the stenographic work when it is in excess of what can be handled by the regular stenographer.

The general correspondence of the office varies from ten to fifty letters a day. Many of these pertain to interpretations of the laws or explanations of the regulations, are several pages long and of a technical nature. Circular letters, amounting to several thousand a month, carrying information which is vital to the efficiency of the work of the service are sent out from the Sacramento office and distributed to inspectors for their use.

Supervision.

The large volume of work in the office, including correspondence, interviews, investigation of legal matters, interpretation of laws, determination of policies, preparation of necessary publications and reports, and attendance at dairy meetings, require so much of the superintendent's time that it has been impossible to keep in personal touch with the work of the various field men and the many questions of policy that continually arise, could not be explained satisfactorily by correspondence. It was therefore necessary to assign the task of the immediate supervision of the work in the field to a senior dairy inspector. His duties therefore include: checking and cross checking the various inspectors reports; visiting and traveling with all inspectors at intervals to note any weaknesses in their work and make suggestions for improvements; securing observance of all instructions by inspectors; promotion of uniformity of inspection work and making reports of his observations to the office.

**STANDARDS OF QUALITY.
MARKET MILK AND CREAM.**

RAW MILK REPORTED (GALLONS)-----	24,701,699
RAW CREAM REPORTED (GALLONS)-----	297,793
PASTEURIZED MILK REPORTED (GALLONS)-----	47,850,212
PASTEURIZED CREAM REPORTED (GALLONS)-----	3,666,027

The supervision of the quality of market milk and cream is primarily a local problem. Such products are produced locally and the work should be financed by local funds since satisfactory supervision of the entire market milk supply of the state would require at least a hundred and fifty dairy inspectors. That this number of inspectors will ever be supplied by the state is neither advisable or probable.

While clean wholesome milk is the most valuable of food products, it is also the most perishable, and the consuming public can well afford to pay a differential of several cents a quart between graded milk and milk of unknown quality. A product of unknown quality is bad in the case of most commodities, but especially bad in the case of this delicate food, since it is likely to prove detrimental to health instead of supplying the abundant nourishment and life giving vitamins, inherent in it. The payment of a wide differential however is not necessary since a sum varying from one-fourth to one-half cent a quart will maintain an adequate milk inspection service. Milk of a known quality and certain wholesomeness may be had for an additional ten or fifteen cents a month. The producer can well afford to pay this amount in the form of a license fee because it is a well known fact that when uniformly high quality products are offered for sale the demand is greatly increased and the profits from increased sales and decreased overhead costs on larger volume of business, more than offset the cost of inspection. Intelligent inspection is not only of assistance to the individual producer or distributor in maintaining the quality of his products but insures that all competing producers and distributors are operating on the same basis.

In order that grading may be uniform and the designation applied to the various grades shall become established, recognized and accepted by the consuming public as representing definite values, the privilege of grading under the provisions of the pure milk law is extended only to local inspecting departments operating under the jurisdiction and approval of the State Department of Agriculture. The organization and supervision of these inspecting departments is assigned to the market milk specialist of the Dairy Service, who observes, checks and regulates the field and laboratory methods of inspection of the various departments. The surprise scoring contest conducted at regular intervals in cities and towns, having approved inspecting departments, serve to indicate the true efficiency of the inspecting department and at the same time keep the producers alert to maintain their product as near perfection as possible at all times. The results of such scoring are truly indicative of the actual comparative quality of the milk delivered to the consumers by various distributors in contradistinction to the results obtained from "prepared" samples entered in scoring contests at fairs and shows. Though prizes taken

for entries at exhibitions are used extensively for advertising, they are not indicative of the merits of the regular supply and at best is a contest of ability or knowledge how to prepare a sample. Even this factor is lost when the exhibitor hires someone else to prepare his exhibit and himself had no more to do with the sample than the ownership of the cows from which the milk was taken or lending his name and paying the entrance fee.

The promotion of the market milk work during the past year has been greatly handicapped by reason of the fact that two men appointed to this position resigned to accept other positions. At the present time this probably deserves more concentrated attention than any other phase of the work of the Dairy Service.

The rules for the approval of inspection departments have been revised during the year. Among other changes, the requirements for cooling were established and the publication of results of bacterial counts prohibited. The latter is very important because the significance of bacterial counts is not understood by the consumers and the publication of numbers of bacteria undoubtedly tend to discourage the consumption of milk, thereby extending the plague of undernourishment which is one of the things inspection should assist to overcome. Also bacterial counts are rather fictitious and influenced by many conditions so that the indiscriminate publication of the results of such counts may mean a serious injustice to a producer or distributor whose product is ordinarily of excellent quality. The publication of a score or rating on the basis of 100 per cent as perfect, is understood by everybody and can be used to accomplish the same objects which were intended by publication of bacterial counts. The score can be based largely on an average of bacterial counts computed on the basis of the "North Curve," and at the same time give consideration to other factors which determine the quality and merits of good milk.

Section 6 of Regulation 7 of the Rules and Regulations issued by the Division of Animal Industry, includes the new rules for approval of city milk inspection departments and is as follows:

REGULATION 7.

SEC. 6. APPROVED CITY INSPECTING DEPARTMENTS.

Rule 1. Milk Inspecting Departments.

Every city, county, or city and county, desiring approval of a Milk Inspecting Department, shall make application for approval in writing to the State Department of Agriculture. Upon receipt of said application, the State Department of Agriculture shall determine if such city, county, or city and county, is entitled to approval. If such approval is given, the State Department of Agriculture shall issue a certificate of approval to the Milk Inspecting Department, provided, such approval may be withdrawn should the Milk Inspecting Department later become inefficient; whereupon the certificate of approval shall be forfeited.

To secure and hold such approval, a Milk Inspecting Department must:

(a) Provide a sufficient force of qualified inspectors and sufficient laboratory facilities to enforce efficiently the "Pure Milk Law," chapter 576, Statutes 1917, and other laws and regulations relating to the grad-

ing of milk and cream. In the absence of a laboratory, arrangements may be made with a person or firm approved by the State Department of Agriculture to do the bacteriological and other laboratory work.

(b) Provide for the physical examination by a qualified veterinarian, of all cattle producing milk to be sold within its jurisdiction at least once every six months.

(c) Maintain the standards for the various grades of milk as established by the "Pure Milk Law," chapter 576, Statutes 1917, and the rules and regulations hereby established.

(d) Comply with the rules and regulations herein set forth.

Rule 2. Inspectors.

No dairy inspector appointed under the provisions of the "Pure Milk Law," chapter 576, Statutes 1917, shall accept any compensation, directly or indirectly, for any professional service, or for any advice rendered to any dairyman, nor shall any such inspector be the agent for, or be interested in, any firm or corporation selling, or handling, any supplies used by dairymen, creameries or other factories of dairy products.

The inspectors whose duty it will be to participate in the enforcement of the "Pure Milk Law," chapter 576, Statutes 1917, and other laws pertaining to the grading of milk and cream, shall have passed a civil service examination given either by the Civil Service Commission of the city or county in which the Milk Inspecting Department is situated, or by the State Civil Service Commission. Such examination, if given by a city, county, or city and county, shall be of equal or higher standard than that given by the State Civil Service Commission for the position of dairy inspector; provided, that all persons holding the position of dairy inspector in any city, county, or city and county, for a period of six months prior to the first day of October, 1914, and performing the duty of such office to the satisfaction of the Board of Health of such city, or county, during that time, shall not be required to take the said examinations. Nothing in these rules shall be construed to require the health officer of the state, or of any county, or city, to take an examination before being qualified to inspect dairies, milk plants, creameries, cheese factories, or any other factory where milk products are handled, nor to interfere with the inspection of such places by employees of the State Board of Health when an epidemic of any communicable disease is prevalent.

Rule 3. Inspection.

(a) Inspection shall consist of laboratory examinations of the product and supervision of the equipment and methods of the various producers and distributors.

(b) Samples for bacteriological and chemical examination shall be taken in original containers direct from delivery wagons at least once every two weeks, at irregular intervals and without previous notice to any producer or distributor. Samples shall be kept at a temperature below 50 degrees Fahrenheit until plated. Laboratory technique shall be in accordance with the "Standard Methods of the American Public Health Association for Milk Analysis."

(c) Dairy farms shall be inspected at least six times a year. Pasteurizing plants shall be inspected at least once every two weeks. Plants

of producer-distributors of raw milk shall be inspected at least once each month. Scores on the methods and equipment of dairy farms or products plants shall be made at least twice each year. Visits of inspectors shall be unannounced and at irregular intervals. Pasteurizing equipment shall be given special attention and recording thermometers tested for accuracy at least once every two weeks.

(d) All persons engaged in handling milk, either before or after pasteurization, shall be required to exercise scrupulous cleanliness and must not harbor the germs of typhoid fever, tuberculosis, diphtheria, or other communicable diseases liable to be conveyed through the milk. Absence of such communicable disease may be determined by cultures and physical examination to the satisfaction of the local health officer or milk inspecting department.

(e) Each dairy or distributor of milk and cream shall be kept informed of the results of the laboratory examinations and scoring of their individual products and equipment. On the basis of these determinations the inspecting departments shall issue written authorization to each person or concern who desires to sell milk under its jurisdiction; provided, that authorization shall be revoked in every case when the product or equipment of any person or concern does not consistently meet the requirements of the "Pure Milk Law" or of the rules and regulations for its enforcement.

(f) In case an official plate count exceeding the legal standard is obtained, the milk inspecting department shall make at least four recounts within a period of four weeks, whereupon if the count is persistently high and the average count obtained during the four weeks period exceeds that established by the "Pure Milk Law," such milk may be degraded, or, at the option of the milk inspecting department, excluded from the local market. Whenever the product of any person or concern has been degraded by this procedure, such product shall not be reestablished at its previous standing for a period of at least four weeks, during which time it must have met the requirements of the "Pure Milk Law" as determined by official plate counts.

(g) All publications or public statements relating to the quality of milk or cream, or the condition of dairies or milk plants, shall be expressed in terms of percentage, one hundred being considered perfect. In rating milk or cream this percentage shall be based on an average of results obtained by the examination of at least four samples taken at intervals of at least a week. In no case shall publication of numbers of bacteria be made.

Rule 4. Standards.

The standards for the various grades of milk shall be those established by the "Pure Milk Law," chapter 576, Statutes 1917, and in addition the following requirements with respect to cooling:

Grade "A" raw milk, when distributed twice a day by the producer, must be cooled to a temperature of 70 degrees Fahrenheit or below, immediately after being drawn from the cow, and so maintained until delivery to consumers.

Grade "A" raw milk held over until the next milking period must be cooled to a temperature of 55 degrees Fahrenheit or below, immediately after being drawn from the cow, and thereafter maintained at a

temperature not exceeding 60 degrees Fahrenheit until delivered to the consumer.

Grade "A" milk bottled at a distributing plant, must be cooled to a temperature of 55 degrees Fahrenheit or below, immediately after being drawn from the cow, and thereafter maintained at a temperature not exceeding 60 degrees Fahrenheit until delivered to the consumer.

Grade "A" milk for pasteurization must be cooled immediately after being drawn from the cow to a temperature of 65 degrees Fahrenheit or below, and maintained at a temperature not exceeding 70 degrees Fahrenheit until delivery to the plant, except when pasteurized immediately after being drawn from the cow. After pasteurization, milk must be cooled to a temperature of 50 degrees Fahrenheit or below, and so maintained until delivery to the consumer.

Grade "B" milk for pasteurization must be cooled immediately after being drawn from the cow to a temperature of 65 degrees Fahrenheit or below, and maintained at a temperature not exceeding 70 degrees Fahrenheit until delivery to the plant, except when pasteurized immediately after being drawn from the cow. After pasteurization, milk must be cooled to a temperature of 50 degrees Fahrenheit or below and so maintained until delivery to the consumer.

Rule 5. Labeling.

All grades of milk or cream, if sold in bottles, must be properly labeled on the bottle top indicating the grade, the date of pasteurization, if pasteurized, and the day of production, if raw. Such labels shall be printed in letters not less than one-eighth ($\frac{1}{8}$) inch long, and one-sixteenth ($\frac{1}{16}$) inch wide. Milk sold in containers larger than the ordinary one-quart bottle must be marked with the information above indicated, on a tag attached to the receptacle, on which the printed letters shall not be less than one-fourth ($\frac{1}{4}$) inch in height and one-twelfth ($\frac{1}{12}$) inch in width.

MILK AND CREAM FOR MANUFACTURING PURPOSES.

During the past year a remarkable improvement in milk and cream for manufacturing purposes has been noted, especially in those sections in which inspection had not been conducted for some time. These products are graded on receiving platforms, in the individual containers of dairymen who produced them, and on truck routes whenever weighing, sampling and mixing of cream takes place. Grading is on the basis of flavor and odor, the results obtained from the use of the sediment test, the brom-cresol-alcohol test, the acidity test and direct microscopic examination.

The sediment test for milk will clearly indicate the amount of dirt if the milk is not filtered, has the advantage of being rather spectacular and leaves the farmer without argument when shown a large amount of dirt from one pint of his milk. It has, however, the distinct disadvantage that it causes the dairymen to filter the milk more carefully rather than adopt cleaner methods. Straining or filtering milk in the ordinary way on farms is to be discouraged. Work conducted by our dairy laboratory shows that on the average the bacterial count of milk is doubled by straining. This is partly because strainers or filter cloths are difficult to clean and are frequently imperfectly sterilized. Also

because the bacteria which are the really objectionable part of the dirt are quite thoroughly washed off the coarser particles, which are returned and then pass on through the finest farm filter into the milk. Clumps of bacteria are broken up by agitation creating new foci of growth and distributing the contamination evenly through the volume, thereby stimulating more rapid deterioration. Milk for pasteurization, manufacturing, or packing should be strained just before heating to the thermal death point of the principal forms of contaminating bacteria. It is therefore advisable that dairies selling their products wholesale to distributors or products plants discard their strainers or filters for all time in the interest of better quality.

For milk the brom-cresol-alcohol test seems to be best adapted. It is conducted in the following manner:

Place one cubic centimeter of 70 per cent alcoholic brom-cresol solution in a clean, dry test tube by means of a clean one c.c. pipette, and then with another one c.c. pipette transfer one c.c. of milk to the test tube containing the alcohol and shake the tube with a rotary motion. The indicator in no way retards the curdling effect of the milk by the 70 per cent denatured alcohol.

The results are interpreted as follows:

(1) If the milk remains clear, that is, does not curdle and the indicator remains blue or a blue gray, the milk is normal. The acidity is from 0.14 per cent to 0.15 per cent in this case as determined by the ordinary titration method.

(2) The milk and alcohol will turn a light gray from an acidity of 0.16 per cent to 0.17 per cent. In these cases the milk is considered normal and will not curdle when the test is made.

(3) If the milk curdles and the mixture turns gray, the milk should be rejected as it contains from 0.18 per cent to 0.20 per cent acid.

(4) If the milk curdles and turns yellow the milk is sour. The milk should be rejected on this test.

(5) Where the milk curdles and the milk remains a blue color, the acidity is abnormally low. This indicates an abnormal condition of the cow or herd and points to disease. If a regular acidity test is made using standard sodium hydroxide solution and phenolphthalein as the indicator, the result will probably be 0.14 per cent as this is the lowest acidity shown by this test. The milk in reality is probably much lower in acid, as the ordinary solution test with the usual indicator is not sensitive enough to show the true value below 0.14 per cent.

In some cases when both the sediment and brom-cresol-alcohol tests are not definite, the milk is set aside for a direct microscopic examination.

Examination for off flavors and odors are practical on either milk or cream but are indefinite and opinions of different judges may differ. Definite tests are therefore preferable.

The acidity test can be used for both milk and cream. It is inferior to the alcohol test for milk but has a definite value for cream and should be used more extensively. It is true that pure acid is the least objectionable of the fermentations in cream but it must also be remembered that cream which sours very quickly must have been heavily con-

taminated and will also be likely to develop off flavors as the fermentation of protein advances.

A test which will indicate the extent of protein decomposition or putrefaction of cream is urgently needed. It must be adapted to quick work on receiving platforms and be so simple that anyone can use it and give uniform results in the hands of different workmen. By the use of such a test the personal element or differences in individual judgment would be avoided and there would be something definite to show the farmer as grounds for under-grading his cream.

The results of grading are followed up by field inspections of the dairies furnishing under-graded products. This has been found to be very effective in stimulating dairymen to earnest endeavor to produce better products.

BUTTER.

FACTORIES REPORTING.....	152
PRODUCED (POUNDS).....	74,010,176
INCREASE (POUNDS).....	1,755,886

Due to a steady improvement in the quality of raw materials and to greater skill in butter making, the quality of California butter is rapidly becoming recognized as the best in the world.

The reports of receiving point inspections rendered by dairy inspectors indicate that less than ten per cent of the butter manufactured in the state is below the commercial classification known as "extras." It is the consensus of opinion among dealers that the amount of under-grade butter is becoming less each year and the uniformity of that graded as "extras" is becoming more and more pronounced. That high class butter makes an unconscious appeal to the average consumer and that successful marketing depends, first of all, upon satisfying the consuming public, are facts recognized by creamerymen and should be passed on by them to dairymen.

In order to proceed in a definite way to reduce the amount of under-grade butter to a negligible quantity, arrangements have been made to take samples of butter for commercial scoring from each factory where butter is made, at least once every three months. These samples are forwarded in specially devised containers to a central point, where they are given a commercial score by specially qualified judges. After the first scoring is made, the samples are placed in storage for a period of time, after which they are again scored. If any plants are found to be manufacturing persistently an under grade of butter, a special investigation is made to determine the cause. If found to be due to unsuitable raw material the defect can be quickly corrected at the source of the supply if we may judge by the improvements which have been secured in territory that has been worked intensively during the past summer.

The alfalfa hay, fed extensively in some of our most important dairy sections, gives a characteristic flavored product known as "Alfalfa Butter." When thrown on the market periodically, particularly in the east, there appears to be some objection to it. If the proper cooling and aeration of the milk is practiced by the dairymen very

soon after the milk is drawn from the cows, alfalfa flavor will be reduced to such an extent that it will not be considered detrimental.

Turnip feeding during a short season of the year is a serious menace to the reputation of some section of the state most renowned for the excellent quality of their butter. This, however, should be overcome by educating dairymen to realize the danger, by suggesting other suitable crops to replace turnips, and by rigid enforcement of the law against impurities in dairy products.

The standard composition of butter, required by the dairy law, has not been enforced with anything like a satisfactory degree of persistency in times past, due to an insufficient inspection force. During the six months just passed samples have been taken systematically from butter plants and retail stores throughout the state. This work revealed a deplorable situation. Approximately half of the butter being manufactured in the state was found to be below the minimum of 80 per cent fat content and one sample contained 35 per cent moisture and only 60 per cent fat. The maximum moisture standard of 16 per cent, including all tolerance, was established by the National Committee on Standards and is enforced by the Commissioner of Internal Revenue of the United States Treasury Department and applies to all butter manufactured in California. The double standard of 80 per cent fat and 16 per cent moisture means that the total salt and curd content of California butter must not exceed 4 per cent of the whole. In all instances in which butter is found for the first time to be below standard, the department notifies the manufacturer, dealer and other persons interested, of the result of the analysis, after which a series of samples of that particular brand of butter is taken from different sources and at different times. If it is found to be persistently below standard then a second warning is sent to the manufacturer or distributor by registered mail advising that compliance with the state standards is necessary to prevent action by the department. Following this another series of samples are taken and if found that the warnings have been disregarded the police power of the state is used to compel compliance with the standards established by the dairy law.

A considerable amount of butter was found being distributed under illegal labels. A particularly objectional feature of this was that sold under various styles of labels known as "Humboldt Brand." This was practically all under-grade butter, yet Humboldt County is famous as a producer of the best of butter. Such labeling, done in an attempt to sell a poor article upon the good reputation of a community, can not help but reflect unfavorably upon that community.

Though the mislabeling of butter was a practice of long standing, those responsible, not realizing in most cases that the law was being violated, responded promptly when the matter was called to their attention and have agreed to cooperate with the department in securing proper labeling of butter. Under the present law, if the name of a geographical subdivision is used in any way in labeling butter the name of the place where the product was manufactured must also be correctly stated on the same label.

CHEESE.

FACTORIES REPORTING	99
PRODUCED (POUNDS)	*8,588,719
INCREASE (POUNDS)	3,128,261

*This includes all types except cottage cheese.

The total amount of cheese manufactured in the state during the past year has decreased, but the indications are that there was no decrease in the manufacture of the better grades of cheese. Those persons who, in the past, manufactured undergrade cheese have evidently found it more profitable to ship cream.

A maximum standard of 38 per cent has been established for cheddar cheese, 40 per cent for Granular (California) cheese and 42 per cent for Monterey (Jack) cheese. The enforcement of the standard composition of cheese, established by the dairy law, is assured by taking samples for analysis from manufacturers at least once every three months.

The law now provides that full cream cheese must contain at least 50 per cent of milk fat in the water-free substance and half skim cheese must contain at least 25 per cent fat in the water-free substance. These standards, when enforced in connection with the requirement of the dairy law regarding the quality of the raw materials, the conditions under which the milk is produced and the cheese manufactured, should serve to raise the standard and better the reputation of California cheese. Additional legislation, defining the different classes of cheese is necessary, however, before those standards, adopted in the form of regulations by the department, can be adequately enforced. The movement to improve the general quality of cheese is closely associated with marketing problems and it is necessary that the cheese men of the state form themselves into an association if the cheese industry is to be permanently promoted and receive its proper attention.

There are sections of the state which are undeniably adapted to the manufacture of the very finest quality of cheese. The isolation of some of the mountain valleys, the natural grasses of the mountain meadows and the icy water from springs or artesian wells and its uniform temperature throughout the year are points which are decidedly in favor of the development of the cheese industry in our mountain counties. Sections so favored should not fail to capitalize their natural advantages. High class cheese may be sold within the boundaries of our own state at a premium that will net the mountain dairyman more for his butterfat than his brother of the great interior valleys who is more favorably situated as regards transportation and accessibility to markets.

A great amount of cheese has been found on the markets, improperly labeled or without any label whatever. This, however, has been largely overcome except in the case of some varieties of fancy breakfast or soft cheese, for which large numbers of expensive labels were, in most cases, on hand. The violations in general were unintentional and the manufacturer has been allowed to use up the supply of labels on hand but required to set a date by which the present supply will

be exhausted. They have been warned to have future orders for cheese wrappers printed with legal labels. Manufacturers have given their support and cooperation under this policy.

ICE CREAM.

FACTORIES REPORTING	245
PRODUCED (GALLONS)	7,139,267
DECREASE (GALLONS)	433,607

Because of the large number of plants engaged in the manufacture of ice cream and because of the complexity of methods of preparing the "mix" and the diversity of the materials used, the control of the products entering into its composition is somewhat more difficult than other dairy foods. The nature of the product is such, however, that any marked defect in the quality of the materials is easily detected in the finished product and affects the demand to such an extent that it is difficult to sell ice cream made from other than high class materials.

An endeavor is made to take samples regularly from the many ice cream manufacturers throughout the state, in order to ensure compliance with the 10 per cent (8 per cent for fruit ice cream) minimum fat standard for ice cream. It has been found from work accomplished thus far that a greater percentage of ice cream has been made in conformity with state standards than any other important product made by a large number of plants.

CONDENSED MILK.

FACTORIES REPORTING	9
PRODUCED (POUNDS)	9,732,938
INCREASE (POUNDS)	3,385,528

The packing of condensed milk in this state has assumed the proportions of a major branch of the dairy industry. The production increased remarkably during the past year after the relaxation of the year previous due to the surplus of condensed milk in warehouses during the post war period.

The grading of milk at condenseries has occupied a considerable proportion of the time of several of our inspectors. The use of the sediment test and the alcohol test has served to improve remarkably the quality of the milk offered for condensing purposes and it is reasonable to assume that the quality of the finished product has correspondingly improved. This in turn should mean increased popularity for California condensed or evaporated milk.

BY-PRODUCTS.

Some means for the complete utilization of dairy products is rapidly being adopted throughout the State of California. This is stimulated by the active competition which exists in most dairy sections making it necessary to avoid all possible waste.

The manufacture of cottage cheese is assuming considerable proportions in larger cities and the product is being appreciated more and more as a most valuable protein food.

Milk powders are manufactured at several points in the state and are steadily improving in quality with the development of better equipment and more skilled methods of manufacture. Much of the powdered milk made in California finds preference and ready sale in European and British markets.

Casein is utilized in many ways commercially, such as surfacing paper, making artificial leather, waterproof glue, buttons, beads, etc. It is prepared at many points throughout the state where skimming stations are maintained.

Poultry and stock foods are extensively prepared in some sections and find a ready market at profitable figures. Skim milk, buttermilk and whey, condensed or in their natural form, are sold for stock and poultry foods. A new addition to the law, by the last legislature, requires that all such by products be heated to such a temperature that tuberculosis germs are destroyed and the danger of transmitting or spreading this devastating disease through dairy by products is thereby eliminated.

DAIRY SANITATION.

Fundamentals.

With increased knowledge of the cause of spoilage of milk, added importance is attached to the methods of handling dairy products rather than to dairy farm equipment. The application of this knowledge has served to overcome much of the prejudice against dairy inspection and it is no longer considered essential by inspectors to require elaborately finished dairy buildings.

The first and most important essential for the production of good milk or cream is the use of some form of sterilizer by which the utensils can be actually boiled, steamed for several minutes or brought in contact with super-heated steam under pressure. It is a well known fact that unsterilized utensils with which the milk must come in direct contact for a time is by far the most important source of contamination. A sterilizer of satisfactory form can be secured at a cost not exceeding \$30 and in many cases as low as \$15 or even less for very small dairies. When it is considered that this will overcome the chief source of contamination of milk, the cost is trifling.

The second important factor in the production of clean milk is the cleaning of the cows before milking, especially the udder, flanks, hind legs and tail, and milking with clean hands where hand milking is done. The hooded milk pail, when properly constructed and intelligently used, will eliminate nine-tenths of the contamination that would otherwise occur. The hood of the pail should be so constructed that when it is tilted at a convenient angle for milking almost the entire vertical exposure is eliminated. By the proper construction of the hood on the milk pail an opening six or seven inches wide and three or four inches high may be made that will not let the dirt, falling from above, get into the pail.

The third important factor is the protection of the milk from dust and flies. This means that cows must be fed hay after milking is done and manure piles must be removed frequently. Dairymen are not expected to haul manure when the roads or fields are wet or too soft to make hauling possible. It is possible, however, to keep it confined in

WHAT DETERMINES THE PRICE OF BUTTERFAT

Prosperity in the Dairy Business depends in a large measure upon the production of clean milk, because:

The quality of the finished product depends upon the care taken in producing milk or cream.

People eat more good butter, cheese or milk at a fair price than poor products at a low price.

The price of Butterfat is determined by the amount of dairy products people eat.

BETTER CREAM . . . BETTER BUTTER . . . BETTER PRICES
STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

THE LAW REQUIRES:

1. Washing and sterilizing utensils each time used.
2. Clean cows and clean hands during milking.
3. Protection of milk from dust and flies.
4. Cooling the product to as low a temperature as practicable.

These requirements are necessary and reasonable. DO NOT require the purchase of costly equipment and protect the interests of good dairymen.

STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

CHE COSA DETERMINA IL PREZZO DELLA CREMA?

La prosperita' nell'industria del latte dipende in gran parte dalla produzione di latte pulito perche':

La qualita' del prodotto lavorato dipende dalla cura presa nel produrre il latte e la crema.

La gente mangia piu' burro, formaggio e latte buoni ad un prezzo ragionevole che gli stessi prodotti che sono cattivi e ad un prezzo piu' basso.

Il prezzo della crema e' determinato dall'ammontare dei prodotti latticini mangiati dal pubblico.

MIGLIOR CREMA . . . MIGLIOR BURRO . . . MIGLIORI PREZZI
STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

LA LEGGE RICHIEDE

1. Lavare e sterilizzare gli utensili ogni volta che questi vengono usati.
2. Pulire le vacche e lavarsi le mani prima di mungere.
3. Proteggere il latte dalla polvere e dalle mosche.
4. Raffreddare il latte al punto piu' basso di temperatura che sia possibile.

Queste esigenze sono necessarie e ragionevoli, non richiedono l'acquisto di costosi apparecchi e sono a protezione degli interessi dei buoni lattai.

STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

AQUELLE QUE DETERMINA O PREÇO DA NATA?

A prosperidade no negocio do leite depende em grande parte na producao de leite limpo, puro e razao:

A qualidade do producto acabado depende na cura tomada na producao de leite e a nata.

A gente come mais boa manteiga, queijo e leite quando razaoavel que cattivo producto a baixo preco.

O preco da nata e' determinado da a quantidade das lactacoes que a gente come.

MELHOR NATA . . . MELHOR MANTIGA . . . MELHOR PREÇO
STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

A LEI REQUIRE

1. Lavar e esterilizar os utensilios cada vez que sao usados.
2. Alimpiar as vacas e lavar as maoes antes de leitear.
3. Proteger o leite da poeira e das moscas.
4. Esfriar o producto mais frio que f' possivel.

Estas exigencias sao necessarias e razoavel, nao requerem de comprar custosos aparelhos, e ha de ser produzido para os bons lactantes.

STATE DEPARTMENT OF AGRICULTURE
Division of Animal Industry (Dairy Section)

sanitary manure pits so that it will not serve as a breeding place for flies. The value of manure as a fertilizer when spread on the fields, turns this liability into an asset. When manure is placed on the fields the worst of the fly nuisance is abated and at the same time more and better crops can be taken from less land, there is more feed for good cows, more milk from less cows and more time for the dairyman to properly conduct his business and care for his product.

Once milk is produced with a minimum of contamination it must be kept at a minimum by proper cooling. This constitutes the fourth essential factor in the chain of essential requirements for the production and marketing of quality products.

If the four factors outlined above are given careful attention, clean milk can be produced with equipment that in the aggregate costs less than the price of a scrub cow.

The Score Card.

The dairy farm score card, as it is now constituted, is unsatisfactory for California conditions. It was originally designed for eastern dairy conditions and before the abundant knowledge of dairy sanitation, which we now have, was discovered. For example, it will be noted that for sterilizers or facilities for steam but one point is allowed, and but one point for coolers, yet this equipment is far more important than a barn or milk house.

Various reasons are given for the use of the dairy farm score card. It affords a means of keeping a uniform record of conditions as they exist on the different dairies. It serves to call the attention of the inspector to every point of importance in connection with the sanitary conditions of the dairy. If such reasons justify the use of the score card, the points on the card must be apportioned with some definite purpose in mind.

There is one great purpose of all work in dairy sanitation, i. e. to obtain uniform high quality products, and in connection with this, to educate producers how this object is to be brought about. This being the chief object then certainly those fundamental points which directly affect and largely determine the quality of the milk should receive special emphasis on the score card in order to correctly impress the dairymen with their relative importance. There appears to be good reason for making two major divisions on the score card—"methods" and "equipment." The fact needs to be emphasized, that inspectors are not to coerce dairymen into buying expensive or elaborate equipment but should show them that their methods of work are of far the greater importance. The present score card allows 40 per cent for equipment and 60 per cent for methods. In the light of greater knowledge accumulated since the present score card was adopted it is felt that we would be justified in deducting ten points from "equipment" and adding them to "methods," thereby further emphasizing the supreme importance of clean habits in connection with the production of dairy products. Justification might also be had in making a greater discrimination between "equipment" and "methods," yet healthy cows, buildings and surroundings that can be readily cleaned, and, above all, sterilizers and coolers are necessary before clean methods can be successfully adopted.

Healthy cows are unquestionably the first consideration in the equipment of a dairy and should therefore receive first consideration on the score card. The possession of proper utensils comes next in importance. The quality of the milk is dependent upon certain inexpensive articles of equipment and since the success of the dairy is determined by the quality of milk these should be next and be given equal weight on the score card. Proper arrangement and construction of the barn and milk house for easy cleaning are of material assistance in protecting the milk from contamination and should therefore receive due recognition on the score card under the heading of "equipment."

Under "methods," the sterilization and proper handling of utensils should receive the greatest weight since, as previously explained, they have the greatest influence upon the quality of the product and this is the ideal which should guide the apportionment of points on the score card.

The protection of milk from dust and flies means that the barn, milk house and corrals must be kept clean. Cows must be fed hay after milking is finished or in a separate place from the milking shed. Furthermore, the cleanliness of the buildings are an indication of the habits of the dairyman and his careful attention to matters of sanitation when the inspector is not present. Contamination derived from dust withstands pasteurization and ferments the protein elements in the milk, producing a bitter disagreeable flavor in milk and causes rancidity in butter. These points should therefore receive due consideration on the score card.

The proper handling of the milk by cooling after it has been produced clean, insures its delivery to the consumer or manufacturing plant in good condition. Evidence, now at hand, shows that cleanliness in production is of far greater importance than attempting to preserve the product by cooling after it has received a high initial contamination. In other words, milk which is produced clean will contain far less bacteria at the end of four hours without a cooler than if it is produced dirty and cooled immediately to 50° F. Nevertheless, a very slight contamination will eventually become an extensive contamination, if the milk is not properly cooled. Cooling is the one entirely satisfactory method of preserving milk and therefore deserves special attention on the score card but not as much weight as those points which influence the initial contamination.

A new score card adapted to California conditions, and giving proper weight to the several factors based on their relative importance in affecting the quality of the product is urgently needed.

FACTORY SANITATION.

The rapid growth and expansion of the dairy industry has resulted in wonderful development of the dairy products plants, machinery and equipment. Since dairy products are most perishable and easily damaged by equipment that does not meet the requirements of sanitation this becomes a matter of first consideration in building dairy machinery. This means that it must be constructed to be readily taken apart so that places otherwise inaccessible may be thoroughly cleaned. It means that the application of steam for sterilizing may be made without damage. It means that all of the products to be processed must be

treated exactly the same and must pass through at the same rate of speed, so the whole volume will be subjected to the same temperatures for the same length of time. Ingenious experiments, showing the prime necessity of observing these matters, have been conducted by the United States Dairy Division and by the state experiment stations. This information must be brought to the attention of plant managers and continually held up before them, otherwise pressure of competition is likely to cause them to give undue consideration to other important features in equipment to the disadvantage of sanitation. The construction and equipment of dairy products plants, the proper handling of products to protect them from contamination and the proper application of pasteurization and use of temperature devices require continual supervision.

In locating a factory for dairy products it should be removed as far as possible from contamination and the drainage and sewage disposal should be given due consideration. It should be constructed for permanence with solid walls of materials which will not permit rapid change of temperature. The floors, walls and ceilings should be smooth and washable. The buildings should be arranged for convenience and economy in handling the products, so that a minimum of shafting, pulleys, hangers, and exposed pipes are required, and at the same time separate rooms should be provided for the different processes according to the use of the plant. Important items considered in inspection of factories are: the sanitary condition of the apparatus, pipe lines, joints, etc., the test room, equipment and methods of the licensed tester, a clean and dependable water supply, provision for adequate steam for sterilization, equipment and utensils and the condition of recording thermometers and charts.

A survey of recording thermometers in use in dairy plants throughout the entire state during the past year showed that a large proportion was out of repair, operating unsatisfactorily or was not being used at all. Many of the plant managers believe it impossible or impractical to use recording thermometers. This is decidedly erroneous. The manufacture or processing of dairy products requires the use and accurate control of temperatures and a record must be kept. It is noteworthy that since special attention has been given to the matter of recording thermometers during the past four or five months by inspectors of the department the number of instruments out of repair or not working satisfactorily has been reduced 75 per cent and it is reasonable to expect that in a like number of months in the future all of the recording thermometers, with the exception of an occasional accident, will be working satisfactorily all the time.

The proper sterilization and drying of cans in which milk or cream is shipped to the plants is the proper duty and legal responsibility of the plant. Milk or cream is in contact with cans longer than any other utensil and it frequently happens that unsterilized cans are the most potent cause of poor quality products. The cans are the point of contact between the plants and the farmers and by the condition of the cans, the plants are judged. It is useless to ask farmers to be clean and to sterilize their equipment when the plant men, who are directly up against the marketing of products and should appreciate the importance

of quality, will send to the farmer a can with a foul odor or which must be kept open to prevent the formation of the odor. Odors in cans are due to one thing only, the development of bacteria in moisture with such solids as it may contain. Factories are required to sterilize and dry cans which must be returned to dairymen for milk or cream.

CARRIERS.

Under the requirements of the law, carriers, whether common or private, are required to protect dairy products during transportation from the direct rays of the sun and dust or from unduly warm air except while taking or discharging freight. During the year, several cases have been brought to the attention of this office, by representatives of the department, in which public carriers were not meeting this requirement of the law, but in every instance the management, when the matter was brought to their attention, responded promptly by providing necessary equipment and instructing employees to handle products in accordance with the requirements of the dairy law and to protect them from deterioration while in their possession. In most sections of the state private carriers and creamery trucks have complied admirably with this requirement. This year, for the first time, it is unusual to see milk or cream trucks driving on a hot, dusty road without a canvas covering to protect the products.

BABCOCK TESTING.

Because of the technical nature of the Babcock test for butter fat, the many factors which influence its accuracy, and the ease with which it may be fraudulently manipulated, it is necessary that it be conducted in strict accordance with the regulations of the department, and under close supervision.

Since nearly all of the milk and cream sold in the State of California is sold on the basis of this test, its commercial significance at once becomes apparent. A variation of one per cent in the result of the test could easily affect the income of dairymen a half million dollars a year. The Babcock test is therefore the pivot around which the commercial interest of the industry revolves.

The law requires the examination and licensing of milk and cream testers. When this is done it means that the state government guarantees that the licensee is capable of conducting an accurate Babcock test, but it does not guarantee his honesty or reliability. It has therefore been required that every tester in the State of California should keep a duplicate record of all tests conducted by him in his personal possession, or deposited in a sealed box. The forms for this purpose are supplied at cost by the Department of Agriculture. The licensed tester is also required to keep the sample of the product upon which his tests are conducted for at least forty-eight hours. The test record sheets and samples are available at all times for examination or recheck by inspectors of the department. These requirements, with regard to keeping duplicate test record sheets and holding test samples, are new provisions of the law and the department is authorized by the same act to make rules and regulations for making these provisions effective.

The establishment of these regulations has been more difficult than was anticipated. It has required considerable investigation and more

information yet remains to be accumulated before final regulations covering this feature of the law can be adopted.

The style of bottle and stopper in which the samples must be held, which at first thought appears of little significance, has a marked effect upon the evaporation and consequent uniformity of the composition of the sample. The surroundings in which the samples are kept exert a similar influence.

In order adequately to enforce the provisions of the act a number of samples are taken at intervals (at least once every three months) from every plant in the state from among those held by the tester, and forwarded to the dairy laboratory. The result obtained in the state laboratory is then compared with that conducted by the regular tester. Samples are also taken, on occasions, from milk or cream in the field to check against manipulation of samples.

The style of bottle and stopper that is best adapted for holding samples for shipment to the laboratory therefore becomes an important matter for consideration. It would at first seem that a glass bottle with a stopper ground to fit would be the most satisfactory, but it has been found that they are not well adapted for shipping and it has also been found that the stoppers are frequently mixed. When this occurs the stoppers do not fit, causing evaporation and leakage.

The metal screw cap sample bottles are not suitable for holding samples nor for shipment unless a gasket of the right kind of material and fitted tightly in the top of the screw cap is used. Since these bottles are cheap and vary in size it has been quite a problem to secure gaskets which fit tightly and are of proper density. Some of the screw cap bottles do not have long enough threads to permit the use of a suitable gasket. It has therefore been necessary to arrange with the manufacturers of glassware for putting longer threads on metal screw cap bottles and with tool makers for the manufacture of an adjustable tool for cutting gaskets.

Wide-mouthed bottles with rubber stoppers are quite satisfactory when tied in. The method of tying these stoppers in the different forms of bottles is a matter which requires some instruction and considerable practice before it can be accomplished satisfactorily.

Paper cap bottles absorb moisture and are entirely unsuitable for use in this connection.

The control of fermentation of cream samples causing the stopper to be blown from the bottle with loss of the contents by a proper preservative to prevent curdle of milk samples has been the subject of some investigation. More knowledge must be obtained concerning this point before final regulations can be adopted. It is therefore evident that this part of the law has caused a great amount of work for the department but the results which have been obtained so far indicate that it is amply justified.

It sometimes happens that samples, sent in from plants where the testing is done by licensed operators who, from casual observation, appear to be handling their samples in the proper way, will show a consistent variation from one to two or even three points above the actual content as shown by the test on the samples obtained by the state laboratory where extreme precautions are taken to insure absolute accuracy;

while another series of samples from some other plant in another section of the state, where the tester is apparently conducting his work in accordance with the requirements, will be found to run a similar number of points below the test obtained by the state laboratory. When such discrepancies occur a complete investigation is made, the cause is located and overcome. Such discrepancies have gone on for years and never would have been recognized except in the manner indicated, resulting from the efforts of the department to enforce the enactment of the last legislature relative to this subject. Such variations disturb the equilibrium of the industry, result in unfair competition and in unfair and inaccurate payments for butterfat.

While the Babcock test, as conducted at present, has been accurate enough for ordinary use in times past, the recent development of the industry and the keenness of present day competition has resulted in the adoption of more accurate methods of analysis for commercial use.

It has been found that the requirements of the law with regard to reading the Babcock test for milk and that for reading the test on cream do not exactly check out, thereby placing the person or firm at a disadvantage when buying milk in competition with the person or firm who buys cream. Likewise it is a disadvantage to the person who buys milk on the basis of the Babcock test and sells it on the basis of a more accurate chemical test such as occurs when selling milk to a condensary. This matter is under investigation and as soon as full information is available, a revision of the law, to coincide with the facts, will be recommended.

While the regulation and control of the purchase of milk and cream on the basis of its butterfat content is vitally necessary to the commercial welfare of the dairy industry, it occupies but a small part of the time of the dairy inspectors. It does, however, call for increased laboratory facilities.

During the last fiscal year licenses were issued to 253 factories to purchase milk and cream on the basis of its butterfat content and 487 licenses were issued to persons desiring to secure employment in dairy products plants as official milk and cream testers.

LABELING AND ADVERTISING DAIRY PRODUCTS AND THEIR SUBSTITUTES.

Labels of all products should state the exact truth in a direct and simple manner. To avoid deceiving the public by improper labeling and to protect the reputation of the well-established dairy communities against infringement by dealers in under-grade products, the dairy law provides that if butter is sold in a package or wrapper purporting to designate the producer, such producer must be correctly designated and when the name of any city, county or other geographical designation appears in the label it must also correctly name the place where made. If, therefore, butter is made and given the label of "Green Valley Brand" and is made in Sacramento, it must also state that it is made in Sacramento. Butter must also be labeled to indicate whether it is pasteurized or from non-reacting tuberculin tested cows as the case may be.

It is the constant endeavor of certain manufacturers of butter substitutes to parasitize the reputation of butter and deceive the consum-

ing public by using dairy terms and phrases designed to associate the substitute, in the popular mind, with the genuine article. This is prohibited by the dairy laws. The regulation of the advertising and sale of oleomargarine occupies considerable of the time of the field force and about half of the time of the clerical force of the Dairy Service.

During the fiscal year ending June 30, 1922, 7228 licenses were issued for the retail sale of oleomargarine, 995 licenses were issued to bakers and restaurants using oleomargarine, 30 licenses were issued to wholesalers distributing oleomargarine and 4 licenses were issued for the manufacture of oleomargarine. In addition 22 supplementary licenses were issued where the firm holding the license changed hands during the year or where the licenses were lost or destroyed and had to be replaced.

All sales from wholesalers and retailers, which number hundreds of thousands in the course of the year, must be checked to ascertain whether all persons handling the product hold the required license. Through checking oleomargarine sales we are enabled to collect several thousand dollars in delinquent license fees each year in addition to the funds collected for licenses issued to regular applicants.

Under the laws of California all substances, mixtures or compounds of tallow, beef fat, suet, lard, lard oil, cocoanut oil, peanut oil, intestinal fat, and offal fat made in imitation or semblance of butter, designed or calculated to be sold for butter or as a butter substitute are included by the definition, oleomargarine.

On the whole, the department has had good cooperation from oleomargarine dealers. There has indeed been some illegal advertising which originated in California, but most of that which appeared originated in eastern offices. This advertising, which is illegal because of the attempt made to associate the imitation with the genuine article, has received but very limited distribution. As soon as it has been detected, the matter has been immediately taken up with the concern responsible for its distribution. The result has been that in every instance the objectionable advertising was immediately taken up and its further distribution curtailed. In a few instances it has been necessary to ask the violators to appear before representatives of the department in connection with such violations for a final warning. Several of the dealers in oleomargarine now secure the approval of all advertising material by this department before it is given to the public. A great deal of difficulty could be avoided if this was done universally by oleomargarine manufacturers and distributors.

A special survey of all grocery stores in the San Joaquin Valley revealed illegal advertising at but one store and that had been on hand for several months.

The sales of oleomargarine for the past four years are as follows:

Year ending June 30, 1919.....	6,954,467 pounds
Year ending June 30, 1920.....	10,538,639 pounds
Year ending June 30, 1921.....	13,433,522 pounds
Year ending June 30, 1922.....	10,938,234 pounds

The chief factors which stimulate oleomargarine sales are excessively high prices and low quality of butter. Without the aid of one or both of these factors, money spent in advertising oleomargarine is in vain.

COMPILATION OF STATISTICS.

With the increasing tendency to solve industrial problems scientifically there is urgent need for accurate facts and figures, as a guide for intelligently conducted business.

A statistical report for each fiscal year ending June 30th is issued annually. Due to the reorganization of the State Department of Agriculture at the time of the last legislature, the publication of the statistics for the year 1920-21, as Special Publication No. 21, was delayed until May, 1922. The report for 1921-22, however, was completed by the end of October, 1922, and was published as Special Publication No. 30 in time for distribution at the various conventions held in connection with the Pacific Slope Dairy Products Show in Fresno, November 13-18.

The statistical report is based upon individual reports of 1241 dairy products plants. Its accuracy is, of course, dependent upon the accuracy of the individual reports. In several instances when the reports seemed to be unreasonable or out of line with the facts as understood by employees of the Dairy Service who are familiar with dairy conditions in all parts of the state, a restatement of the report was called for so that the final compilation is as complete and accurate as can be hoped for.

Production of Dairy Products in California and Their Approximate Value During the Year Ended June 30, 1922.

No. of plants reporting	Article	Amount	Approximate value
152	Butter	74,010,176 lbs.	\$31,084,274
57	Cheese (total all types exclusive of cottage and full skim).....	8,574,736 lbs.	1,842,387
32	Cottage cheese.....	2,665,420 lbs.	266,540
2	Skim cheese.....	13,983 lbs.	1,398
10	Evaporated whole milk.....	85,820,267 lbs.	7,723,824
3	Evaporated skim milk.....	2,496,860 lbs.	249,686
4	Sweetened condensed whole milk.....	8,480,209 lbs.	1,441,636
5	Sweetened condensed skim milk.....	1,252,720 lbs.	112,746
2	Powdered whole milk.....	8,090 lbs.	2,265
4	Powdered skim milk.....	8,026,009 lbs.	722,341
4	Milk sugar (crude and refined).....	535,568 lbs.	107,114
16	Albumen, curds, lactein, semisolid buttermilk.....	46,473,910 lbs.	2,323,696
7	Dried casein.....	1,680,565 lbs.	147,590
162	Market milk, pasteurized.....	47,850,212 gals.	19,140,685
109	Market milk, raw.....	24,701,699 gals.	9,880,680
155	Market cream, pasteurized.....	3,666,027 gals.	8,505,183
64	Market cream, raw.....	297,793 gals.	690,880
10	Certified milk.....	2,479,148 gals.	2,181,650
245	Ice cream.....	7,139,267 gals.	9,994,974
2	Ice milk.....	15,380 gals.	10,766
23	Skim milk (for human consumption).....	547,137 gals.	87,542
88	Buttermilk (for human consumption).....	1,320,713 gals.	264,143
45	Artificial buttermilk or cultured buttermilk.....	1,275,215 gals.	344,308
1,241	Total value.....		\$97,125,398

The total valuation is based upon the wholesale price of the most valuable form of the finished products manufactured from butterfat produced in California. It includes the value of only such by-products as entered into the regular trade. If the value of skim milk fed on the farms was included and the value of products produced and consumed

privately by the families, the value would far exceed one hundred million dollars a year.

The following counties led in the production of butterfat during the last fiscal year.

	Pounds		Pounds
Stanislaus -----	9,476,221	Merced -----	6,746,527
Los Angeles -----	7,091,047	Imperial -----	6,320,561
Humboldt -----	6,840,447		

COOPERATIVE PROJECTS.

Butter Inspector.

By cooperative agreement with the Division of Dairy and Poultry Products of the Bureau of Agricultural Economics of the U. S. Department of Agriculture, Mr. T. H. McCampbell, assistant in marketing, has been appointed Butter Inspector for the State of California under the provisions of the Fruit and Vegetable Standardization Act which, as the title implies, applied mainly to fruit and vegetables but includes other farm produce as well. By this arrangement an inspection service is established in San Francisco prepared to give a commercial score on butter, which is the subject of interstate or intrastate trade by a disinterested party. The fees for interstate inspections are paid to the Federal Government and for intrastate inspections fees are paid into a special fund of the State Department of Agriculture and by the terms of the agreement is paid to the federal government at the end of each fiscal year. The federal government pays the full salary of the inspector but it can not accept fees for intrastate inspections, hence the arrangement as outlined. The amount of the fee is the same in both instances as follows:

- (a) When each separate churning is not indicated by number or otherwise on the packages—
 - For 1500 pounds or less..... \$1 00
 - For more than 1500 pounds, but not more than 3,000 pounds..... 1 50
 - For more than 3000 pounds, but not more than 6000 pounds..... 2 00
 - For more than 6,000 pounds, but not more than 10,000 pounds..... 2 50
 - For each additional 10,000 pounds, or fraction thereof, beyond 10,000 pounds, an additional amount of..... 50
- (b) When each separate churning is indicated by number otherwise on the packages—
 - For seven churnings or less..... 1 00
 - For each additional churning beyond seven, an additional charge of... 10

The most advantageous part of this agreement from the standpoint of this department is that we have a direct and convenient source of information concerning commercial movements of butter through this cooperative federal-state market observer.

A second agreement with the Bureau of Chemistry of the U. S. Department of Agriculture has been arranged, by which certain state inspectors are authorized as representatives of the federal body with authority to handle interstate butter under federal regulations and with access to federal courts.

Creamerymen's Agreement.

Two of the greatest evils which have developed in connection with the creamery business in this state are:

- (1) Mixing milk and cream of various patrons on truck routes.
- (2) Weighing and sampling cream on routes.

The first precludes the possibility of systematic grading, now coming to be recognized as a necessity in the creamery business and greatly hinders efficient inspection. It is manifestly insanitary in that fermented and unwholesome cream is frequently poured into that of good quality, thereby spoiling it all, but since this can not be proved without keeping an inspector on all trucks, the cost of which would be prohibitive, it is difficult to prevent the practice with the present law on the subject. The second point leads to all sorts of commercial abuse and suspicion.

In order to overcome these evils, in an effective way, an endeavor has been made to organize creamerymen in competitive districts. Seventeen concerns in the lower San Joaquin dairy center, comprising Kings, Tulare and the lower part of Fresno County, including association creameries, independent creameries, packers, sweet cream depots, ice cream factories and milk distributors have bound themselves by legal agreement to bring the products of all patrons to the plants in individual containers in which placed by the producer, thereby eliminating the first evil. All but one plant in this territory agreed to remedy the second evil by weighing and sampling all products on receiving platforms and to go even further by providing funds to employ an inspector to see that the conditions of the agreement were scrupulously observed and to put up a bond of \$1,000 to be forfeited for violation thereof.

In the upper San Joaquin Valley, comprising Madera, Merced, Stanislaus and San Joaquin counties, about forty concerns are interested, representing all branches of the industry and only two refused to sign the agreement to bring products to the plants in individual containers the same as agreed upon in the lower end of the valley. As long as one plant holds out from such an agreement, it is unfair to urge others to observe its provisions as it is likely to be wrongly interpreted by dairymen with the result that the plant which is standing in the way of progress, makes capital of the endeavors of its competitors to advance the interests of the entire industry. Nevertheless, such unanimity of opinion must have its effect. Law is but a form of cooperation and is the only means by which the desires of the multitude can prevail over the indifference of a few. It, therefore, appears that legislation concerning these matters is necessary.

Organization of Dairymen.

In cooperation with the Bureau of Markets of the department, the Surprise Valley Dairymen's Association was organized. Nearly every producer in the valley signed the agreement and became members. Through this organization the dairymen of Surprise Valley can bargain collectively for the manufacture and marketing of their products. This should mean an advantage of at least three cents a pound on butterfat over that which has been received previous to organization. One provision of the by-laws which must be signed by every member is unique in that it provides for sterilization of utensils, cleaning of cows, cooling of milk or cream, and otherwise caring for the product to insure uniform quality.

Milk in Schools.

At the request of certain public health nurses and the California Dairy Council and with their cooperation, arrangements have been made in several small cities for a special supply of extra quality milk to be given to school children with the noon-day lunch. In some instances this is donated by dairymen and in all cases the product is furnished at a reasonable rate. This is a most constructive plan, both from the standpoint of overcoming undernourishment and ill health of children and of developing an appreciation of milk as a food. The development of the work of the market milk specialist should be an encouragement to the further extension of this idea.

PUBLICITY.

Publications:

In addition to various articles written for the agricultural press, three special publications have been issued since the last annual report as follows:

No. 21. Statistical Report of California Dairy Products, 1920-21.

No. 26. Important Provisions of the California laws on Dairying.

The object of this publication is to explain some of the important provisions of the laws of this state which are the subjects of frequent inquiry. No attempt is made to give all of the law, nor in the main the exact wording of it. The text of the law itself may be found in an excerpt from Agricultural Statutes of the State of California, corrected to November 1, 1921, published by this Department. The requirements given in Part I of this publication apply to all persons in California producing, selling or handling milk. The mere statement of them shows how very simple they are and how easily complied with. Yet it is not too much to say that the prosperity of the dairy industry and the well-being of the whole people depend on such compliance. The requirements given in Part II apply to local milk inspecting departments approved by the State Department of Agriculture. An appendix is added including rules and regulations issued by this department.

No. 30. Statistical Report of California Dairy Products, 1921-22.

Exhibits:

The nature of the work and service rendered by the Dairy Service was displayed at the State Fair in Sacramento, at the Pacific Slope Dairy Products Show in Fresno, The Pacific National Live Stock Show in San Francisco and at several district and county fairs.

Meetings:

Approximately fifty meetings of dairymen were addressed by representatives of the Dairy Service during the year.

FORMS AND REPORTS.

A better conception of some phases of the work conducted by the Dairy Service may be obtained by studying the official forms that are used in connection therewith. Some of the forms are intended for use by employees and others by the industry in filing applications, etc. For this reason a list of official forms with a brief explanation of their use is included in this report.

Inspectors' Time Reports.

D. S. Form 5—Three day report—This report is required of all inspectors, market milk specialist and senior dairy inspector. They are submitted at the close of the working day on Wednesday and Saturday of each week. They indicate how the time has been occupied for the past three days and the address or location of the inspector for the succeeding five days.

Inspector's Report of Accomplishments and Work Done.

D. S. Form 1—Eight day report—Used by all employees of the Division of Animal Industry doing dairy inspection work and shows the work accomplished and improvements made. They are rendered on the 8th, 16th, 24th, and last of each month.

Score Card Reports.

D. S. Form 2—Dairy farm score cards—Used by all employees of the Division of Animal Industry doing dairy inspection work. This report is rendered for every dairy that is inspected and may be filled out in detail or simply give notations pertaining to conditions.

D. S. Form 3—Factory score cards—Used only by factory inspectors and rendered for each creamery and cheese factory that is inspected.

D. S. Form 31—Milk plant score cards—Used only by factory inspectors and are rendered for each city milk plant inspected.

D. S. Form 22—Milk products plant—This is a miscellaneous report for miscellaneous milk products plants including ice cream factories, condenseries, by-products plants, etc.

D. S. Form 19—Score card for milk—Used by market milk specialist and other employees of the Division of Animal Industry when on special duty in scoring milk in contests, exhibits at fairs, etc. They are supplied in limited quantities to other interested persons upon request.

City and Town Survey Report.

D. S. Form 4—City and town milk survey reports—Used by market milk specialist, city inspectors, field veterinarians and dairy inspectors on special duty. These reports indicate the condition of the milk supply and dairy products supply of cities and towns. They are rendered whenever special survey is made of the supply of dairy products to a city or town and when the regular annual or semiannual tuberculin tests are made on cows supplying raw milk to the towns. It is endeavored to secure a complete report of the condition of the supply of dairy products for the various cities and towns in the state at least twice each year.

Warnings and Suspension Notices.

D. S. Form 6—Notice of inferior product—These are used by dairy inspectors and are issued to dairymen when their products are found to be of inferior quality. They indicate the exact condition of the product and suggest methods necessary to secure improvement.

D. S. Form 7—Thirty day sanitary notification—Used by dairy inspectors and other employees in special cases when prosecution is contemplated. It is an old form that has been used for some time in

dairy inspection work in California and is being replaced by D. S. Form 6 and by notations written on D. S. Form 2 as these seem more effective and better suited to the present policy of inspection.

D. S. Form 8—Blue suspension notice—Used to notify dairymen to discontinue the sale of their product on account of insanitary conditions of the dairy. Copies of this notice are sent to all plants buying milk or cream in the vicinity of the dairy affected by the notice.

D. S. Form 9—Yellow suspension notice—Used to notify dairymen to discontinue the sale of their products on account of persistently offering for sale an inferior product.

D. S. Form 10—Reinstatement notice—Used by inspectors when notifying dairymen that necessary improvements have been satisfactorily made following suspension and that the sale of the product may be resumed.

D. S. Form 13—Reject tags—Used by dairy inspectors and are to be attached to all cans that are too dirty for use or that contain third grade milk or cream.

D. S. Form 27—Condemned tags—Used by dairy inspectors and are to be attached to cans or utensils uncleanable or otherwise unfit as a container of dairy food products.

Receiving Point Inspection Report.

D. S. Form 14—List of de-graded patrons—Used by dairy inspectors to report the result of receiving point inspections. The name and address of all persons shipping second or third grade (rejected) milk or cream are given with a notation of the nature of the defect of the product.

Reports of Prosecution.

D. S. Form 11—Used by employees of the Division of Animal Industry when reporting prosecutions for violation of the dairy law.

Applications.

D. S. Form 30—Application for factory license—Used by persons or concerns desiring to purchase milk or cream on the basis of its butterfat content. Supplied to interested parties upon request.

D. S. Form 29—Application for milk and cream tester's license—Used by persons desiring to conduct the Babcock butterfat test on milk and cream. Supplied to interested parties on request.

D. S. Form 22—Application for oleomargarine license—Used by persons desiring to secure a license to manufacture, distribute, sell at retail or use oleomargarine in the manufacture of foodstuffs or in restaurants. Supplied to interested parties on request.

D. S. Form 12—Application for cheese brands—Used by all persons desiring to secure a factory number with which to brand cheese in accordance with the requirements of the dairy law. Supplied to interested parties on request.

D. S. Form 15—Application for butter inspection—Used by persons who desire to have a commercial score made on butter to be shipped intrastate. Forms can be secured upon application to the Dairy Service at Sacramento and to Mr. F. H. McCampbell, assistant in Marketing Division of Dairy and Poultry Products, Bureau of Agri-

cultural Economics, U. S. Department of Agriculture, 65 Appraisers Building, San Francisco, California.

Licenses.

D. S. Form 23—Oleomargarine license—Issued to retailers. Fee \$5. Expires June 30 of each year.

D. S. Form 24—Oleomargarine license—Issued to bakers and restaurants. Fee \$2. Expires June 30 of each year.

D. S. Form 25—Oleomargarine license—Issued to manufacturers. Fee \$100. Issued to wholesalers. Fee \$50. Expires June 30 of each year in each case.

D. S. Form 33—Milk and cream testers license—Issued to persons who file application for milk and cream testing license and who successfully pass the examination given by a factory inspector. Expires December 31 of each year. Renewal may be granted without examination. Revokable if requirements are not observed.

D. S. Form 34—Factory license—Issued to all persons who desire to purchase milk or cream on the basis of its butterfat content, dependent upon sanitary conditions of the plant and the willingness of the operator to comply with *all* provisions of the dairy laws. Expires December 31 of each year. Revokable after investigation and notification if requirements of the dairy law are not observed.

Test Record Sheets.

D. S. Form 17—Official test record sheets—Used by factories in keeping duplicate records of butterfat tests on milk and cream. It provides space for recording patron's number, gross, tare and net weight of cream, result of the test, pounds of fat, price and amount. Each sheet provides space for records of five hundred patrons.

Certificates.

D. S. Form 16—Butter inspection certificate—Used by butter inspectors for reporting official score on market butter for intrastate exchange, made upon application of manufacturer or dealer.

D. S. Form 35—Certificate of approval of city milk inspecting departments—Used by the State Department of Agriculture to certify the approval of a city inspecting department, in accordance with the requirements of section 6, regulation 7, issued by the Division of Animal Industry as provided by the pure milk law.

Statistical Forms.

D. S. Form 26—Annual statistical report sheet for butter plants—Used by butter plants to report the amount of butter manufactured and the amount of butterfat in milk or cream produced or purchased direct from farmers in the various counties from which their supply is drawn.

D. S. Form 36—Annual statistical report sheet for milk distributors—Used by distributors of market milk and cream for reporting the amount of milk and cream retailed for human consumption and the amount of butterfat in milk or cream produced or purchased direct from farmers in the various counties from which their supply is drawn.

D. S. Form 37—Annual statistical report sheet for cheese factories—Used by ice cream factories for reporting the amount of ice cream manufactured, the source from which their milk or cream is obtained and the amount of butterfat in milk or cream produced or purchased direct from farmers in counties from which their supply is drawn.

D. S. Form 39—Annual statistical report sheet for evaporated milk plants—Used by evaporated milk plants for reporting the amount of condensed or evaporated milk packed and the amount of butterfat in milk or cream produced or purchased direct from farmers in the various counties from which their supply is drawn.

D. S. Form 40—Annual statistical report sheet for dairy by-products plants—Used by dairy by-products plants for reporting the amount of dairy by-products manufactured and the valuation thereof.

Office Forms.

D. S. Form 20—Cash book record sheets—Used by the license clerk.

D. S. Form 21—Oleomargarine record cards—Used by the license clerk.



CATTLE PROTECTION SERVICE.

By JAMES B. NEWSOM¹, *Superintendent.*

When it is taken into consideration that thousands of cattle are permitted annually to graze on the open ranges, forest reserves and grazing areas, some way of establishing ownership in the cattle is necessary. From the beginning of the cattle industry and since the days of the Missions, the use of a "branding iron" to determine such ownership has been found not only convenient, but practical. A conservative estimate of the number of stock cattle grazing annually on the ranges of California is 1,250,000, and the number of cattle taken from the ranges annually for immediate slaughter amounts to 273,441 steers, 172,158 cows, 238,739 calves, and 6443 bulls and stags.

The expiration of the year 1922 marks the fifth year of the work of the Cattle Protection Service. This organization is a part of the Division of Animal Industry of the State Department of Agriculture, and is charged with the enforcement of provisions originally contained in chapter 678 of the act of May 28, 1917, and of the subsequent act of June 3, 1921, chapter 725, known as the "Hide and Brand Law" and chapter 726, known as the "Estray Cattle Act."

Before proceeding with the report of the Cattle Protection Service for the past five years, it might be well to state that the method used previous to the enactment of the Cattle Protection Law required the recording of cattle brands with county recorders. This method proved to be very unsatisfactory in some respects to the cattlemen of California and after looking into the matter, it was found that California gave the owners of cattle the least protection of all the other cattle-producing states.

The attention of the legislature of 1917 was called to some of the methods of cattle protection employed by many of the states having a law similar to the one desired by the cattlemen of this state. After consideration, it was found that protection would be afforded by requiring the recording with the state, the brands used for the purpose of protecting cattle owners against theft. This resulted in the enactment of June 3, 1921, which prohibits the recording of a cattle brand by a county recorder until it has been registered with the Cattle Protection Service.

Investigations of the laws of other cattle producing states revealed that hide and brand inspection affords cattlemen increased protection. This was desired by California cattlemen. However, before it could be applied in this state, it was found that the method of recording brands, and the laws relating thereto, should be changed so as to provide for the recording of cattle brands under a properly centralized state system of brand registration. This change would thereby permit the compilation of a list of all cattle brands used in California; thus making it possible to identify ownership of a branded bovine found in any part of the state.

The acts of May 28, 1917, and June 3, 1921 (the present Hide and Brand Law), provide for the inspection of cattle for marks and brands, prior to shipment or slaughter. The necessity for such a law is easily

¹Died October, 1922.

seen. Prior to the enactment of these laws, no check was made on cattle shipped from the ranges of California and no record was available to ascertain whether a person shipping cattle was the legal owner. The slipshod methods by which cattle were purchased and sold caused many cattlemen to suspect that many of their lost or stolen cattle were illegally slaughtered and their hides deposited in the hide pile with hundreds of others, which generally made a search unsuccessful.

The present Hide and Brand Law makes it unlawful for the agent of a common carrier (including drivers of trucks) to accept cattle for shipment until they have been inspected for marks and brands by authorized hide and brand inspectors appointed by the Director of Agriculture, who ascertains from shippers the rights of ownership or possession of the cattle. No cattle can be slaughtered unless so inspected and by requiring the inspection of hides, further protection is given the cattlemen. It permits a check up and inspection of all hides removed from cattle slaughtered in small outlying slaughter houses, situated too far away to permit daily hide and brand inspections. Hides cannot be removed from place of slaughter or accepted for shipment or transportation by any person until they have been inspected for marks and brands.

In addition to the two hundred and fifty hide and brand inspectors working throughout California, assisting the Cattle Protection Service to carry out the provisions of the Hide and Brand Law, the office maintains "re-check" inspectors in Los Angeles, San Francisco, South San Francisco and Oakland. It is the duty of these re-check inspectors to inspect all cattle arriving at the points covered by them. In this way, many California cattle which could not be inspected at point of shipment, are inspected at destination. All cattle shipped in from other states to the cities mentioned, for which no certificate of inspection can be shown, are inspected for marks and brands by the re-check inspector, who issues an inspection slip, and charges a fee of five cents per head for the inspections. By this system of re-checking cattle shipped to the principal receiving points in California stray cattle appear in some shipments. The Cattle Protection Service is thereby rendering assistance to the many cattlemen in the state. The office is now investigating two shipments in each of which nine extra head of cattle appeared. One shipment originated outside of California, and the other was from a point in the state to San Francisco.

It can be readily understood that to carry on such a system of hide and brand inspection would be practically impossible without a large number of recorded brands. The records of the Cattle Protection Service show that up to November 1, 1922, 16,366 brands have been recorded. When a brand is registered in the office, the name and address of the person recording it is shown, the design of the brand, the position of the brand on the animal and the region in which the cattle generally range. From time to time a list of recorded brands is compiled and furnished to inspectors to assist them in determining the ownership of cattle coming to their notice when inspections are made.

As a further measure of security to cattlemen against theft, the Cattle Protection Service gathers valuable information regarding the

movements of cattle out of counties and out of the state. These records show the following number of cattle shipped as well as the number slaughtered:

<i>Shipped Out of Various Counties (Intrastate).</i>	
Cows -----	105,230
Steers -----	206,950
Calves -----	87,379
Bulls and stags -----	5,720
Total -----	405,279
<i>Shipped from the State.</i>	
Cows -----	2,869
Steers -----	9,598
Calves -----	510
Bulls and stags -----	660
Total -----	13,637
<i>Shipped into the State.</i>	
Cows -----	44,971
Steers -----	91,081
Calves -----	49,767
Bulls and stags -----	1,843
Total -----	187,662
<i>Slaughtered.</i>	
Cows -----	217,129
Steers -----	364,522
Calves -----	288,506
Bulls and stags -----	8,286
Total -----	878,443

The act of June 3, 1921, has increased the fee for a slaughterer's license, the annual cost of which is based on the following average number of animals slaughtered monthly:

Less than 10 head of cattle per month-----	\$5 00
Less than 50 head of cattle per month-----	10 00
More than 50 head of cattle per month-----	25 00

A licensee is required to slaughter cattle in a designated, licensed slaughter house. Slaughtering on various ranches where the animals are purchased is prohibited. A change of location of said slaughter house is not permissible except by approval of the Cattle Protection Service, which must be duly notified when such a change is contemplated. The law further requires that a licensed slaughterer shall keep on file in his office for ninety days, the original bill of sale and certificate of inspection of all cattle slaughtered by him.

A monthly report must be filed with this office by licensed slaughterers at the expiration of each month, whether or not the slaughterer has done any slaughtering during that period. The report must show the total number of cattle slaughtered, the marks and brands on each animal, and in separate columns, the number of head of cows, calves, steers, bulls and stags. In this way, the Cattle Protection Service is supplied with a record of practically every bovine slaughtered in the

state. The monthly reports form a part of the records of the office, and are exceedingly valuable in helping to trace lost or stolen cattle.

Total number of brands recorded from January 1, 1922, to November 1, 1922	1,095
Total number of slaughterer's licenses issued from January 1, 1922, to November 1, 1922	1,152
Total number of brands recorded from July 1, 1921, to June 30, 1922	1,265
Total number of slaughterer's licenses issued from July 1, 1921, to June 30, 1922	1,333

Chapter 726 (known as the Estray Cattle Act), which was approved June 3, 1921, has protected to a great extent, cattle owners of California. It requires that before a branded bovine can be sold as an estray, the Director of Agriculture must be notified by registered mail ten days prior to the proposed sale. The notification must be accompanied by descriptions of marks and brands on the estray. With this information, the Director will then refer to the brand record and determine, if possible, the legal owner, who will be advised where his animal can be located before the sale is authorized. In this manner, many cattle which otherwise would be lost, have been returned to the rightful owner. Many cattlemen are now requesting the Cattle Protection Service to aid them in determining ownership of branded cattle now in their possession, and to help them find branded cattle lost or stolen from the ranges. The office has been very successful in this work. Since January 1, 1922, it has been the means of having returned to their owners, nine of a number reported lost.

This office is frequently asked to locate cattle which have not been branded in California with a recorded branding iron. This has proved to be a difficult task. In many cases, the cattle are brought into this state and allowed to range in proximity to California cattle bearing similar brands recorded in this office in compliance with the provisions of the Hide and Brand Law. Many cattlemen do not care to rebrand their animals for the reason that the cattle might be "set back." If the cattlemen of California wish to save the whole animal instead of a few pounds, the Cattle Protection Service is certain the number of unclaimed, estray branded and unbranded cattle reported would be greatly reduced if such cattlemen would rebrand all cattle purchased by them. This procedure should apply to all unbranded cattle or those bearing a brand not registered with the Cattle Protection Service of the State Department of Agriculture.

To date 106 special investigations have been necessary since August 23, 1922. Over 68 of these have been handled by the two special agents who are continuously engaged in having carried out the provisions of the Hide and Brand Law. These investigations are added duties for the agents who are regularly occupied in calling on inspectors, butchers, slaughterers, railroad agents, etc., and also on cattlemen in the district through which they are traveling. By the daily reports received from these special agents, the office can keep in touch with the work in the field and take care of matters that otherwise would be difficult to handle. In addition to their other duties, the special agents employed in investigating reported thefts of cattle, illegal slaughtering, use of unrecorded branding irons, and other violations of the Hide and Brand Law up to November 1, 1922, have

caused the arrest of 17 persons, all of whom were successfully prosecuted. The fines imposed amounted to \$240.

In order to permit the Cattle Protection Service to function most efficiently, it is necessary to have legal advice and assistance in the enforcement of the law. The attorney for this service has participated in the prosecution of many violators which resulted in a number of convictions.

Honest cattlemen are the ones who are entitled to the benefits accruing from their investments and time devoted to this branch of animal husbandry. They are the class of stockmen who will enjoy the benefits of this law, while others engaged in irregular practices, with the idea of evading it, may expect to be dealt with more severely in the future than they have been in the past by the Cattle Protection Service.



DIVISION OF WEIGHTS AND MEASURES.

By R. C. MELVIN, *Chief*.

The policy of the Division of Weights and Measures has been to impress upon the business man the importance of taking proper care of weighing and measuring equipment and the necessity of a careful check on the weight, measure or count of all commodities handled or sold.

The majority of business men are desirous of dealing honestly with their patrons, but those who are inclined to be otherwise, hesitate to continue dishonest practices fearing detection and exposure by weights and measures officials.

The division is also endeavoring to secure the confidence of the buying public to the extent that they will realize that the working of this division of the department is a public benefit. This has been accomplished through a most successful campaign against the use of faulty weighing and measuring devices, which in turn is bound to develop a lasting confidence between the producer and consumer.

The real function of the division is to protect all interested parties in a transaction irrespective of its magnitude. *True net weight, measure or count is fundamental in honest business dealings.*

Owing to the increased demand for the services of Weights and Measures officials, 15 additional deputies have been appointed during the last biennium. The entire personnel of state and county officials, in whose hands all weights and measures laws are put for enforcement, is as follows:

TABLE I. *County Sealers and Deputy County Sealers Having Jurisdiction in Counties of the First to Thirty-fifth Class.*

Los Angeles, Chas. M. Fuller.	Alameda, Edw. K. Strobidge.
Deputies:	Deputies:
C. J. Buck.	M. P. Scott (Chief Deputy).
J. D. Fisher.	David M. Boyle.
F. J. Berka.	J. J. Carey.
Wesley Barley.	J. J. Donovan.
Vincent J. Gray.	E. G. Murphy.
F. W. Bundy.	R. W. Hamilton.
R. D. Haskell.	Fresno, F. B. Johnson.
D. D. Didie.	Deputies:
H. W. Hedger.	J. B. Smith.
F. M. Raymond.	F. S. Granger, Jr.
O. F. Jewett.	A. W. Treadwell.
D. A. Harrigan.	Eunice C. Hennessy.
San Francisco, Thomas Flaherty.	Sacramento, James Duffee.
Deputies:	Deputy, J. Caples.
Jas. A. Hughes (Chief Deputy).	San Joaquin, O. T. Melton.
Thos. B. Slevin.	Deputy, W. J. Herson.
Chas. Wentworth.	Santa Clara, A. G. Walker.
Samuel Wacholder.	San Diego, V. Bruschi, Jr.
Henry McMahon.	San Bernardino, S. G. Batchelor.
Chas. Hornung.	Sonoma, John L. Gist.
Margaret Dolan.	Kern, R. R. Lucas.

TABLE I—Continued.

Tulare, F. F. Badoux.	Stanislaus, C. E. Tucker.
Riverside, Chas. M. Shiels.	San Luis Obispo, R. L. Dempsey.
Orange, Geo. McPhee.	Shasta, S. S. Stickle.
Humboldt, May E. Johnston.	Siskiyou, R. O. Gwyn.
Contra Costa, F. Judson Biglow.	Ventura, Geo. S. Wilson.
Santa Barbara, J. N. Watson.	Placer, C. H. Merrow.
Solano, John Cunningham.	Kings, J. C. Griswold.
Butte, F. C. Mekellos.	Merced, R. P. Thorpe.
San Mateo, Edw. J. Ford.	Imperial, F. W. Waite.
Santa Cruz, M. W. Walker.	Napa, W. D. Butler.
Marin, M. C. Doady.	Yolo, Geo. Farish.
Monterey, Geo. Brinan.	Redlands City, M. E. Armstrong.
Mendocino, W. B. Coombs.	

STATE DEPUTY SERVICE IN COUNTIES OF THE THIRTY-SIXTH TO FIFTY-EIGHTH CLASS.

Section 17 of the Weights and Measures Act provides in part:

In all counties other than those of the first to thirty-fifth classes, both inclusive, no county sealer or deputies shall be appointed by the legislative body thereof, but the state chief of the Division of Weights and Measures shall assign to such counties, or groups of such counties, such deputy state chiefs as may be necessary, but not more than one to each of such counties. And, the period of service in each county shall not exceed one hundred and twenty days in any one year.

In compliance with these provisions a complete annual inspection has been made in all counties of the thirty-fifth to fifty-eighth class, and the provisions of the several weights and measures laws enforced therein.

The names of the deputy state chiefs and the schedule of their jurisdiction follows:

- John A. Winkelman, El Dorado County.
- Thomas Briles, Modoc County.
- D. F. Norton, Nevada County.
- A. D. Shaw, San Benito County.
- J. H. Lamme, Sutter County.
- H. H. Sherrard, Tuolumne County.
- P. H. Northey, Colusa, Tehama, Glenn, and Trinity counties.
- J. W. Wylie, Yuba, Lassen, Plumas, Lake, and Sierra counties.
- B. P. Jennings, Amador, Inyo, Mono and Madera counties.
- A. M. Wallen, Calaveras County.
- Mrs. M. E. Johnston (Sealer for Humboldt County), Del Norte County.
- R. P. Thorpe (Sealer for Merced County), Mariposa County.

The deputy state chiefs have been assigned to a group of counties for the reason that the limit for one county is 120 days in counties from the thirty-fifth to fifty-eighth classification. By this method they are given yearly employment which at the same time upholds the efficiency of the division, since experience is a great factor in their work.

New appointees are brought into the state office, given a full technical course and then put into the field under an experienced man for practical work before being sent out to serve the public. In all counties where state deputies have been sent the division feels that a word of thanks should be given to the several boards of supervisors for the closest cooperation and assistance has been rendered in all cases.

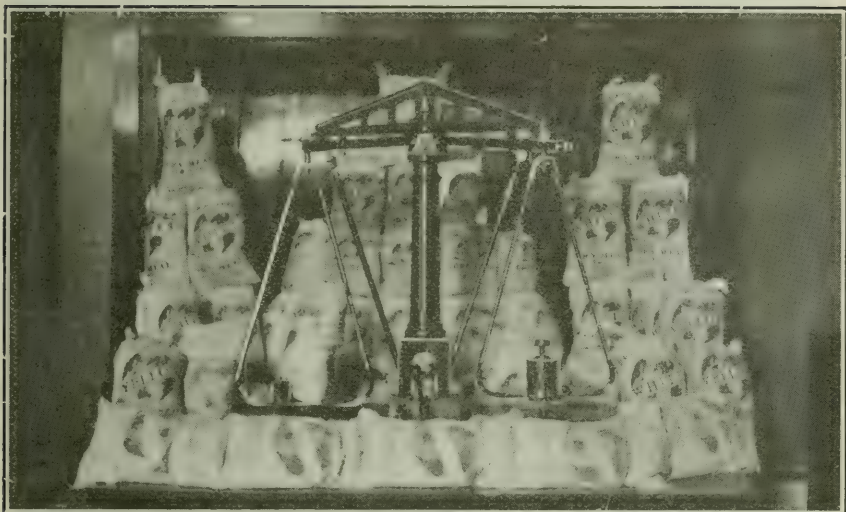


FIG. 225. Even arm balance scale used for checking standards and weights where the slightest variation must be detected.



FIG. 226. Testing the accuracy of gasoline pumps. This branch of the work has increased to such an extent that it has necessitated the employment of several additional deputies.

STANDARD WEIGHT AND MEASURE.

All standards used by each county, city and town are inspected and corrected at least once biennially by the state office, whose standards in turn are calibrated at least once in ten years by the United States Bureau of Standards at Washington, D. C. These standards are in the possession of the state at all times and are only used for calibrating other standards.

The custom heretofore has been for all county officials to bring in to the state office all standards in their possession for calibration, but owing to the fact that in several counties there is but one official, and during the time of calibration all standards are out of service, it was deemed advisable to transport the state standards to the several counties thereby saving a great deal of time and expense. This also enabled the state office to get in close touch with the inner workings of the county offices.

INSPECTION OF STATE INSTITUTIONS.

Section 10, chapter 597, calls for an annual inspection of all state institutions in respect to their weighing and measuring devices used in checking material purchased by them or delivered to them. The following communication has been forwarded to the superintendents of the various institutions so that they might familiarize their employees as to the meaning of the weights and measures laws:

I will thank you to kindly cooperate with this department in obtaining delivery at your institution of commodities purchased by the state on a net weight basis. Section 32a of the Weights and Measures Act provides as follows:

"No person shall by himself or his employee or agent, or as the employee or agent of another sell or offer or expose for sale any commodity, produce, article or thing at, by, or according to gross weight or measure, or, at, by, as, of, or according to any weight, measure or count which is greater than the true net weight, measure or count thereof, or which is less than the standard net weight, standard net measure or standard net count, including tolerances, as such standards and tolerances are now or may hereafter be established pursuant to the provisions of this act. Any person violating any of the provisions of this section shall be guilty of a misdemeanor."

This law makes it a misdemeanor to sell commodities by gross weight. Many merchants selling edibles endeavor to defeat the net weight principle by contending that the variance is due to shrinkage, while as a matter of fact the commodity was actually billed on gross weights. The net weight principle is uniformly observed by wholesale and retail merchants and there is no good reason why the state should not obtain delivery by net weight.

Any edibles shipped to state institutions on a net weight basis at point of origin will hold this weight and should check upon reweigh at the institution. Where point of origin net weights are accurate they should express no variance in deficiency at point of destination.

ANNUAL CONFERENCE.

Owing to the fact that the state laws do not contain any provision for an annual meeting of weights and measures officials, it has been found impossible heretofore to assemble more than a skeleton conference. With the idea of conferring with and bringing together as many of the officials as possible, two conferences were held this year—one in Sacramento for the northern representation, and one in Los Angeles for the southern. This worked out very well as practically each county in the state was represented at one of the meetings. These conferences are largely essential as efficiency is brought about largely through cooperation and exchange of ideas.



FIG. 227. Faulty weighing and measuring equipment confiscated in a single county of the State.

INSPECTION OF RAILROAD TRACK SCALES.

Mr. F. B. Fell, in charge of the United States Bureau of Standards test car No. 2, and the Chief of the Division of Weights and Measures, have just completed a series of tests of the different railroad track scales throughout the state, the most important test being that of the master scale owned by the Southern Pacific Company and located in their West Oakland yards. This master scale is used only to calibrate the test cars used by the different railroad companies in testing and keeping in good condition all track scales along their lines. Mr. Fell remarked upon leaving the state that it was most gratifying to him to see the cooperation existing between the railroad companies and the Division of Weights and Measures of the State of California. Also that the condition of the track scales in this state was second to none in the United States. This is due largely to the fact that Mr. Geo. A. Easton, superintendent of track scales for the Southern Pacific Company, and Mr. J. B. New, in the same capacity with the Santa Fe, are two of the most efficient men in their line in the United States.

The State of California, at present, is not in possession of sufficient equipment to make tests on any heavy capacity scales and for this reason we must rely upon reports of such scales as sent in from time to time by Mr. Easton.

The excellent condition of California track scales conveys to the farmers and producers the assurance that they are being protected on the weight of their commodities to an extent greater than that of any other state in the Union.

Whenever a railroad test car comes into a county for the purpose of making an inspection, the county sealer is immediately notified and accompanies the car through the county. This enables him to act intelligently upon any controversy resulting from weights obtained over these scales. These test cars are of a wheel base not greater than 12 feet, for the reason that tests must be made on each section of the scale individually thereby determining where error, if any, exists.

Following is a report of the work done by the Southern Pacific and Santa Fe scale cars during the last biennium:

Report of the Southern Pacific Company.

Private owned track scales tested with Southern Pacific test cars during year 1921	228
Southern Pacific track scales tested with Southern Pacific test cars during year 1921	186
Track scales installed by Southern Pacific during year 1921, and tested	18
Freight house and baggage scales inspected and repaired and tested by Southern Pacific repair cars during year 1921	5,048
Scales rebuilt at Southern Pacific scale shop during year 1921 and supplied stations	188
Private owned track scales tested by Southern Pacific test cars during year 1922, to date	194
Southern Pacific track scales tested with Southern Pacific test cars during year 1922, to date	172
Track scales installed by Southern Pacific during year 1922, to date	12
Freight house and baggage scales inspected, tested and repaired by Southern Pacific repair cars during year 1922, to date	4078
Scales repaired and rebuilt at Southern Pacific scale shop during year 1922, to date	156

Report of Atchison, Topeka and Santa Fe Railway Company—Coast Lines.

Track scales inspected	20
Dormant scales inspected	73
Depot scales inspected	194
Portable scales inspected	227
Counter scales inspected	33
Dial scales inspected	47
Stock yard scales inspected	5
Automobile and truck scales inspected	6
Total	605
Standard 130-pound two-wheel warehouse trucks	784
400-pound trailer trucks in use at Los Angeles	380

Track scales inspected were located at the following points:

Bakersfield	1	Richmond	1
Calwa	1	Riverside	1
Fullerton	1	Reedley	2
Hanford	1	Riverbank	1
Kincaid	1	San Bernardino	1
Los Angeles	2	San Francisco	2
Needles	1	San Diego	1
Oakland	2	Stockton	1

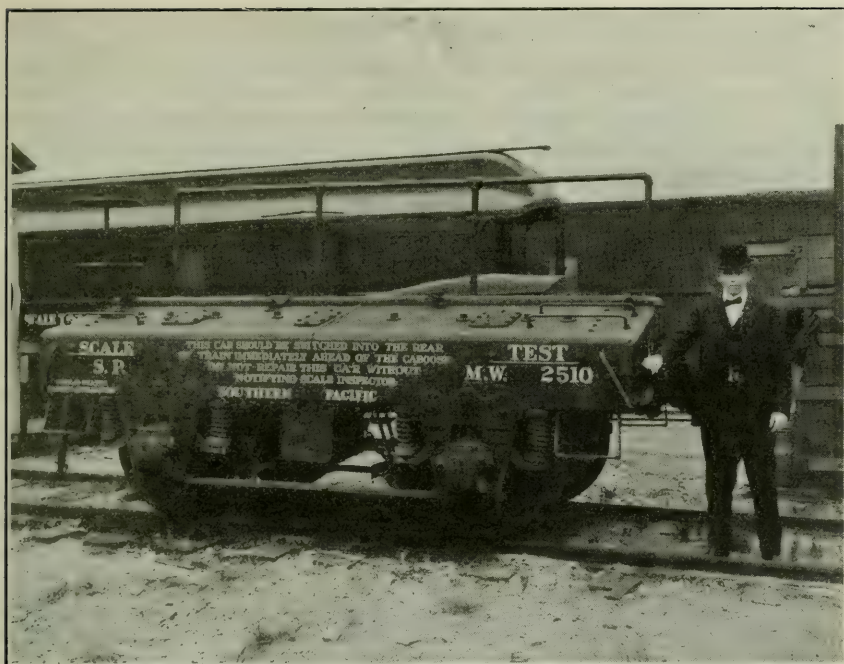


FIG. 228. Mr. Geo. A. Easton, Superintendent of Scales of the Southern Pacific Company, and his 40,000 pound test car used in testing railroad track scales throughout the state.

Functions.

It is the duty of the chief of the Division of Weights and Measures or his assistant to inspect conditions in the various counties, cities and towns of the state in respect to weights and measures and the sale of goods, wares, merchandise, commodities and foodstuffs in containers, and to report findings annually to the Governor. Also to at least once every two years to inspect the work of the local sealers in their respective districts. The division has endeavored to arrange these inspections in such a way as to visit the different localities at the time their particular commodities are moving in volume. This, it is found, eliminates a great amount of controversy which is bound to follow carelessness in packing and weighing.

The Division of Weights and Measures has for enforcement the following laws, of which a brief outline is given:

- (1) Weights and Measures Act.
- (2) Net Container Act.
- (3) Public Weighmaster Act.
- (4) Bread Act.
- (5) Hay Baling Act.
- (6) Mattress Act.

Weights and Measures Act.

This act sets forth practically all duties which have been partially previously outlined. Section 6 delegates to the state chief the power to fix a standard net weight or measure and establish such tolerances for commodities which in his own best judgment he may deem advisable. This has been done principally on staple commodities such as bread, butter, milk, berries, potatoes, flour, coal, cord wood, gasoline and oil. In establishing such standards and tolerances the division is careful



FIG. 229. Numerous designs of faulty weighing and measuring equipment taken out of service by Weights and Measures officials and later on destroyed.

that they do not conflict with the Government ruling on the same commodity. Standardization is the basis of fair competition and should be undertaken in as many cases as possible.

STANDARD MARKINGS ON CANVAS GOODS.

This office is in receipt of correspondence from the National Association of Canvas Manufacturers congratulating it upon a recent ruling issued covering the weight marking on canvas when cut from the original roll to become a part of some other commodity. This was accomplished by issuing a ruling causing all canvas when so used to be marked as to its own weight, taking the 29 inch width as a basis. In other words, it practically means that canvas must be marked as to its thickness and strength.

BERRY STANDARDIZATION.

The berry situation, which has been a vexing problem to Weights and Measures officials during the last few years, is now practically relieved. Convictions of no less than 50 violators during the past season were obtained and the division can now safely report that at no time during the existence of the Weights and Measures Division has the general condition been better than at the present.

SPECIAL DEPUTIES.

Owing to the fact that the bottled milk industry has increased to such an extent in this state, it has been impossible in the past to inspect all bottles after leaving the factory. For this reason deputy weights and measures officials have been stationed in the several factories for the purpose of checking the capacity of all bottles at the time of their manufacture and this has aided materially in keeping short-measure bottles out of the avenues of trade.

NET CONTAINER ACT.

This act is a direct protection to the public for it provides that all containers be marked as to their true net contents thereby eliminating all deception which is bound to result from commodities being packed in air-tight containers and not in view of the buyer. It also rules against slack-filled containers which in itself is nothing less than pure deception. The weights and measures officials throughout the State devote a good deal of their time to the enforcement of this act and have sufficiently instructed and demanded of the party at fault that each violation be remedied, otherwise conviction will follow.

PUBLIC WEIGHMASTER ACT.

All persons, firms, corporations, etc., weighing and measuring any commodity and giving figures upon which settlement is based must become a public weighmaster and issue a state certificate recommended by this division. We now have in the State of California approximately 2300 public weighmasters bonded to the amount of \$1,000 each, guaranteeing certified weights to the people of this State and the United States. The division is endeavoring to see that each firm, person, corporation, dealer, etc., who operates a scale under the provisions

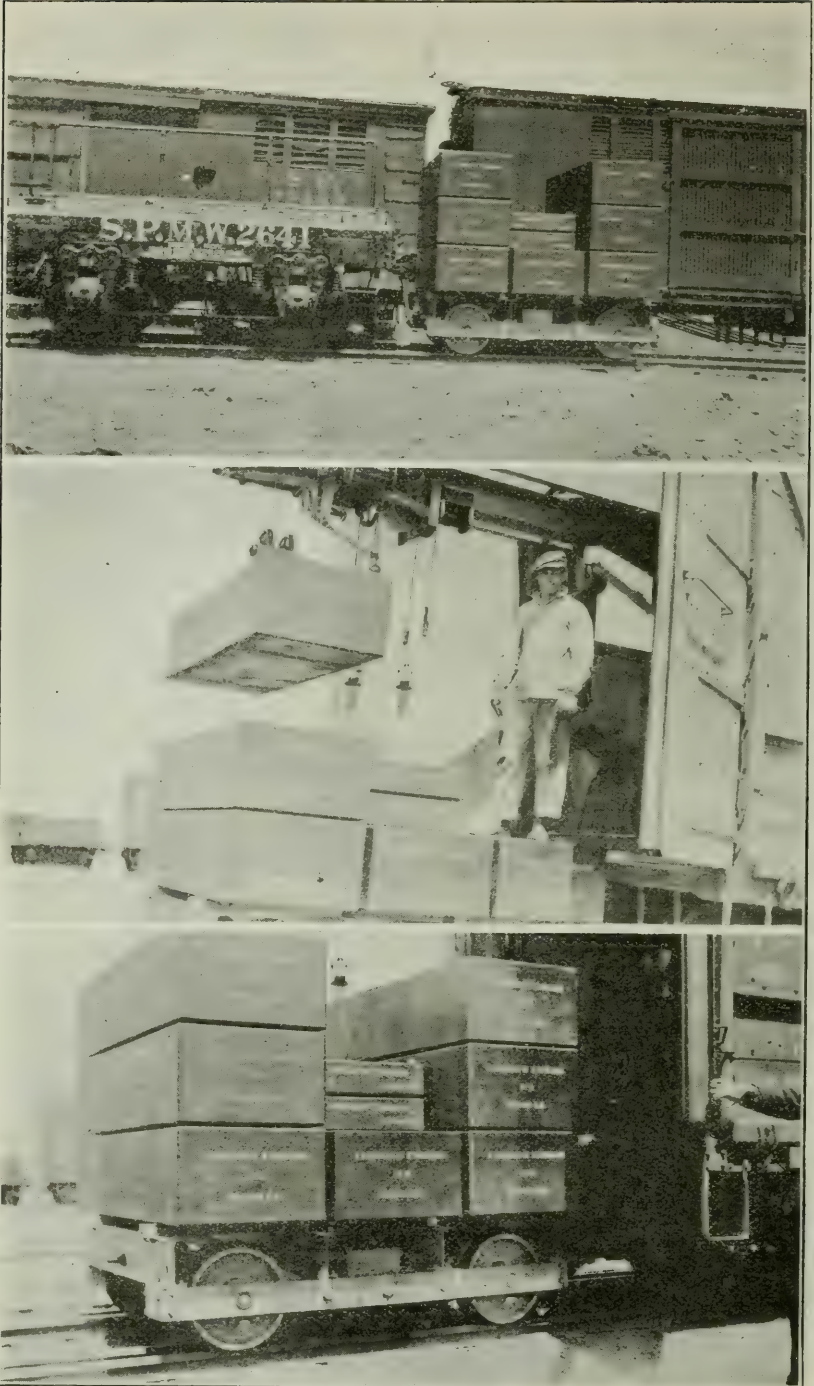


FIG. 230. U. S. Bureau of Standards Test Car No. 2, showing 80,000 pounds of accurate test weights used in testing heavy capacity scales throughout the United States. Mr. F. B. Fell in charge of this special government work is seen standing in the center insertion. This car has just completed a 100 per cent perfect inspection in the State of California.

of this act becomes a public weighmaster, his bond to be on file in the state office. This branch of weights and measures activities has no end of possibilities for the reason that it renders to the public a certificate backed by the State of California and it is most gratifying to see the respect the California weighmaster's certificate commands throughout the entire United States. The Division of Weights and Measures is working under an enormous handicap by not having adequate equipment for testing heavy-capacity platform and wagon scales, but it is hoped that a self-supporting amendment can be added to the present law which will provide ample funds for the perpetuation of this work. As the division is to give a certificate, it must be in a position to guarantee it.

BREAD ACT.

This act, recently written into the statutes of the State of California, has created nation-wide interest and there is a possibility of its being adopted by the Committee of Tolerances and Specifications in Washington, D. C., which will make it a national ruling.

HAY-BALING ACT.

Scales used by hay balers must pass inspection by this division. All hay must be sold by its true net weight and must contain no dirt, rock or other debris. The sale of hay is based upon the bale or ton of two thousand pounds. If sold by the bale, a tag must be attached thereto giving correct weight.

MATTRESS ACT.

This act, recently referred to the Division of Weights and Measures for enforcement, has finally brought us to the realization that an expert is needed since inspection as to quality and sanitation goes with that of measure. After several conferences with wholesale and retail mattress men of the state, a deputy who is well qualified as a mattress expert was appointed to handle the detailed enforcement of the act.

BIENNIAL REPORT OF INSPECTIONS.

The biennial report of inspections, in detail, which follows, will point out the increased activities of this division. The gasoline pump alone has increased in numbers at least one hundred per cent. Each pump is inspected by a weights and measures official and a certificate of accuracy posted for the benefit of the public.

APPARATUS INSPECTED, 1922.

Scales.

County	Establishments visited	Certificates issued	Counter				Spring			
			Corrected	Sealed	Out of order	Condemned and confiscated	Corrected	Sealed	Out of order	Condemned and confiscated
Alameda	6,185	6,185	679	495	76	9	1,028	1,024	155	22
Alpine	9	9	2	3			1	4		
Amador	126		2	38			2	8		3
Butte	915	647	22	69			24	40		
Calaveras	128	143	27	64	3		8	27		
Colusa	203	169		59	1		1	18		
Contra Costa	613	634	14	82	3	2	8	41	8	2
Del Norte	49	49	8	8			2	2		
El Dorado			1	7			1	10		
Fresno	2,846	2,933	72	268	6	1	173	527	24	28
Glenn				32	1			24		
Humboldt	352	352	26	85	6	1	15	38		11
Imperial	308	308	14	66			6	61		
Inyo			6	62		3	1	16		1
Kern	672	607	2	26	5		9	69	2	
Kings	369	337	19	44	1		2	17	1	1
Lake	132	132	1	25	1		1	28		2
Lassen	109	109	3	25			1	2		
Los Angeles	5,577	8,096	241	1,873	80	55	2,359	4,745	103	55
Madera	261	261	8	55			2	38		4
Marin	1,015	649	34	190	2	3	13	163	6	15
Mariposa	16	16	1	4				1		
Mendocino			9	132			5	161	1	18
Merced	263	263	4	84	2	2	4	11	6	1
Modoc	88	88	6	25				2		
Mono	32	32	1	13				8		3
Monterey	474	305	23	29			21	17	1	2
Napa	166	152	3	42	1			7	3	
Nevada	152	178	16	40		2	5	17	2	4
Orange	653	653	11	38		1	34	103		12
Placer	485	485	42	50	2		15	16	3	3
Plumas	162	162	3	29			1	3		
Riverside	723	548	18	18			115	126	1	6
Sacramento	763	725	6	87	2	1	15	217	2	50
San Benito			9	29			7	37		1
San Bernardino	765	490	15	120	2	3	11	64	8	88
San Diego	2,330	2,036	136	777	39		143	902	14	19
San Francisco	5,949	5,599	2,153	374	60	9	2,941	150	38	13
San Joaquin	1,699	1,417	41	188	4	1	69	234	25	23
San Luis Obispo	458	458	58	34	8	10	56	41	5	26
San Mateo	526	526	15	64	5	2	27	110	9	3
Santa Barbara	1,327	554	53	127	2	1	25	56	4	2
Santa Clara	403		58	74	2		88	6	8	
Santa Cruz	1,322	979	46	150	3	6	53	210	3	19
Shasta	260	256	27	122			8	50		
Sierra	35	35	2	15				3		
Siskiyou	256	256	19	147		5		10		3
Solano	992	770	18	165	3		14	127	2	
Sonoma	818	818	5	246	1	1	10	105		2
Stanislaus	1,167	1,167	298	32	3	1	210	15	24	24
Sutter	95	95	4	12	2		1	19		
Tehama	153	125	2	43	2			5		
Trinity	40	40		39			2	6		
Tulare	198	198	2	25	5	2		5	1	1
Tuolumne	127	141	29	60		1	3	18		1
Ventura	1,680	644	96	173			66	343		112
Yolo	330			38				46		
Yuba	317	317	14	17		1	6	16		2
Grand totals	45,093	42,548	4,424	7,182	338	118	7,612	10,169	454	1,082

APPARATUS INSPECTED, 1922—Continued.

Scales.

County	Computing				Platform			
	Corrected	Sealed	Out of order	Contempted and confiscated	Corrected	Sealed	Out of order	Contempted and confiscated
Alameda	1,897	1,126	199	7	1,546	568	269	12
Alpine	2	2	3		3	4		
Anador	9	47		2	12	56		3
Butte	78	171			52	95		
Calaveras	28	49	2	1	49	71	3	
Colusa	5	57			8	112	2	
Contra Costa	26	96	12		69	244	20	2
Del Norte	22	22			40	40		
El Dorado		26			6	27		
Fresno	321	1,027	110	6	390	739	58	2
Glenn	10	60			4	100	3	
Humboldt	62	238	4	2	121	370	5	6
Imperial	12	190			13	51		
Inyo	14	53		1	12	35	2	2
Kern	95	296	20		29	162	6	
Kings	20	73	9		26	114	4	
Lake	14	28			8	31	1	4
Lassen	20	22			12	30		
Los Angeles	1,609	3,461	496	47	1,269	2,033	373	63
Madera	15	75			31	132	28	13
Marin	75	194	5	1	83	208	11	1
Mariposa	4	6			5	6	1	
Mendocino	37	230	4	4	40	287	12	7
Merced	16	25	3		42	110	24	
Modoc	4	39			8	56		
Mono	21	9			4	14		1
Monterey	85	102	3		74	105	5	
Napa	13	92	2		7	80	4	
Nevada	24	60	2		28	80	4	
Orange	299	433		21	171	282		12
Placer	91	105	4		149	96		3
Plumas	14	21	1		9	57		2
Riverside	151	151	6		194	194	7	1
Sacramento	150	656	7		88	444	26	1
San Benito	21	84		1	79	184		4
San Bernardino	144	4	1		45	174	14	1
San Diego	298	1,184	104	3	244	855	71	5
San Francisco	2,276	322	138	3	2,631	636	217	6
San Joaquin	169	414	35	1	246	310	40	4
San Luis Obispo	76	41	8		158	120	10	
San Mateo	141	319	36		133	390	33	
Santa Barbara	62	196	2		153	157	8	3
Santa Clara	170	57	38		122	241	24	4
Santa Cruz	124	295	3	1	147	326	41	11
Shasta	12	73			34	124		
Sierra	2	16			2	15		
Siskiyou	13	57			27	93	1	1
Solano	73	264	15		97	242	25	2
Sonoma	40	393			63	599	2	
Stanislaus	365	62	21	1	543	138	32	1
Sutter	1	55	1		44	92	23	
Tehama	6	37			3	75	1	
Trinity		11			2	24		
Tulare	6	24	5		14	72	9	
Tuolumne	34	56	3		46	65	1	
Ventura	140	286	41		164	448		
Yolo	3	83			8	147	2	1
Yuba	24	45			41	91		2
Grand totals	9,443	13,621	1,340	191	9,648	12,561	1,422	183

APPARATUS INSPECTED, 1922—Continued.

Scales and Weights.

County	Wagon, stock and track				Weights			
	Corrected	Scaled	Out of order	Contaminated and confiscated	Corrected	Scaled	Out of order	Contaminated and confiscated
Alameda	18	9	2		1,246	6,804	73	117
Alpine					2	22		
Amador					9	339		2
Butte	45	74			10	372		57
Calaveras					38	386		4
Colusa					2	446		
Contra Costa	30	58	12	1	75	1,621	1	3
Del Norte					153	153		
El Dorado		2			6	121		
Fresno	236	332	94		564	5,033	6	2
Glenn					4	391		
Humboldt	18	26	2		31	1,220		28
Imperial	9	34	1					
Inyo	7	14	7	2	29	326	8	10
Kern		50	1		49	360		10
Kings	14	15	3		11	574		
Lake					2	283		18
Lassen	2	18			6	283		
Los Angeles					399	19,546	8	292
Madera	7	13		3	28	727		13
Marin	5	9			2	1,935		5
Mariposa						21		2
Mendocino					59	947		45
Merced	13	38	20		9	443		4
Modoc	2	14	1		17	392		
Mono					6	107		6
Monterey	48	3	4			858	6	
Napa	3	28			4	250		
Nevada	2	3		1	4	602		
Orange	53	63		7				37
Placer					10	1,104		10
Plumas						393		2
Riverside	21	21			18	877		8
Sacramento	5	118			16	3,829		54
San Benito					38	644		21
San Bernardino	13	34	14		4	854		16
San Diego	11	28	2		13	7,513		63
San Francisco					14,264	43	12	66
San Joaquin	68	54	16	2	20	2,999		22
San Luis Obispo	70	81	9		208	1,035		8
San Mateo	11	13	7	2	2	1,146		9
Santa Barbara	54	24	2	2	37	1,779		7
Santa Clara	22	49			1,045	57		26
Santa Cruz	37	70	15	1	52	1,491		10
Shasta	6	27		1	20	1,005		2
Sierra					1	120		
Siskiyou	4	9				807		
Solano	23	38	6		12	2,105		4
Sonoma					9	3,000		6
Stanislaus	160	26	31	8	3,894	1	164	51
Sutter					50	541		12
Tehama					3	333		1
Trinity					8	145		2
Tulare	5	34	8		6	513		5
Tuolumne					56	369		4
Ventura	18	74	5		66	2,650		64
Yolo	3	98	3		17	1,076		1
Yuba					10	641		19
Grand totals	1,043	1,631	265	28	42,646	81,692	278	1,148

APPARATUS INSPECTED, 1922—Continued.

County	Lineal				Liquid			
	Corrected	Sealed	Out of order	Condensed and condensed	Corrected	Sealed	Out of order	Condensed and condensed
Alameda	18	47	1		228	3,219	40	119
Alpine						11		1
Amador	2	22		7	4	124		2
Butte	10	34				378		65
Calaveras		6		20	3	259		6
Colusa						72		
Contra Costa		13			5	459	8	9
Del Norte	150	150			59	59		
El Dorado						63		
Fresno	1	25			11	1,897	32	4
Glenn					2	125		
Humboldt	26	1,239		31		1,037		94
Imperial	37	72						
Inyo	5	24		6	23	90		5
Kern		14				230		1
King		7				34		
Lake		5		6		73		10
Lassen		13				113		1
Los Angeles		422		66	11	15,768	7	60
Madera		15		4	12	170		5
Marin		54		1		461		14
Mariposa						11		
Mendocino		37		3		305		24
Merced					1	92		
Modoc						73		
Mono		9			6	39		4
Monterey					2	242		1
Napa						61		
Nevada		8				90		9
Orange						125		6
Placer		3			27	512	5	47
Plumas	1	7				57		
Riverside						33	380	
Sacramento				24	8	421		4
San Benito		4				62		11
San Bernardino					2	277		5
San Diego		137			14	3,507		147
San Francisco	33,632				49,646	33	16	364
San Joaquin		18		2	5	1,153	4	11
San Luis Obispo					6	177		13
San Mateo	2	3			1	545	11	9
Santa Barbara	45				958			1
Santa Clara					54	6	2	
Santa Cruz		12			7	716		20
Shasta		21				523		6
Sierra		2				34		
Siskiyou		5				166		
Solano					34	816		2
Sonoma		55				82		
Stanislaus					849			59
Sutter		3				3		
Tehama						1		
Trinity		7				13		1
Tulare					1	285		1
Tuolumne	2	32		12	1	250	9	9
Ventura						622		104
Yolo					2	238		
Yuba		45				229		4
Grand totals	33,931	2,570	1	182	51,982	36,441	515	1,402

APPARATUS INSPECTED, 1922—Continued.

County	Measuring pumps				Milk bottles			
	Corrected	Sealed	Out of order	Contaminated and confiscated	Inspected	Minus	Plus	Contaminated and confiscated
Alameda	785	844	148	1	107,214			
Alpine	2	2						
Amador	3	32						
Butte	49	155	4					
Calaveras	29	37	1					
Colusa	23	68	4					
Contra Costa	105	116	63					
Del Norte	9	9						
El Dorado	5	25			12			
Fresno	296	1,657	101					
Glenn	40	113	5		600			
Humboldt	46	179	6	2	3,362			
Imperial	37		72					
Inyo	31	33	6					
Kern	96	210	34		720	720		720
Kings	36	92	9		2,939			
Lake	14	21	1					
Lassen	9	29	4		976			
Los Angeles	604	1,471	237		4,042	922		11,816
Madera	11	37	3					
Marin	31	186	11		70,360			46
Mariposa	6	12	3					
Mendocino	35	146	10		100			
Merced	36	74	24					
Modoc	3	35						
Mono	5	7		1				
Monterey	66	71	5					
Napa	35	61			100			
Nevada	22	20	4	1	100		40	
Orange	121	257		35	27,160			
Placer	88	128	16	1	840	6		6
Plumas	8	18	2					
Riverside	4	246	253	8				
Sacramento	69	162	5		18,016			3
San Benito	32	52	1	1	102	8		8
San Bernardino	92	76	29		1,000	80	60	
San Diego	128	582	18		110,675	52,177	58,448	
San Francisco	1,014	98	94		3,455,465			111,674
San Joaquin	165	565	43	2				
San Luis Obispo	63	41	8		4,050			50
San Mateo	76	255	24		3,463	291		291
Santa Barbara	326	11	1	10,000				
Santa Clara	55	48						
Santa Cruz	92	348	47		2,932			
Shasta	11	132			1,175			
Sierra	7	9						
Siskiyou	14	81	2					
Solano	89	299	13					
Sonoma	88	294						
Stanislaus	415	50	36	1				
Sutter	4	53	4					
Tehama	35	80	3					
Trinity	3	16	1					
Tulare	86	269	14					
Tuolumne	35	50						
Ventura	89	259	17		4,795			
Yolo	23	100	1					
Yuba	12	53	1					
Grand totals	5,683	10,372	1,319	10,033	3,800,198	54,204	58,548	124,654

APPARATUS INSPECTED, 1922—Continued.

County	Miscellaneous				To ails - Exclude milk bottles and containers			
	Corrected	Sealed	Out of order	Condemned and confiscated	Corrected	Sealed	Out of order	Condemned and confiscated
Alameda					7,445	14,193	963	287
Alpine	1	1						
Amador								
Butte								
Calaveras								
Colusa					39	832	7	
Contra Costa	7	11	2		339	2,741	129	19
Del Norte								
El Dorado								
Fresno	57	275	8	24	2,121	11,780	439	67
Glenn					60	845	9	
Humboldt					345	4,482	17	275
Imperial								
Inyo								
Kern					280	1,417	68	11
Kings					128	986	27	1
Lake					44	466	2	30
Lassen					53	535	4	1
Los Angeles	77	182	20	28	6,569	49,501	1,324	1,169
Madera					101	1,212	32	47
Marin		1,750			243	5,150	35	40
Mariposa					16	61	4	2
Mendocino					165	2,245	27	101
Merced					125	877	80	7
Modoc		7			40	643	1	
Mono								
Monterey					319	1,427	24	3
Napa								
Nevada					98	876	14	15
Orange								
Placer					365	1,706	30	38
Plumas								
Riverside	8	8			804	2,028	22	19
Sacramento					354	3,830	59	135
San Benito					176	1,082	1	35
San Bernardino					270	1,743	63	14
San Diego					987	15,634	254	202
San Francisco					108,701	1,668	521	171
San Joaquin	37	485	12	20	821	6,420	170	88
San Luis Obispo	8	8						
San Mateo	12	34			413	2,781	119	20
Santa Barbara					387	3,672	27	18
Santa Clara								
Santa Cruz		400			558	4,018	112	68
Shasta					121	2,077		8
Sierra								
Siskiyou					73	1,366	7	2
Solano		34			360	4,060	64	
Sonoma					215	4,774	3	9
Stanislaus					324	6,835	312	169
Sutter								
Tehama					49	574	6	1
Trinity					15	255	1	3
Tulare					120	1,327	42	9
Tuolumne								
Ventura					639	4,855	63	280
Yolo					56	1,827	6	2
Yuba	2,000				116	1,141		26
					134,278	172,783	5,096	3,577
					176	1,082	1	55
Grand totals	2,207	3,195	42	72	134,454	173,865	5,097	3,612

APPARATUS INSPECTED, 1922—Concluded.

County	Packages or containers inspected		
	Heavy	Convent	Light
Alameda	48,683	18,905	31,983
Alpine	107	810	4
Amador		5,000	3
Butte		17,430	200
Calaveras		4,190	246
Colusa			
Contra Costa	31	1,309	66
Del Norte	45	1,575	25
El Dorado			30
Fresno	60	91,012	1,369
Glenn		10	
Humboldt	1,450	11,043	35
Imperial			
Inyo	13	6,250	19
Kern	100	10,118	158
Kings		10,302	5,916
Lake	9	2	18
Lassen		286	
Los Angeles	5,780	9,116	8,580
Madera		3,995	294
Marin		57,292	72
Mariposa	50	10	
Mendocino	12	502	
Merced	692	357	2,316
Modoc	20	56	61
Mono		3,500	50
Monterey	17	7,765	494
Napa			
Nevada	206	370	127
Orange	65	440	246
Placer	660	55,738	282
Plumas		274	
Riverside	30	13,665	207
Sacramento	44	15,096	7,572
San Benito	15	126	2
San Bernardino	24	3,576	166
San Diego	4,725	25,880	9,412
San Francisco	1,647	42,950	26,368
San Joaquin	115	2,338	46
San Luis Obispo		5,975	
San Mateo		188,377	1,210
Santa Barbara		2,260	850
Santa Clara		1,152	1
Santa Cruz	392	2,784	863
Shasta	52	680	78
Sierra			
Siskiyou	116	44	40
Solano	20	3,650	55
Sonoma	149	230	1,050
Stanislaus	1,759	3,239	49
Sutter		28,061	
Tehama			
Trinity	5	324	10
Tulare	72	2,529	83
Tuolumne		2,990	197
Ventura	386	3,082	227
Yolo		1,271	51
Yuba	363	10,548	119
	67,899	678,309	
	15	126	
Grand totals	67,914	678,435	100,850

AMENDMENTS RECOMMENDED.

The Weights and Measures Law makes no provision for a county paying the expense of the weights and measures official incurred in attending the annual conference. The law should be amended to this end, for the constructive information a man secures at a meeting of this kind more than repays his county through the added efficiency which is bound to follow.

Another recommendation is, that where the county sealer's salary is referred to in the law, that said stated salary be eliminated and a minimum of \$150 be inserted. This will tend towards increased efficiency due to the fact that the sealer will not feel that he is at the top of the ladder and fall into a certain sluggish routine. Owing to the fact that the division is progressing and is called upon for a much greater volume of detail work and responsibilities, it is earnestly recommended that the salary of the assistant to the chief be increased to \$3,000 per annum. Mr. Chas. F. Hayden, the present assistant, has rendered both efficient and conscientious service, and as responsibilities increase it is felt that he should be compensated accordingly.

It is also recommended that the per diem compensation of state deputies be raised from \$5 to \$6.

COMPLAINTS AND PROSECUTIONS.

The Division of Weights and Measures has earnestly endeavored at all times to be fair to each individual, and no recommendations or decisions have been made until such time as the entire case had been thoroughly digested and due consideration given to each individual upon the merit of his argument. The division believes that any violator should be given the benefit of the doubt upon the first offense since such infraction of the law may be due to ignorance or carelessness on the part of some one of his employees. Therefore, by instructing him along the right lines and warning him against repetition, it has been found that a friendly cooperative feeling has been made for the department.

CONCLUSION.

The personnel of the division remains practically the same as at the time of consolidation with the Department of Agriculture, the only exceptions being in two counties where weights and measures men have been elected to fill higher county offices. It is also gratifying to report the hearty cooperation between all county officials and the personnel of the state office, without which cooperation and assistance the Division of Weights and Measures could not have attained the high standard of efficiency it now enjoys.

Weights and measures officials throughout the state form an organization of about 75, men and women, each a credit to the division and to their respective counties.

It has been the aim and desire of the Division of Weights and Measures to cooperate with the public to the fullest extent and to give to them the highest standard of efficiency and economy possible.

DIVISION OF MARKETS.

By FRED N. BIGELOW, *Chief.*

The Division of Markets, formerly the State Market Commission, was created for the purpose, among other things, of assisting producers and shippers in the distribution of farm products, of assisting in the organization and operation of cooperative associations for marketing purposes, and of gathering and disseminating impartial market information.

In carrying out these functions the activities of the division have generally taken the direction of assistance in proper organization for cooperative marketing in the interest of orderly distribution.

California stands preeminently as a leader in this method of marketing farm products. A recent investigation shows that of the total value of agricultural and horticultural products of the state, estimated at approximately \$500,000,000, the cooperative associations handle fully 50 per cent. In gaining this enviable position in cooperative marketing, the state government, through the Division of Markets of the Department of Agriculture, has been foremost in leadership and assistance. This is rightfully so, since if the state attempts to assist its producers in the more orderly marketing of their products, it is logical that it should go a step further in counselling as to the means of organization and how best to avoid the pitfalls and mistakes of improper and faulty organization. Such a division can be and is of immeasurable benefit as it acts as a neutral agency in the assembling of information, as well as in advising the best methods and past experience both in organization and in marketing, as adopted by other similar associations.

As the policies of the Division of Markets are at present conceived, however, its activities are not confined solely to rendering assistance to producers in determining the proper form of organization adapted to their particular industry. For the benefit of producers and distributors, and indirectly to the advantage of the consuming public, the division has established a daily market reporting service by which the fullest market information on supply, demand, prevailing prices and commercial movement of farm products is gathered and published in the press as well as supplied to producers and distributors wherever required. In the short time in which this service has been operating, it has proved a distinct advantage, with particular respect to fruit and vegetable products. The information thus gathered is now being largely used by the trade as a basis for the settlement of claims and accounts throughout the state.

Of particular importance is the arrangement recently perfected with the United States Department of Agriculture by which its Bureau of Agricultural Economics and this division jointly provide a daily and weekly live stock market reporting service for the entire state. Under this arrangement the total cost of this service, amounting to \$6,000 annually, is borne jointly by the two departments and gives to the state the benefit of federal assistance and information not otherwise available. This service provides a daily report on live stock quotations based on actual sales, together with a weekly summary of market trend and conditions on all classes of live stock. It has been conservatively esti-

mated by those thoroughly acquainted with the industry, that the establishment of this service means a saving of large sums annually to the live stock industry, without placing any added burden on the packers, trade or the consuming public. This result is accomplished by minimizing speculative conditions. The live stock market reporting service is calculated unquestionably to improve the quality of grades of live stock produced, by reporting price quotations according to grades. It is hoped ultimately, with the aid of the State Director of Agriculture and the federal bureau, to obtain the benefit of a leased wire service from eastern markets to supplement state market information.

Lack of full market information has been one of the chief contributing factors to extreme variations in market prices and consequent disadvantage to the producers on the one hand and the consuming public on the other. Even the trade has suffered through its inability to gather complete information. This is particularly the case with reference to information on common and cold storage holdings. California is a heavy producer of perishable products such as potatoes, onions and apples. Up to the present time no authentic information has been available to producers or the trade as to the available surplus stocks of these products in storage. In response to numerous requests, therefore, commencing in November, a semimonthly common and cold storage reporting service was established. The report published on the 15th and 30th of each month shows the common and cold storage holdings of these products, as compared with the same period a year ago.

This service is considered a big forward step in overcoming the lack of market information, and in lifting the veil of secrecy which has continually surrounded the movement of food supplies. It supplements largely the Cooperative Crop Reporting Service which has proved so effective. It is believed that California is one of the first states to establish such a reporting service. It is also felt particularly that the cold storage reports covering as they do all storage houses in the state, will work to prevent extremes in price ranges on those products, will stabilize markets, assist producers and operators in avoiding inadequate movement and sale at certain periods and over-supply and excessive prices at other periods. In general it will materially assist in eliminating much of the confusion heretofore existing in the marketing of these products to the benefit of producers, consumers and the trade.

Of outstanding importance among the matters that have engaged the attention of the division is that of transportation and car shortage, particularly affecting perishable products. This problem has been recurrent each year, aggravated during the last year or so by the tremendous increase in production throughout the state in deciduous fruits, and especially grapes. Early in the summer it was realized that the unusually large crop in sight would tax the refrigerator car facilities to the utmost. A greater danger existed, however, in the effect of the railroad strike, then pending.

A statewide meeting of fruit growers, shippers, distributors and western railroad officials was called on August 16th for the purpose of determining and taking measures to avoid the impending car shortage, which if permitted would mean huge losses to producing and shipping interests. The result of this meeting was the formation of a Trans-

portation Committee of 40, selected by the Director of Agriculture, to present the matter to the railroads, Interstate Commerce Commission, the Car Service Division of the American Railway Association, and even to obtain the assistance of Congress if possible in alleviating the situation. In addition to this action another result of the meeting was to call upon every chamber of commerce in the state and other agencies to use their influence with the United States Chamber of Commerce, congressmen and others to exert every effort in bringing about a termination of the railroad strike, the effect of which was seriously hampering the eastern movement of trains and causing much loss to early shippers.

At the request of the Transportation Committee, Mr. Geo. H. Hecke, Director of Agriculture, headed a delegation to Washington to intercede with the Interstate Commerce Commission for its aid in the situation, steadily growing worse. This committee was finally able to obtain from the commission a priority order requiring the return westward in solid trains of refrigerator cars originating in California points.

A survey in California of the car situation by this division subsequently revealed that large numbers of cars awaiting unloading, were being held over for an average of eight days by consignees, in spite of the free demurrage period of but 48 hours. It was realized that this resulted in the withholding of many cars from service which, if released daily would do much to help the situation. With the aid of the railroad officials and the Car Demurrage Bureau, to which much credit should be given, a system was established by which those agencies reported each day to the Division of Markets all cars held over 24 hours by consignees and shippers. Where such cases occurred, an appeal was made by this division and insistence brought to bear that cars be immediately unloaded and released for further service. The response was gratifying, the record showing that from an average of eight days' detention, the period was reduced to two days, affecting in the neighborhood of from 400 to 500 cars daily, thus providing more cars for transportation.

Recent investigation reveals barely 41,000 refrigerator cars owned and controlled in California. During the past grape season over 55,000 cars were required. In spite of all efforts, the shortage of cars finally resulted in tremendous losses, estimated variously at from \$10,000,000 to \$15,000,000.

Efforts are now under way to take steps to avoid a recurrence of this problem, and the solution is believed to lie in the establishment of an intercoastal refrigerator steamship service which will convey perishable products to the Atlantic seaboard. This matter is now being presented to steamship officials and others looking to its establishment. A survey indicates an available tonnage to New York and other Atlantic ports alone of over 400,000 tons of perishable products, the majority of which are available for such shipments, and providing adequate cargoes the year around.

In reviewing the activities of the division since assuming its administration, much assistance has been rendered to various groups in drawing up and completing plans for organization of cooperative associations for marketing purposes.

One of the first matters to receive the attention of this office was the unfinished membership campaign of the California Cherry Growers' Association, which was started two years before by the State Market Commission. The association, however, had never attained more than approximately 20 per cent control of production. With the assistance of the Division of Markets, this membership was increased until it represented nearly 50 per cent of the acreage in Northern California. Early in the season growers were offered 6 cents, based on a seemingly heavy production. A survey by the association and this division revealed scarcely more than a 50 per cent crop. Had the association not obtained control of close to 50 per cent of the acreage it would have been unable to fix and maintain its price of $9\frac{1}{2}$ cents per pound. Based on the total volume of canning cherries, this price represented some \$200,000 more to the growers than they would have received had there been no sustaining cooperative association.

It is important to note that as a result of the growers' activities cordial relations have been established between the association and the canners of the state which should lead to a better understanding in the interest of the industry and the consuming public.

The division was also active in behalf of the California Almond Growers' Exchange. This organization, started in 1910, had proved successful in placing the industry on a profitable basis and securing to its members for many years the benefits of cooperative marketing. In the midst of its reorganization campaign, with a new marketing contract, it appeared exceedingly doubtful if the membership drive would succeed. This department was called upon to assist in this campaign and present the situation to the almond growers. The seriousness of the situation was apparent. Failure to perpetuate the organization not only meant a return to the former individual and competitive selling method, with the strong possibility of heavy financial loss to the industry, but endangered the success of the almond tariff, so necessary to the growers, then pending in Congress.

In view of the serious consequences of a possible failure of the membership campaign, it was suggested to the exchange that the time be extended and further opportunity be given the almond growers to consider the new contract and adjust their objections; this was done. Efforts were redoubled, a membership meeting held, and the growers responded loyally. Within a short time the required acreage was obtained, thus assuring the perpetuation of the organization.

While the onion industry in California has grown to an important position in agriculture, the annual output being valued close to \$3,600,000, it has not, as a rule, proved profitable to the growers during the last few years. Contributing factors have been increasing costs both of production and freight, lack of markets and the unsystematic method of selling. Little attention has been given by the onion grower to the possibilities of cooperative marketing, with the exception of those of the Coachella Valley, Riverside County. Here the annual output is valued in the neighborhood of \$1,000,000. During the last few years barely 60 per cent of the crop has reached the market. This fact has proven discouraging to the grower and has seriously reduced the acreage.

With the aid of the Division of Markets, the Coachella Valley Onion Growers' Association, organized by the State Market Commission as a nonstock, nonprofit association and representing barely 5 per cent of the acreage, was reorganized, its membership now representing fully 75 per cent of the valley output. Arrangements are now being consummated to handle the coming crop with greater protection to the members.

Lettuce growers of Imperial Valley have likewise suffered heavily through the unsystematic method of marketing. With an annual output of 5000 cars, it is estimated that fully one-third of that amount has, as a rule, remained unsold. The lettuce season in the Imperial Valley is from December 15th to April, and the product is in demand throughout the United States. Because of unregulated distribution, however, the markets have been unnecessarily glutted to the severe loss of growers and shippers.

The Imperial Valley Vegetable and Melon Growers' Association, organized by the State Market Commission in 1920, was handicapped by the fact that its membership represented only about 10 per cent of the valley output. By a membership campaign, in which the division was able to obtain the active support and assistance of the principal financial and commercial agencies in the Imperial Valley, the membership has already been trebled and is steadily increasing, with the object in view of so organizing the vegetable and melon industry as to place the association in a position to properly regulate shipments, prevent gluts and thus secure to the grower the full market value for his product.

At the request of leading milk goat breeders, marketing conditions in that industry were investigated with a view to determining the advisability of forming a cooperative marketing association to handle goat milk, cheese, and other by products, as well as the sale of milk goats. The result has been the formation of a corporation along the lines suggested by the division, with the purpose of starting in a small way and gradually establishing distributing routes for goat milk, and other products. A campaign to increase consumption of goat milk is contemplated, as well as the standardization of its production.

This industry, roughly estimated at some 60,000 milk goats, is widely scattered and valued at close to \$1,000,000. It has steadily languished, but should be an industry of important proportions.

Among other industries that are at present receiving attention of the division is the sugar beet industry, a tentative survey of which indicates it has seriously declined. At the request of leading growers, this condition is now being investigated to determine the practicability of forming a cooperative association, having for its purpose the improvement of marketing conditions.

The rhubarb growers, both in Los Angeles County and Alameda County, have also requested and are receiving the assistance of this division in perfecting an organization that will assist in establishing that growing industry on a sound basis.

Important products of the state, such as vegetables, as well as more staple commodities including grains, cotton, live stock and wool remain to a considerable extent in an unsatisfactory condition so far as mar-

keting is concerned and require assistance in working out their problems. In view of the tremendous proportion and value of these products, it is evident that there can be no diminution of the efforts of the state, if these industries are to be placed on a substantial basis and take their proper place in the markets, by which returns will justify continuation and expansion.

REPORT OF THE STATE FISH EXCHANGE.

(For the five months, July to September, inclusive, 1922.)

By B. B. FLORENCE, *Secretary.*

The report of the State Fish Exchange reflects a favorable condition in price regulation. A table is submitted showing the average daily catch and maximum retail price of five of the more important varieties of fish generally abundant in the State of California. The period of comparison is for the 20 fishing days prior to September 16, 1921, and for 1922, this period being selected for the reason that the Sacramento River salmon run is at its peak during this time, the season closing on the Sacramento River September 16th.

It is of interest to note that in view of a diminished catch of salmon, the retail price to the consumer was less in 1922 than in 1921. However, the table shows a larger catch of large soles and sanddabs, but a smaller catch of small soles. This small percentage of small soles is no doubt due in part to the inefficient separation by trawlers of the large from the smaller soles, weighing less than one-half pound.

Name of fish	1921		1922		Total catch for 20 days, Aug. 25 to Sept. 16	
	Average daily catch	Average retail price	Average daily catch	Average retail price	1921	1922
Salmon	43,449	23¢	32,475	21½¢	869,998	629,513
Small bass	281	27½¢	1,728	27¢	4,511	34,574
Large sole	13,792	12¢	18,596	10¢	275,847	350,925
Small sole	4,403	09¢	3,629	08¢	88,075	68,960
Sanddabs	1,406	15¢	2,453	14¢	26,789	46,620

Generally speaking, the fish dealers, both wholesale and retail, have gained a clearer understanding of the Fish Exchange and its purposes and early antagonisms have been reconciled under the realization that the price-regulating features do not react against them. Under the operations of the Fish Exchange, well established fish dealers have modified their prices, looking kindly upon the regulation of fish prices by the state.

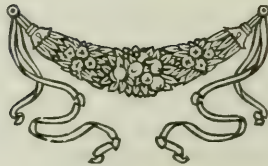
Some of the centrally-located markets, on account of a large volume of business and exceptional conditions, are enabled occasionally to sell fish at slightly lower prices than those fixed by the Fish Exchange, but even these dealers feel a certain amount of protection in that they can point to the fact that they are underselling state prices. It is well to note that under the Fish Exchange Act a reasonable margin of profit must be allowed, based on actual cost of handling. While the Fish Exchange has been in existence for several years, it is only comparatively recently that persons engaged in the fish business have come to

recognize the prices fixed by the Fish Exchange as a barometer or gauge to go by. These people have come to feel that under price regulation it is possible to avoid much confusion in selling and distribution.

The office maintains an inspection service, sending out inspectors wherever it is deemed advisable, generally each Friday, and other days if necessary, to check over the retail markets, and make purchases for purposes of evidence, where prices are quoted in excess of those fixed by the state. Affidavits are then prepared, citations issued, and a hearing held at the office of the exchange. First offenders are almost invariably dismissed with a thorough explanation and warning, but persistent offenders have their license suspended for a period of one or more days, as the case may warrant. During the period covered by this report, a comparatively small number of fish dealers have been cited for violations of that section of the Fish Exchange Act pertaining to price regulation, and of those cited a substantial percentage have been dismissed with warning, on account of being new dealers, first offenders, etc. The dealers suspended were for the most part old offenders. Publicity in such instances has had good effect in preventing recurrence, serving as caution to other dealers.

In general it may be stated that the effect on retail fish prices during the past year has been downward, in spite of a catch on the whole equaling but barely exceeding, the previous year's record.

Licenses issued for the five months period, July to November 30, 1922, totaled 1457, representing \$10,940.88, as against corresponding period of 1921 when 1282 licenses were issued.



CALIFORNIA COOPERATIVE CROP REPORTING SERVICE.

By E. E. KAUFMAN, *Agricultural Statistician.*

It is the function of the California Cooperative Crop Reporting Service to collect and disseminate all information relating to statistics on agriculture, horticulture and live stock. At the time of planting, reports are issued giving preliminary estimates of the acreage planted to the various field crops and during the growing season reports on condition of the various field and fruit crops, with forecasts of production are issued monthly. The annual report giving the final estimates on the acreage, production and value of all the field and fruit crops for the entire state is completed during the month of December and made available for publication the last of the month.

The first report of the year is an annual enumeration of the number of the different classes of farm animals, with the estimated total value of all animals on farms and ranges throughout the state. From month to month reports are made showing the condition of ranges and pastures by counties and such other information as it is possible to collect regarding the prices received by the live stock producer, with possible forecasts of production and the movement of live stock throughout the season.

In addition to the regular monthly report there has been during the past year a semi-monthly report made on the agricultural conditions of the state as affected by weather conditions, in so far as it applies to the seasonable work of planting and harvesting, as well as a review of the demand for and supply of farm labor and movement and prices of the various field and fruit crops.

It has been the ambition of the Crop Reporting Service to act as a sort of clearing house for all statistical information having anything to do with the agricultural, horticultural and live stock interests of the state. How well we have succeeded is evidenced by the demand for the various reports issued from time to time, as well as the large number of inquiries—which is continually increasing—asking for specific information relative to the acreage, production and value of the various crops—both for the present year and for previous years.

Through the cooperation of the county horticultural commissioners, it was possible to make an official report showing the acreage, bearing and nonbearing, of the various tree fruits by counties for the year 1921 as well as the total plantings for the state for the same year. This report has been well received by the fruit interests and has been of material assistance in supplying information relative to the fruit resources of the state.

Over 1500 voluntary crop reporters are assisting the Crop Reporting Service by filling out and returning month by month the various schedules requesting data on the field and fruit crops grown throughout the state. The specialization in the growing of both field and fruit crops requires that many special lists of correspondents be provided to report on these special crops, which necessitates an immense amount of clerical work both in preparing and mailing schedules, as well as in making the computations and calculations when the schedules have been returned.

To supplement the information secured by the questionnaire method, it is necessary to do more or less personal work in investigating conditions, particularly where special crops are grown to any extent. Hence, the necessity of a liberal allowance for travel funds and other necessary expenditures for an efficient crop reporting service.

During the year 1922 there was issued eleven monthly reports and three special reports, in addition to the semi-monthly crop notes. The special reports and the semi-monthly crop notes are mailed particularly to the newspapers and generally receive wide publicity throughout the state. The monthly reports go to the various newspapers throughout the state requesting same; to all of our regular and special reporters; and to many banks, corporations, business men and others who find them of more or less value.

All reports, with the exception of the annual summary, are mimeographed in order to save time and cost of printing. It has been found advisable to print and put in bulletin form our annual summary, which is a complete resumé of the final estimates of the year with revisions for previous years.

The Crop Reporting Service is functioning under an agreement with the Division of Crop and Live Stock Estimates, Bureau of Agricultural Economics, United States Department of Agriculture, and in all inquiries and reports made by this office the State Department of Agriculture and the Division of Crop and Live Stock Estimates receives credit respectively and collectively; but, owing to certain federal statutes regulating the collection and dissemination of information relating to crops and live stock, supervision of the cooperative work must remain with the Division of Crops and Live Stock Estimates.

The present agreement calls for a personnel consisting of:

Agricultural statistician.....	Salary paid entirely by federal bureau
One assistant agricultural statistician.....	Salary paid by federal bureau
One assistant agricultural statistician.....	Salary paid by the state
One stenographer-clerk	Salary paid by federal bureau
One stenographer-clerk.....	Salary paid by state

Travel funds for personal investigations for the statistician and assistants are provided both by the federal bureau and the state.

Office space is provided by the state, and furniture, filing equipment and office appliances are provided by the federal bureau and the state.

Stationery and printing is largely supplied by the state, with the exception of envelopes which are provided by the federal bureau in order to take advantage of the franking privilege granted by the Post Office Department. The number of pieces of mail matter being distributed monthly at the present time amounts to about 7000, so that the franking privilege to the Crop Department Service is worth more than \$3,000 annually.

The Division of Crop and Live Stock Estimates of the federal bureau, for the year ending June 30, 1922, expended approximately \$7,500 for salaries, travel and office expenses, while the estimated expense for the year ending June 30, 1923, is \$8,600.

The expenditures of the State Department of Agriculture for the Crop Reporting Service for the year ending June 30, 1922, amounted to \$5,298.91, while for the year ending June 30, 1923, the expenditure to be made by the state is estimated at about \$7,460. For the year ending June 30, 1922, the Cooperative Crop Reporting Service was only functioning completely for nine months out of the year, hence the low expenditures for that year as compared with the present fiscal year.

The regular annual statistical report will be published as a separate publication shortly after the first of the year.



FINANCIAL STATEMENT.

By H. W. LEVERS, *Chief Accountant.*

EXPENDITURES: SEVENTY-SECOND FISCAL YEAR.

[July 1, 1920—June 30, 1921.]

ADMINISTRATION		\$52,947 08
Director	\$5,000 00	
General office	20,027 73	
Accounting office	11,031 58	
Publications	11,692 86	
Statistics	1,631 45	
State and miscellaneous fairs	2,189 24	
Frommer building	1,374 22	
DIVISION OF CHEMISTRY		26,843 18
Chemistry	\$26,843 18	
DIVISION OF ANIMAL INDUSTRY		190,383 45
Chief of division	\$7,793 68	
Assistant to chief and bacteriologist	1,978 53	
Principal clerk and stenographers	6,812 58	
Dairies and livestock	110,048 13	
Cattle protection	61,592 44	
Stallion registration	774 28	
Meat hygiene	1,383 81	
DIVISION OF PLANT INDUSTRY		166,485 12
Assistant to chief	\$7,469 98	
PLANT PEST CONTROL		51,607 84
Sacramento	\$9,956 56	
Alhambra (mealybug)	10,508 77	
Alhambra (black scale)		2,824 38
Field work	7,817 80	
Rodent control	10,868 91	
South African research	3,077 85	
Field work—University of California		5,489 13
California Fruit Growers' Exchange (black scale)	1,064 44	
PLANT QUARANTINE		37,262 46
Sacramento	\$2,074 06	
San Francisco	21,865 56	
Los Angeles	6,549 96	
San Diego	2,389 27	
San Pedro	4,383 61	
STANDARDIZATION		61,855 82
Fruit and vegetable	\$11,415 05	
Apple	23,146 26	
San Francisco	\$874 21	
Sebastopol	2,788 95	
Watsonville	17,764 83	
Southern California	1,718 27	
Shipping point inspection	19,095 50	
Potato seed certification	8,199 01	
VITICULTURE		8,289 02
Sacramento	\$6,430 84	
San Francisco	1,858 18	
GRAND TOTAL—DEPARTMENT OF AGRICULTURE		\$436,658 83

RECAPITULATION OF APPROPRIATIONS AND FUNDS, SEVENTY-SECOND FISCAL YEAR.

	Balance as of June 30, 1920	Amount available by appropriation, July 1, 1920.	Collections	Total	Expenditures	Balance as of June 30, 1921
Support, Department of Agriculture, 645/19.....	\$18,041 26	\$200,000 00	\$46,174 34	\$264,215 60	\$264,213 50	\$2 10
Salary, Director of Agriculture, 325/19.....	1,025 00	5,000 00	---	5,000 00	5,000 00	---
Printing, Commissioner of Horticulture, 645/19.....	500 00	5,000 00	---	5,500 00	5,500 00	---
Walnut codling moth, 560/19.....	---	10,000 00	---	10,000 00	10,000 00	---
Standardization, 573/19.....	---	7,500 00	---	7,500 00	7,500 00	---
Potato seed certification, 577/19.....	1,691 46	5,000 00	1,513 00	8,204 46	8,199 01	5 45
Beneficial insects, 417/17.....	1,425 00	---	---	1,425 00	1,285 55	239 45
Revolving fund—Beneficial Insects, 417/17.....	500 00	4,500 00	---	4,500 00	4,500 00	---
Sheep scabies, 579/19.....	---	---	---	---	---	---
Tuberculin testing, 742/15—State Veterinarian.....	348 05	---	---	348 05	348 05	---
Standard apple prosection fund, 196/17.....	6,878 83	---	21,838 06	28,716 89	23,142 93	5,573 96
Black scale fund, California Fruit Growers' Exchange.....	1,064 44	---	---	1,064 44	1,064 44	---
Meat hygiens fund, 224/17.....	981 86	---	1,415 00	2,396 86	1,383 81	1,013 05
Cattle protection fund, 678/17.....	18,218 26	---	62,568 05	80,786 31	61,592 44	19,193 87
Stallion registration board contingent fund, 752/15.....	596 36	---	779 50	1,375 86	774 28	601 58
Fertilizer control collections.....	7,565 86	---	24,296 04	31,861 90	22,169 52	9,692 38
Shipping point inspection fund.....	---	---	19,095 50	19,095 50	19,095 50	---
Totals.....	\$56,911 38	\$238,500 00	\$177,679 49	\$473,090 87	\$436,769 03	\$36,321 84

¹Includes \$110 20 for expenditures chargeable to seventy-first fiscal year.

²Consolidation of the following:

Support, Commissioner of Horticulture.....	\$80,000 00	Support, Viticulture.....	\$7,500 00
Salary, Secretary Commissioner of Horticulture.....	2,700 00	Salary, State Veterinarian.....	3,600 00
Salary, Chief Clerk Commissioner of Horticulture.....	1,600 00	Salary, Assistant State Veterinarian.....	2,400 00
Salary, Chief Field Deputy Commissioner of Horticulture.....	4,000 00	Salary, Deputy State Veterinarian.....	3,000 00
Salary, Chief Deputy Quarantine Officer Commissioner of Horticulture.....	2,700 00	Traveling and Contingent Veterinarian.....	43,000 00
Salary, Superintendent State Insectary Commissioner of Horticulture.....	2,700 00	Support, Dairy Bureau.....	35,000 00
Salary, Field Deputy State Insectary Commissioner of Horticulture.....	1,800 00	Insecticide and Fungicide Laboratory.....	5,000 00

EXPENDITURES: SEVENTY-THIRD FISCAL YEAR.

[July 1, 1921—June 30, 1922.]

ADMINISTRATION		\$74,263 93
Director	\$9,915 24	
General office	22,267 95	
Accounting office	12,765 27	
Publications	15,008 64	
Statistics	5,298 91	
State and miscellaneous fairs	2,416 02	
Beesley building	5,554 44	
Frommer building	1,037 46	
DIVISION OF CHEMISTRY		48,729 24
Chemistry	\$34,355 95	
Chief of Division and staff	\$10,048 82	
Chemistry	24,307 13	
Dairy laboratory	14,373 29	
DIVISION OF ANIMAL INDUSTRY		256,039 52
Livestock sanitary service	\$120,769 24	
Chief of Division and staff	\$16,854 81	
Livestock sanitary service	99,430 29	
Laboratory	4,484 14	
Dairy service	53,872 16	
Superintendent and staff	\$10,130 39	
Inspections	43,741 77	
Stallion registration	545 34	
Meat inspection	8,290 07	
Cattle protection	72,562 71	
DIVISION OF PLANT INDUSTRY		271,568 07
Executive Assistant and staff	\$7,984 85	
Viticulture	7,868 45	
Sacramento	\$6,755 43	
San Francisco	1,113 02	
BUREAU OF PLANT PEST CONTROL		84,845 27
Rodent control	\$15,623 53	
Sacramento	25,846 05	
Nursery license and inspections	4,143 24	
Whittier	18,414 01	
Parasite collections	3,801 53	
Pathology	4,128 76	
Predatory animal control	12,888 15	
BUREAU OF PLANT QUARANTINE		49,850 64
Los Angeles	\$6,811 66	
Sacramento	14,160 34	
San Francisco	19,890 31	
San Diego	3,998 41	
San Pedro	4,989 92	
BUREAU OF STANDARDIZATION		121,018 86
Apple	23,547 95	
Sacramento	\$410 40	
San Francisco	2,746 36	
Sebastopol	3,520 77	
Southern California	1,417 15	
Watsonville	15,453 27	
Fruit and vegetable	34,207 33	
Seed inspections	6,483 81	
Shipping point inspections	43,085 85	
Warehouse inspections	13,693 92	

DIVISION OF WEIGHTS AND MEASURES -----		14,483 09
Weights and measures -----	\$13,374 65	
Weights and measures (before consoli- dation, 7/1-29/1921)-----	1,108 44	
DIVISION OF MARKETS -----		54,467 94
Markets -----	\$24,526 00	
Markets (before consolidation (7/1- 29/1921) -----	2,230 59	
	<hr/>	
	\$26,756 59	
Fish exchange -----	25,361 66	
Fish exchange (before consolidation 7/1-29/1921) -----	2,349 69	
	<hr/>	
	\$27,711 35	
GRAND TOTAL—DEPARTMENT OF AGRICULTURE -----		<hr/> <hr/> \$719,551 79

RECAPITULATION OF APPROPRIATIONS AND FUNDS, SEVENTY-THIRD FISCAL YEAR.

	Balance of July 1, 1921	Amount available by appropriation, July 1, 1921	Collections	Total	Expenditures	Balance June 30, 1922
¹ Support, Department of Agriculture, 965/21.....		\$475,100 00	\$85,572 72	\$554,510 71	\$466,637 73	\$86,764 54
¹ Support, Weights and Measures, 905/21.....		8,000 00	37 99		656 34	
¹ Salary of Superintendent, Weights and Measures.....		4,000 00			311 80	
¹ Salary of Deputy, Weights and Measures.....		1,800 00			140 30	
Salary, Director of Agriculture, 905/21.....		5,000 00		5,000 00	5,000 00	
Beneficial insects, 417/17.....	\$239 45		208 10	507 55	507 55	
Appropriation for seed inspection, 713/21.....		10,000 00		10,000 00	6,488 81	3,516 19
Appropriation for predatory animal control, 728/21.....		25,000 00		25,000 00	12,888 15	12,111 85
Appropriation for warehouse inspection, 663/21.....		15,000 00		15,000 00	13,693 92	1,306 08
Standard apple prosecution fund, 690/21.....			26,474 96	32,048 92	23,547 95	8,500 97
Meat hygiene fund, 732/21.....	5,573 96		9,412 85	10,425 90	8,200 07	2,135 53
Cattle protection fund, 725/21.....	1,013 05		71,219 92	90,413 79	72,562 71	17,851 08
Stallion registration board contingent fund, 752/15.....	19,193 87		680 25	1,281 83	736 49	736 49
Fertilizer control collections and chemistry fund, 729/21.....	601 58		29,074 69	39,667 07	29,125 04	10,542 03
Shipping point inspection fund.....	9,682 38		2,532 00	2,532 00	2,532 00	
³ Standardization fund, 719/21.....			43,894 28	43,894 28	22,171 14	*21,723 14
Grain standardization fund, 718/21.....			2,610 29	2,610 29	2,610 29	
Fish exchange fund, 803/17 (July 1 to 29, 1921).....	14,715 12		8,361 58	23,076 70	2,349 69	7
Fish exchange fund (July 30, 1921, to June 30, 1922).....			13,061 96	13,061 96	25,361 66	8,427 21
Market commission fund, 802/17 (July 1 to 29, 1921).....	16,731 08		440 09	35,701 17	2,200 59	7
Market commission fund (July 30, 1921, to June 30, 1922).....		18,620 00	687 47	687 47	24,526 00	9,722 05
Totals.....	\$77,760 49	\$562,520 00	\$275,219 15	\$905,499 64	\$719,551 79	\$185,947 85
⁶ General fund.....		659 00	\$275,878 15			

¹Merged with Support, Department of Agriculture on July 30, 1921.²Includes \$9,000 revolving fund.³Accounts receivable, \$2,797.50—June 30, 1922.⁴Support appropriation for the seventy-third and seventy-fourth fiscal years provided \$25,000 to be used for 'shipping point inspection, as a revolving fund. Up to June 30, 1922, of this amount \$18,392.71 was used. Support appropriation to be reimbursed in this amount.⁵Not available for expenditure by State Department of Agriculture.

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STATE OF CALIFORNIA

FISH AND GAME COMMISSION

TWENTY-SEVENTH BIENNIAL REPORT

For the Years 1920-1922



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

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DEDICATION.

TO THE STATE OFFICIALS AND THE LEGISLATURE WHO HAVE STOOD FOR A WISE CONSERVATION POLICY WITH REGARD TO NATURAL RESOURCES AND TO THOSE TWO HUNDRED AND FORTY THOUSAND HUNTERS, ONE HUNDRED AND SEVENTY-FIVE THOUSAND ANGLERS AND FIVE THOUSAND COMMERCIAL FISHERMEN WHO HAVE REAPED THEIR SHARE OF THE STATE'S FISH AND GAME, AT THE SAME TIME ANNUALLY PAYING A FEE FOR THEIR SPECIAL PRIVILEGE, THIS BIENNIAL REPORT OF ACCOMPLISHMENTS AND PROGRESS IS DEDICATED. MAY ITS PERUSAL RESULT IN A FIRMER ALLIANCE OF THOSE WHO BELONG TO THE ARMY OF DEFENSE WHICH GUARDS THE WILD LIFE RESOURCES OF CALIFORNIA.

LETTER OF TRANSMITTAL.

HR 5-23 1924

FISH AND GAME COMMISSION OF CALIFORNIA

COMMISSIONERS
F. M. NEWBERT
M. J. CONNELL
E. L. BOSQUI
EXECUTIVE OFFICER
GEORGE NEALE

Sacramento, California,
September 1, 1922.

His Excellency William D. Stephens,
Governor of the State of California,
Sacramento, California.

Sir: We have the honor to submit for your consideration the twenty-seventh biennial report of the California Fish and Game Commission. Perusal of this record of the activities and accomplishments of this Commission during the past two fiscal years will show that all of the functions prescribed by law have been performed and that the conservation program in operation is bringing about satisfactory results.

Additional details as to the work may be found in issues of our quarterly magazine, CALIFORNIA FISH AND GAME, which covers the current activities of the Commission.

A change in the executive officer of the Commission was occasioned by the resignation on March 14, 1922, of Mr. Charles A. Vogelsang, who was appointed in April, 1920. Mr. George Neale, who has been in charge of the Sacramento District office since 1911, was appointed to succeed Mr. Vogelsang.

Respectfully submitted,

By Geo Neale
Executive Officer.

W. M. Newbert President.
E. L. Bosqui
Board of Fish and Game Commissioners.

TWENTY-SEVENTH BIENNIAL REPORT

INTRODUCTION.

The annual take of fish and game in California is to be estimated in the millions and to be valued in millions of dollars. A census of the fish and wild life of the state, were it possible to obtain, would still better show the magnitude of the native life with which California was originally blessed. To allow the use of this resource and yet make this native life an asset for all time is the function of the Fish and Game Commission. This is no easy responsibility to assume nor can satisfactory accomplishment be expected unless a large and capable personnel is retained and sufficient funds for the prosecution of the various projects made available. With impartial judgment let each reader make a mental estimate as to the measure of success the Commission, with resources at hand, has attained in its earnest endeavor to achieve the end set forth above. The following pages record the outstanding accomplishments of the past biennium, department and district reports furnishing important details follow and an appendix contains statistical records.

ADMINISTRATION.

The duties of the Commission as provided by law continue to be effectively administered by a department organization and by three district offices located respectively at Sacramento, San Francisco and Los Angeles. In March, 1922, with the appointment of Mr. George Neale as executive officer the head office was transferred to Sacramento.

The inauguration of quarterly meetings of department heads has been instrumental in bringing about better cooperation between departments and more complete knowledge of important problems. There is still needed a satisfactory budget system which will allow each department head to know what new projects are possible with the funds available.

There is probably no department of our state government having as many employees with as long terms of service as the Fish and Game Commission. The chief of the Fishcultural Department comes of three generations of this skilled art, with more than thirty-five years of service. The heads of other departments and deputies of the Commission have terms of service ranging from twelve to twenty-five years. Emphasis on experience and upon the merit system has greatly aided in bringing about efficient management of the Commission's affairs.

An attempt was made at the 1921 legislature to make the Fish and Game Commission a subsidiary division of the State Department of Agriculture. Other bills were introduced providing for the deposit of all license funds in the general treasury and for state appropriations from the treasury for the carrying on of conservation work. These proposals brought such a protest from the sportsmen of the state that no change was made. A defense of the present scheme of administering fish and game resources was based on four points:

1. No economy is to be gained by consolidation as the Commission is entirely supported by a direct tax on those who hunt and fish.

2. Fish and game is one of the natural resources of the state which is distinct and apart from growing crops. It is more efficiently administered separately.

3. The California Fish and Game Commission is an old established institution, being one of the two oldest commissions in the state, having been created in 1870.

4. The entire funds from the sale of fishing and hunting licenses should be used for fish and game conservation and for no other purpose.

FINANCES.

Since 1910 the Fish and Game Commission has received no appropriation from the state. Its support has been dependent upon the hunting and fishing licenses paid by the thousands who make use of the state's fish and game resources and by fines exacted from violators. It seems reasonable that those who profit most should be responsible for the conservation program. This system also has the advantage that the greater the number of hunters and fishermen, with consequent increased difficulties in law enforcement, there is increased returns

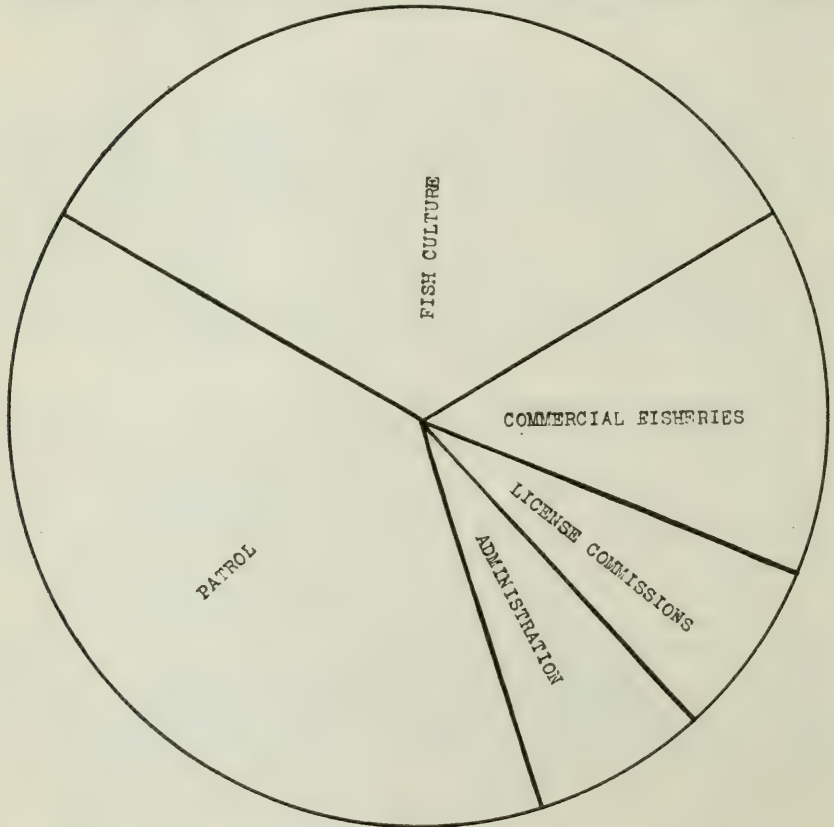


FIG. 1. Graph showing proportionate expenditures for various projects during the fiscal year 1920-21. Administration expenses were pleasingly small and needed emphasis was placed on two of the main functions of the Commission, patrol and the hatching and distribution of fish.

from the licenses. Although most states have increased their license fees, California still allows a man the privilege to hunt or to fish a whole year for the paltry sum of \$1. With the increased cost of fishcultural operations and warden patrol, the sum secured from so small a fee is becoming insufficient to properly support the work of the Commission.

The Commissioners themselves receive no salary and their individual expenses barely average thirty dollars per month. Overhead expenses are kept at a minimum, no extravagant salaries being paid. The greater proportion of the funds are spent in law enforcement and a comparison of the statement of expenditures with those of any corporation will show that the Commission's funds are efficiently and economically handled. The following graph shows the proportion of funds spent for the different projects. A full accounting of all funds received and disbursed will be found on page 138.

Beginning with federal control of railroads, the Commission has shouldered the additional burden of railroad transportation and fish distribution, which before that time was assumed by the various railroads as acknowledgment of the benefits they derive from the planting of fish. The charges for hauling the fish cars about the state mount into thousands of dollars. This money could be better spent in the rearing of fish if the railroads would again assume hauling and transportation connected with fish distribution. The matter has been placed before the various railroad officials and favorable action is expected.

FISHCULTURE.

The Fishcultural Department reports a most successful two years. The total output from the state's thirty hatcheries and egg-collecting stations amounted to 40,974,000 trout fry and 18,037,000 salmon fry.

The greatest problem of the department, and really of the Commission, also, is that of supplying the increasing demand for trout fry for stocking streams. Carloads of fry are demanded where only a few cans can actually be supplied. Difficulties in the securing of eggs are always great. The spawntakers often have to pull their supplies to the hatchery on sleds and must work in deep snow to uncover or install traps. Racks and traps are often washed out by high water. Last and most important is the lack of funds for extending operations and increasing the output. It seems quite impossible to further increase the output of trout fry with the present financial resources of the Commission.

The valuation of property now under the control of the department is \$350,000. Necessary improvements and repairs form an important item of expense. During the past two years it has been found necessary to renew the underpinning of several of the hatcheries and in several instances improvements of the water supply have been necessary. Concrete foundations for racks and traps have proved helpful in preventing loss at times of flood water and such foundations are being gradually installed at every important egg-collecting station. At several of the hatcheries better means of transporting eggs and fry to and from the hatchery have been necessary. At the Wawona Hatchery a bridge has been constructed across the river, and at the Fort Seward Hatchery a tram and cable line now connects with the railroad station

and saves the expense of keeping and hiring teams. Owing to a lack of water supply during the late summer, the Almanor Hatchery was abandoned in the fall of 1920. The Johnsville Hatchery on the Feather River was moved to a new site because of the deep snows which hindered operations in its former location. Scott Creek Egg Collecting Station, which heretofore has belonged to Santa Cruz County, was purchased by the Commission in 1920. This was in line with the policy to own and maintain all of the hatcheries rather than repair and improve leased property. Two hatcheries, the Ukiah Hatchery and the Brookdale Hatchery, are still under lease, respectively, from the city of Ukiah and the County of Santa Cruz.

TROUT.

The success of the pond system is evident when it is known that breeders from hatchery ponds furnished 18,000,000 trout eggs during the last biennial period.

One means of augmenting this system would be the setting aside of an area above the Cape Horn Dam on the south Eel River, as a fish preserve to be used as a source of supply for trout eggs. The lake impounded by this dam is known as Lake Pillsbury and several tributary streams would furnish successful breeding places for trout.

Continued efforts are being made to increase the output of the Tahoe black-spotted trout. A new egg-collecting station has been established on the upper Truckee, which will make use of trout, many of which would eventually lose their lives on returning to the lake because of flooding operations carried on by the ranchers.

Experience has shown the golden trout to be a delicate fish and much subject to disease. As a consequence, the hatching of this species has been discontinued pending reports as to the success attained in stocking Sierran streams.

SALMON.

Klamath River egg-collecting stations furnish most of the salmon eggs for the hatcheries. Operations of the United States Bureau of Fisheries at their station on the Sacramento River were hindered by lack of water and by the fact that spawning salmon did not succeed in passing the Redding Dam and consequently spawning operations could not be carried on at the Baird Station. Low water was largely responsible for the failure of the attempt to secure additional eggs on the south fork of the Eel River at Branscomb.

FISHWAYS AND SCREENS.

During the past two years forty-one inspections of and twenty-eight surveys for fishways were made. Surveys to the number of 187 were made for screens. Splendid progress has been made in the enforcement of the screen and ladder laws.

RECOMMENDATIONS.

Recommendations of the Fishcultural Department include:

1. The establishment of more hatcheries and egg-collecting stations to meet the demand for fry.

2. Improvements and repairs on the present hatcheries and the purchase of two still under lease.
3. An increase of the pond system as one of the surest methods of increasing the egg supply.
4. The distribution of trout fry by trained men in order to obtain better results in the planting of fish.
5. A survey to determine the food of fish and those species of insects best adapted for introduction in places where a food supply is scarce.
6. Prohibition of the spearing of salmon throughout the state.
7. The shortening of the open season for angling in certain districts.
8. Creating a fish reserve on the Klamath River from Klamathon to the coast and the prohibiting of the building of dams in this area in order to furnish a permanent supply of salmon eggs for hatchery purposes.
9. Cooperation with the Division of Water Rights in order to prevent the total utilization of a stream for irrigation purposes irrespective of the need for conserving the fish therein.
10. Amendment of the law prohibiting introduction of fish in order to eliminate such dangerous introductions as that of black bass into Bear Lake.

COMMERCIAL FISHERIES.

Upon our entry into the war, our fish packers responded to the government's call for an increased production of food by greatly increasing the output of the canneries. Many new canneries were built and nearly all were enlarged. Unfortunately, the large pack of sardines and tuna intended for European trade was held in this country for speculative purposes, with a consequent fall of prices and a great loss to the packers.

The biennial period has been one of readjustment. Many canneries ceased to operate because of the unsold stock in hand. Several canneries failed financially, and practically all have had difficulty in surviving the depression. The past year, however, has shown a rapid recovery and there is hope that the industry will again become stable. However, the present rates of exchange are still a great handicap to foreign trade. There is hope that with better times ahead, additional fisheries will be developed. Our larger fisheries, with the exception of the salmon, have only recently been developed, and a great future for them is assured.

Although the condition of the fisheries is of importance in our work, the duty of the commercial fisheries department is to look out, primarily, for the conservation of the fisheries and the safeguarding of them against over-fishing. Following there will be found a report of the investigations undertaken to secure dependable data as to the status of the fisheries, data useful as a basis of legislation looking toward their preservation.

Under the direction of Professor J. O. Snyder of Stanford University, an investigation to ascertain additional information regarding the life history and distribution of the king salmon has been begun. A series of marking experiments instituted has made it possible to deter-

mine whether Sacramento salmon are taken along the Mendocino Coast. The returned marked fish, through microscopic examination of the scales, have furnished additional evidence as to the age and growth of king salmon. Much data has also been gathered at the various salmon fishing centers. Six-months-old salmon, marked at the Mount Shasta Hatchery by the removal of certain fins, have been taken three and four years later along the northern California coast.

The information obtained from this investigation comes at an opportune time for there is every evidence that the salmon fishery is depleted and that present laws are inadequate to conserve the fishery.

Dredging operations in San Pablo Bay, by destroying the food supply of the striped bass, have driven this fish elsewhere. Furthermore, it is evident that the striped bass fishery is in danger because of the decreasing number of large fish taken during the open season. Since salmon and striped bass are caught by the same fishing methods, plans are being made to give additional protection to the striped bass along with the salmon.

A report on the edible clams, mussels and scallops of California has been published as Fish Bulletin No. 4. This records the results of investigations of the shellfish resources of the state, and includes recommendations as to their conservation. Furthermore, the results of a careful study of the pismo clam, one of our most important mollusks, is ready for publication. It includes the first detailed study of the life history of this clam, together with a report on habits, age, rate of growth, and fluctuations in abundance. It is hoped that these investigations will furnish sufficient data to assure the conservation of this valuable resource.

Publication of the results of the albacore investigations, instituted several years ago, has been delayed because of the additional data which it has been found desirable to include. It has been found difficult to determine whether evidences of decreasing abundance of albacore are due to actual depletion from over-fishing or indicate simply a fluctuation due to natural causes. Important discoveries have furnished evidence as to the age and rate of growth, time of spawning and distribution of this valuable food fish. It has been most encouraging to obtain results of such great use to the fish industry.

The sardine investigation has also been productive of valuable data as to the natural fluctuation, migration, age, rate of growth, breeding season and distribution. For a period of two years, daily samples of sardines have been taken, on which careful weights and measurements have been made and the sex and maturity observed. As a result, it has been possible to work out the rate of growth during the first four or five years, information of great importance from the conservation standpoint.

The establishment of purse seine fishing in southern California created an important problem, for several of the fishermen's organizations have sought to abolish this type of net, maintaining that it was too destructive and endangered fishing institutions. An investigation has shown that the purse seine boats are not making money and a regulation of the size of nets will put them out of business. Purse seine boats are depended upon to furnish blue-finned tuna for the canneries, and for

fresh fish for the markets during the winter months. Great catches of barracuda are made in May and June which flood the markets, these catches being made while the fish are schooling, preliminary to their spawning period. It is probable that a closed season during the summer will need to be inaugurated.

The law relating to the use of food fish in reduction plants has been enforced, but not without difficulties. Several canneries, even after a warning, persisted in utilizing more than twenty-five per cent of their catch and it was found necessary to deprive these canneries of their licenses for a certain term. Several amendments should be made so as to clear up some ambiguities in the law and make it easier of enforcement.

Clashes between sportsmen, who claim special privileges about piers, breakwaters and about Catalina Island, and the commercial fishermen make patrol in southern California difficult. Most of the time of the patrol boat *Albacore* is given over to the prevention of the use of dragnets within the three-mile limit. In addition to the patrol of the Sacramento and San Joaquin rivers, attention has recently been given the Humboldt Bay area. To give an efficient patrol in this latter location it will be necessary to furnish a larger, more seaworthy boat.

STATE FISHERIES LABORATORY.

A splendid fireproof laboratory building, of reinforced concrete, with tile partitions and red tile roof, now stands on the corner of Seaside avenue and Tuna street in close proximity to the wharves and canneries of San Pedro. Here the scientific staff engaged in fishery research is satisfactorily housed.

“The aims of the State Fisheries Laboratory are, in the fewest possible words, the observation of the condition of the fisheries with a view to their preservation and freest possible use. That is, true conservation. Statistics, so detailed, so extensive, and so accurately gathered that changes in fishing ground, and many other things may be discounted, are being secured. Such data must also be examined and tested by the biologist with his criteria of overfishing. To give such proof as these data provide, is the purpose of the new laboratory. It is for the digestion and biological analysis of statistics.

“The Fish and Game Commission has, in California, a system of statistics entirely suitable for such analysis. That now in use is without parallel in any country or state, to the best of our knowledge, and forms a wide and firm basis for true conservation. It is not based on estimates, volunteered information, nor inquiry, but is an actual record of the commercial transactions which take place between fisherman and dealer. This record is from carbon copies of the fisherman's receipt upon which he receives his money, and is far more probable to be correct, naturally, than any other record obtainable. It has actually provided many of the fresh-fish dealers with a record of their transactions for the first time. With all its faults—which those concerned with its administration are prone to magnify rather than to ignore—so much light has been thrown upon the returns formerly obtained by inquiry and circulated questionnaire, that we regard them as of small value in comparison with what we now get.

“But in addition to the high degree of accuracy, it is now possible to follow the catches of single boats from year to year, and thus to accurately compare the abundance of fish from day to day and from year to year. And it is the interpretation of the statistics from the standpoint of changes in abundance—including depletion—to which the new laboratory will be mainly devoted. The distinction between the effects of overfishing and those of hydrographic or economic changes, and the explanation of the latter, imply the careful analysis of statistics from a mathematical and biological standpoint. It will be the function of the new laboratory to contribute toward that end, and toward the formulation of whatever knowledge exists. Such a function, it should be noticed, is based primarily upon the legal control of the state over its fisheries, and upon its power to enforce the gathering of statistics—thus assuring, we believe, the permanency of the work.

“Finally, attention might be called to the fact that the vast quantity of material handled by the commercial fisheries provides an unequally opportunity for the solution of many of the major problems of biology. We trust that the laboratory will make its contributions to those as well as to the more immediate ends.”

EDUCATION AND PUBLICITY.

The report of the Department of Education and Publicity shows that a greater number of persons have been reached through the medium of lectures than ever before. Over sixty thousand persons viewed the educational films utilized by the department. Especially notable work has been done in the public schools and with the game protective associations. Lectures and motion pictures visualize the work of the Commission and play an important part in developing a public sentiment favorable to fish and game conservation.

Summer resort work, which has centered in the Yosemite National Park for the past three seasons, has attracted the interest of many thousands in the conservation program of the California Fish and Game Commission. Under the joint auspices of the National Park Service and the Fish and Game Commission field trips are conducted which offer first hand information regarding the living things along the trail side. Thousands who gather at the evening entertainments are acquainted with the wild life of the state through the medium of lectures and motion pictures, and office hours give an opportunity to thousands who seek information. In no other place can so many people be reached in so short a length of time and interest in wild life conservation be so readily secured.

Splendid publicity has been maintained mainly through the quarterly magazine, CALIFORNIA FISH AND GAME, which has now reached an edition of 7000, through magazine articles, and through newspaper items issued to the newspapers of the state. The annual exhibit at the State Fair has also played an important part in the publicity campaign.

INVESTIGATIONS.

Satisfactory bases for legislation can not be obtained without dependable data, secured through scientific research. The Commission has maintained a fisheries laboratory, the staff of which is definitely engaged in the securing of satisfactory data on the fast developing fisheries of the state. Results of the tuna investigation are now ready for publication, and effort is being concentrated upon the sardine investigation. Need for more accurate data on the life history of the salmon has precipitated some valuable experiments on the marking of salmon fry and the consequent study of the returned fish and much valuable information has already been obtained. Need for more information on the food habits of ducks, looking toward the artificial planting of suitable duck foods has led to an examination of hundreds of stomachs of ducks and the analysis of the contents.

LAW ENFORCEMENT.

A goodly proportion of funds received are allotted to law enforcement. Yet seventy deputies have to patrol 156,000 square miles of territory, much of it mountainous. It is obvious that it is impossible for this comparatively small force to apprehend every violator of fish and game laws. Still the average cases per year per deputy was sixteen, showing that deputies were actively engaged in patrol. When one considers that 1500 policemen patrol San Francisco, an area of 40 square miles, and still violations of law occur daily, it is surprising how effective is the work of the game wardens who often patrol one or more counties.

Arrests for violations of the game laws totaled 1221. Of this number 1108 were convicted. The fines collected amounted to \$33,998.80 in addition to 1289 days of imprisonment awarded. Arrests for violations of state fish laws totaled 1037 from which there were 983 convictions. Fines collected amounted to \$29,028.50 and offenders were awarded a total of 994 days of imprisonment. The total number of arrests amounted to 2258, nearly 400 more than reported in 1920.

During the biennium a large amount of illegally taken fish and game was seized. The totals are of interest: over two tons of deer meat; 4500 ducks; 500 quail; 25 tons of fish, and about 12 tons of lobsters and shellfish. All wholesome fish and game was donated to public and charitable institutions and many grateful letters of acknowledgement have been received. Considerable illegally used fishing apparatus, which was seized, after being condemned in superior court, has been destroyed or sold by the Board in accordance with law.

The wardens of the law enforcement force are all skilled and competent and exercise a high degree of judgment, so necessary in enforcing our laws. Many of them are not college bred or educated; some diamonds in the rough, sons of hardy pioneers who were taught resourcefulness; all capable and self-reliant, with sense and sound judgment of what is right and capable of caring for themselves under all conditions. The high degree of efficiency obtained is the result of love for their work, for the salaries are not alluring, while the dangers are many.

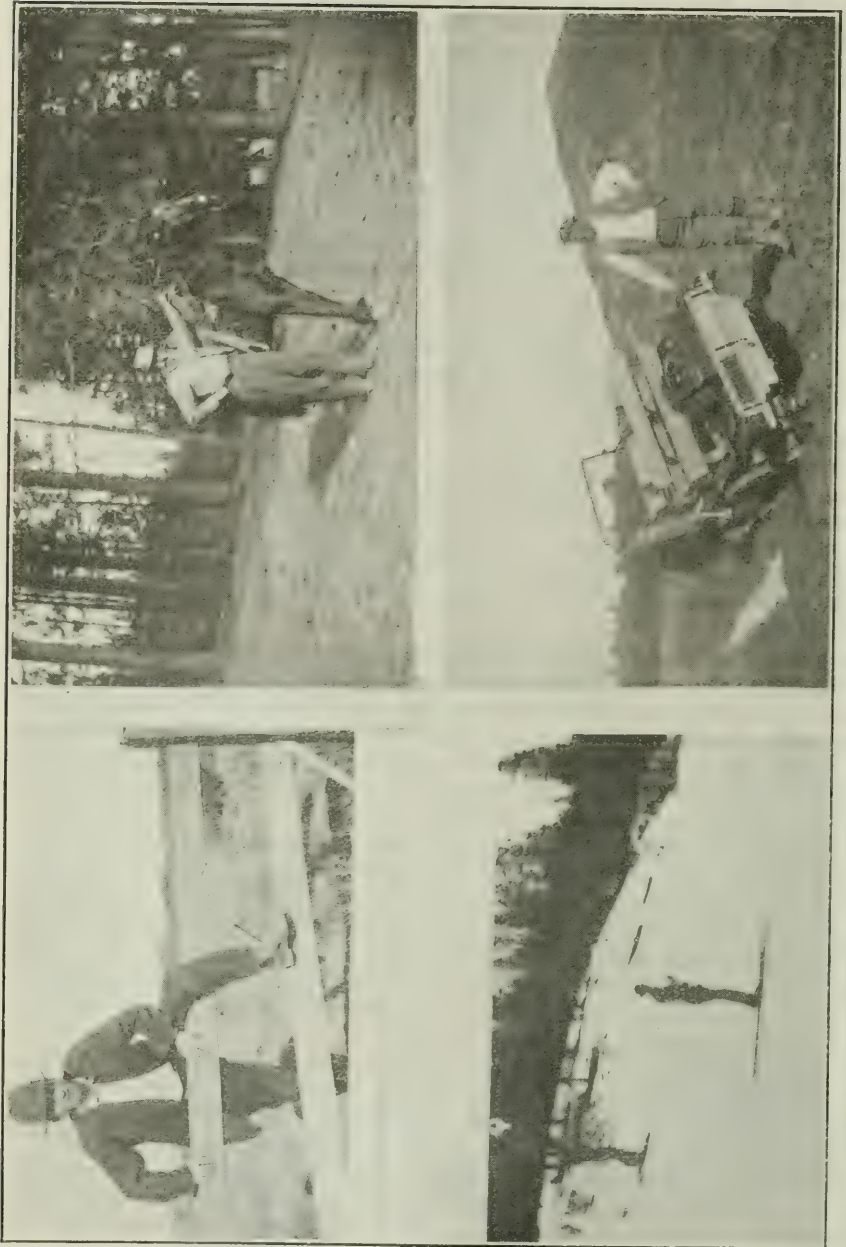


FIG. 2. The game warden at work. Although these days most of the patrol must be made in an automobile, yet in mountain districts patrol must be pursued on horseback, on snow shoes or on foot.

MOUNTAIN LION CONTROL.

Bounties have been paid on 256 mountain lions, a number slightly above the average for past bienniums. A number of counties now offer bounties on lions, in addition to the state bounty, and thus offer an inducement to men who own predatory animal dogs. In one instance the combined state and county bounty attracted a professional lion hunter to this state from Arizona, with a resultant increased toll being taken in Santa Barbara County. State Mountain Lion Hunter Bruce maintained his general average of nearly three lions per month, and was successful in securing several litters of kittens. The present system of lion control seems to be efficacious and if continued should largely eliminate danger to deer and to domestic stock.



FIG. 3. A deputy of the Fish and Game Commission examining game bag of a foreigner at the Sausalito Ferry.

FISH AND GAME PROTECTIVE ASSOCIATIONS.

Increased interest in fish and game is evidenced by the growing number of fish and game protective associations that are being formed. Most eastern states have active associations in every county and an active centralized state organization, but until recently few such organizations have existed in California. Perhaps it is the growing need for careful protection of wild life resources that is causing the banding together of sportsmen in the various communities. Certainly it is too often the case that measures for protection are taken when game has practically disappeared.

Already these associations, now nearly twenty in number, have been helpful in shouldering responsibility for the planting of fish and in influence lent to law enforcement. Provided these associations actively espouse the cause of game protection rather than the cause of mutual protection for members in the securing of game as some have been known to do, there is a wide field of service open to them. First and foremost is the opportunity to develop the proper attitude on fish and game conservation in the various communities.

CURRENT PROBLEMS.

A Commission whose function it is to conserve wild life resources is confronted with a never ending series of difficult problems, as can be seen by the following discussions of the more important ones of the past two years. They usually have a bearing on law enforcement or upon obstacles to the natural increase of a game species.

EXTINCTION OF SALMON THREATENED BY POWER DAMS.

Conservation of the salmon was the first important problem faced by the Fish and Game Commission when it was first formed in 1870, and it still continues an important problem. A reduction of the catch to provide for a sufficient number of breeders to reach the spawning grounds was long the important consideration. Now the increasing number of large power dams threatens the extinction of the salmon run by preventing the fish from reaching their natural spawning grounds. As an example of the present problem the dam of the Anderson-Cottonwood Irrigation District at Redding, Shasta County, may be cited. The lack of a suitable fishway at this dam during the past few years has effectively prevented salmon from reaching their spawning grounds on the McCloud River. Investigation by experts showed that very few salmon succeeded in leaping the dam and the shutting down of the salmon spawning station of the United States Bureau of Fisheries at Baird conclusively proved that salmon were effectively blocked at the Redding Dam. Attempts made by the Commission to force the building of a fishway were unavailing until an injunction suit was instituted. The situation was finally cleared up in the spring of 1922 when the matter was amicably settled. Conditions at the dam are now improved and the spawning station at Baird has again been opened.

The successful outcome here, however, does not mitigate the equally, if not greater problem involved in the proposed dam of the Electro-Metals Company on the lower Klamath River which threatens the extermination of the important run on the Klamath River. At hearings held at Yreka on May 5, 1921, the Fish and Game Commission took the stand that the proposed dam would (1) entirely obstruct the annual migration of the salmon; (2) that a suitable fishway could not be constructed around so high a dam; and, (3) that a hatchery erected at the dam would not solve the problem since the salmon arriving at the dam would not be ready for spawning. For these reasons, and others also, the Commission opposed the granting of a preliminary permit by the Federal Power Commission. It may be that at some distant time in the future power development will be more important than the saving of a valuable run of salmon, but at present there is power development enough to care for all needs of the immediate future and there are plenty of streams, where there is no run of salmon, that can be utilized for power purposes. If the fight to save the salmon run on the Klamath is not successful the end of the vast salmon fisheries with which the state was originally blessed will be at hand.

DEMAND FOR TROUT FRY EXCEEDS HATCHERY RESOURCES.

Easy access to the streams and lakes afforded by the improved highways and the increasing use of automobiles, and the added thousands of people who are availing themselves of the opportunity to fish, are factors that have combined to make an ever-increasing demand on our hatcheries for fish for restocking. Each season sees a marked increase in the number of people who seek recreation in our mountainous districts, and the consequent drain on the trout in lakes and streams has been very great, particularly during the past five years.

The demand from sportsmen throughout the state is for many car-loads of fry when only a few cars can properly be allotted. Application blanks for 1922 show demand for 100,000,000 fry when a quarter of that number were available as a result of extra effort.

To meet the need, the department of fishculture has exhausted its resources. Every available dollar has been devoted to fishcultural work, and yet the demand increases.

Only a partial solution is possible as a result of the reduction of the bag limit from fifty to twenty-five. It may be that a shorter fishing season will have to follow in order that depleted streams and lakes may be afforded a chance to recover their former condition.

Every state in the Union where there is game fish to be found is confronted by the same problem. In most cases the condition is being met by an increased angling license to provide more funds for enlarging the output of the hatcheries. This is the remedial measure being suggested by anglers throughout the state.

ENFORCEMENT OF FISHWAY LAW DIFFICULT.

One of the serious problems of the Fish and Game Commission is that connected with the enforcement of the law which provides for the screening of irrigation ditches. In many counties the Commission has made persistent efforts to prosecute violators of the law, but with poor success, owing to the attitude of the district attorney. In order to bring about better cooperation in the enforcement of this important law a new policy has been decided upon. Hereafter, the output from the hatcheries will be allotted to those counties which are enforcing the screen law, and those providing suitable protection for the fish planted in the streams. It seems only reasonable that this course be taken to prevent serious loss of the fish which are reared at considerable expense in the state hatcheries.

GRAZING ENDANGERS FEED CONDITIONS IN GAME REFUGES.

A visit to many of the state game refuges will show that game is not receiving adequate protection, due to the destruction of food supply by cattle and sheep. Food supply is one of the most important factors concerned in the welfare of any species and the grazing of cattle and sheep in the refuge means a lessened food supply for game. Those conversant with conditions maintain that the disappearance of grouse in the higher mountains is due largely to the pasturing of sheep. Sheep are taken to the high mountain meadows at just the time when the grouse are nesting and the nests are trampled out and the grass cropped so clean that even the food supply for these birds is largely destroyed.



FIG. 4. Winter feeding of deer in Lassen County. This remarkable picture shows typical conditions in the winter of 1922 when extensive feeding operations were found necessary. Photograph by Thompson's Studio, Susanville, California.

Recent reports from Game Refuge 1D in Trinity County indicate that so many cattle are allowed to feed within this refuge that browse has become very scarce for deer. Any area will support only the number of big game animals for which there is an adequate food supply. A diminished food supply means a diminished number of deer.

Unless more attention is paid to the improvement of grazing inside game refuges, these areas will not be performing the service for which they were set aside. Undoubtedly cattlemen and sheepmen will oppose any restriction of grazing but there should be sufficient public sentiment to successfully close to grazing at least portions of each game refuge.

WINTER FEEDING OF GAME.

The winter of 1921-22 like that of 1914-15 was so severe that game had difficulty in securing food. To prevent starvation President Newbert issued the following letter and then ordered wardens to act accordingly.

Sacramento, Cal.,
February 10, 1922.

Dear Sir:

This is the time that tells the tale whether a man is just a meat hunter or a real red-blooded sportsman. It may be that many wild birds and animals are isolated in areas where it is impossible for our wardens to find them, owing to the deep snow. Nature teaches all wild life when in need to seek man and civilization.

Therefore, residents of farms or towns are in a position to render aid by feeding these wild birds and animals. Our Commission is more than willing to purchase feed to tide over these storms and will authorize the expenditure of funds by our wardens.

We ask all lovers of wild life to feed, temporarily, at least, birds and animals until such time as our local deputy or district office may be notified.

FISH AND GAME COMMISSION.

F. M. NEWBERT, President.

The press gave this letter wide publicity and the response was gratifying. A great deal of hay and grain was furnished gratis by residents and several hundred dollars was spent by the Commission. Hay was handled by teams, sleighs, sleds and pack animals. Reports show that over a thousand deer were fed, one hundred and fifty antelope, and several thousand quail. The fact that only a few succumbed to cold and starvation showed that the feeding was instrumental in preventing a great loss.

CARELESS HUNTERS.

Hunting accidents continue too numerous. An incomplete compilation of those for 1921 showed eleven persons dead and fifteen severely injured as a result of carelessness.

Nor is the loss of human life the only result which follows the careless handling of a gun. The Forest Service reported that on eight of the national forests of this state sixty-four cattle and three horses met death from hunters' bullets during the 1921 open season. This loss to cattlemen seems to be increasing year by year. Not only are cattle actually killed and seriously wounded by careless hunters in the mountains, but perhaps even more serious than this is the manner in which cattle are driven from the range by the large number of hunters who camp at

water holes in the fall, often usurping the only watering place for miles around and continually drive the cattle away, to finally die for lack of water. Many permit their dogs to chase cattle so that they are often driven from the high mountain ranges to lower elevations where poorer feed conditions exist, sometimes as much as six weeks before they normally would work to lower elevations. It has been conservatively estimated that this disturbing of cattle by hunters camping at water holes and by the use of dogs, causes a loss of between \$2 and \$3 per head annually. Some hunters, neglectful of others' interests, break down fences and leave gates open.

These are just complaints of the cattleman and they give rise to a dangerous situation, involving threatened danger in season and exclusion from hunting grounds. Unless hunters take some steps to correct these evils themselves, it is certain that the men financially concerned will be instrumental in further curtailing the hunter, and the careful will be made to suffer with the careless.

THE ALIEN HUNTER.

A glance at the names of those fined for violations of the fish and game laws will show a preponderance of foreigners most of whom are immigrants from southern Europe and many of whom are aliens. Accustomed in their own country to killing everything that swims or flies, they attempt to do the same thing here. The States of Pennsylvania and Utah and more recently the State of New York have seen fit to pass laws curtailing the use of firearms by aliens. These states find that law enforcement is made much easier. A law providing for a special license for aliens with an added provision for the confiscation of firearms found in their possession would help greatly in solving this difficult problem.

INCREASED PROTECTION FOR ANTELOPE.

The continued disappearance of the antelope in North America has emphasized the need for careful protection of the small remaining herds. California is one of the few remaining states that can take pride in a few small herds, the remnant of those vast herds that once made antelope meat cheaper than beef. A recent census shows that there are about 200 individuals left within the state. By far the larger herd ranges south of lower Klamath Lake in the Mount Dome region. The Commission with the cooperation of the U. S. Forest Service and the California Academy of Sciences is making a special effort to give this herd absolute protection. During severe winter weather the animals are fed and a special patrol has been instituted. Fortunately the public sentiment of local residents is being rapidly developed. In this is to be found assurance of better protection in the future.

ADDITIONAL PROTECTION FOR MULE DEER DEMANDED.

With the coming of the automobile and good roads, the large mule deer of northeastern California is being greatly reduced in numbers. During the 1921 open season it was estimated that 900 machines containing hunters visited Modoc and Siskiyou counties. The license plates showed that they came from Oregon and Washington as well as from California.

Many of these hunters obtained the full limit—two bucks—which shows that a very heavy toll was taken. It is the opinion of many hunters of this region that the mule deer will not be able to withstand such concentrated hunting and a sentiment is growing which favors either the closing of the season on this species for at least three years, thus giving them time to recuperate, or the establishment of a limit of one buck.

SERIOUS EPIDEMIC AMONG GRAY SQUIRRELS.

The gray squirrel, a game species, much appreciated by the mountaineers and by boys has almost disappeared in many sections of the state owing to a serious epidemic of disease. The disease first appeared in El Dorado County in 1917 but since that date has spread throughout the state.

The first evidence of the disease is to be seen in a scaly or mangy appearance around the head and neck. This is followed by sores over the rest of the body and the hair falls off giving the animal a mangy appearance. Dead squirrels are to be found at the bases of trees and in streams of water.

An examination of specimens by the veterinary and entomological department of the University of California showed the disease to be a form of scabies. According to Professor Stanley B. Freeborn, the cause is to be found in a mite belonging to the genus *Notoedres*. These mites live in little tunnels dug in the skin and they eventually cause bad sores which weaken the animal to such an extent that death finally ensues.

As epidemics of this sort often occur among rodents it is to be expected that those escaping the disease will soon repopulate the forested area with gray squirrels. However, the scarcity of this game species in many sections has led to a demand for a closed season to allow the squirrels to recuperate.

PUBLIC SHOOTING GROUNDS-GAME REFUGE BILL.

The successful operation of the federal law relating to migratory birds has stimulated conservationists to attempt to provide additional game refuges and public shooting grounds. The Anthony Bill (HR. 5823) designed to bring about these worthwhile conservation measures provides for a federal hunting license of one dollar to be purchased in the form of a stamp and to be affixed to the state license. Provision is also made for the use of such funds as are received in the purchase of public shooting grounds and of game refuges. Although in sympathy with the plan underlying the bill, the Commission is opposed to two minor provisions which would obviously give trouble in law enforcement in California. One provides for complete control of all animal and fish life within a federal refuge which might well take away from the state control over fish planted by the state. An amendment correcting this has been promised by those in charge of the bill; the other, a more serious obstacle, is a provision allowing a man to hunt on his own property without a federal hunting license. So long as this dangerous provision is a part of the bill the Commission can not favor its passage. It will be difficult enough to enforce both state and federal laws without being trammelled by such a stumbling block to law enforcement. It is to be hoped that these obstacles to the passage of the law will be removed and that the main projects may be carried out.

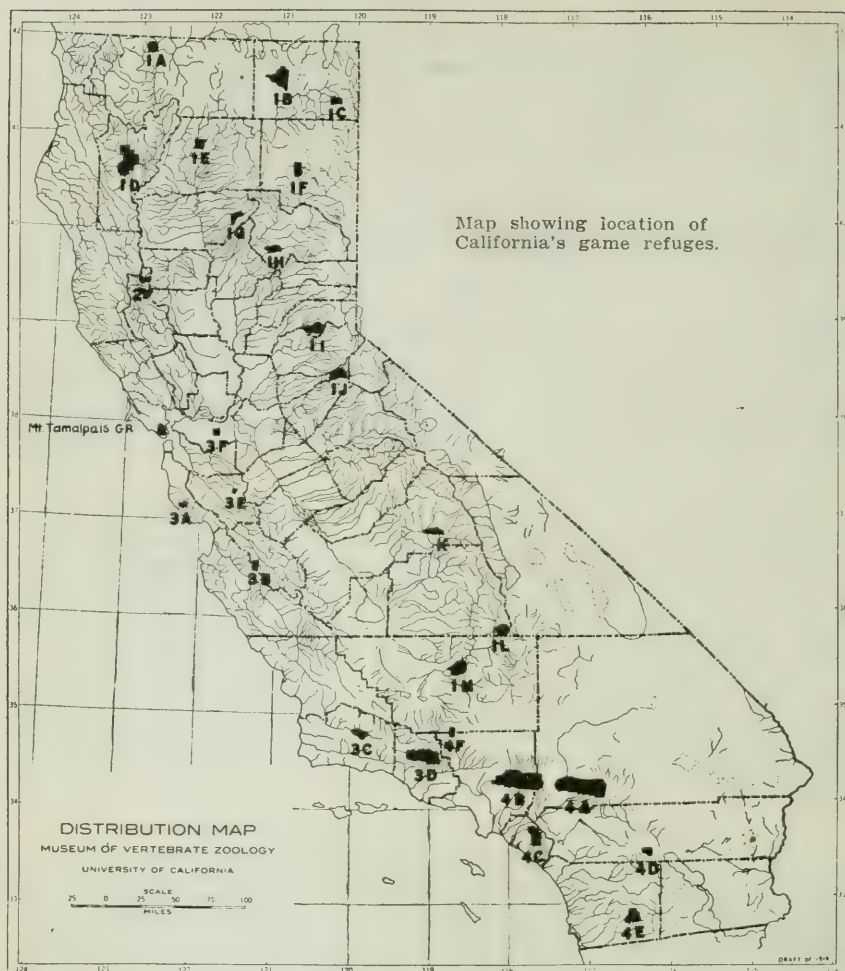


FIG. 5. Map showing location of California's game refuges. There are now 28 state refuges, comprising an area of 1,792,000 acres.

FUR RESOURCES.

The fur trade played an important part in the early history of California, but after the depletion of the two more valuable fur bearers, the sea otter and the beaver, the fur-trading companies deserted the field and the catch was left to mountaineers who wished to use spare time in the winter to increase their income by trapping. Estimates of the value of the pelts taken in the state have been made in the past but the first dependable figures are now at hand as a result of the trapper's license law passed in 1917, which requires each trapper to report his catch. A compilation of the reports for the open season 1919-1920 made by Mr. Joseph Dixon, economic mammalogist, Museum of Vertebrate Zoology, University of California, who is at work on a book dealing with the fur bearers of the state follows:

NUMBER AND VALUE OF ANIMALS REPORTED CAUGHT BY THE LICENSED TRAPPERS OF CALIFORNIA FROM OCTOBER 15, 1919, TO MARCH 1, 1920.

Rank	Species	Number	Average price	Highest price	Total value
1	Skunk	19,052	\$3 81	\$8 00	\$72,588 21
2	Coyote	3,896	7 63	20 00	29,843 36
3	Coon	5,398	5 45	15 00	29,419 10
4	Gray fox	5,222	3 93	7 00	20,679 12
5	Mink	1,704	9 13	20 00	15,557 52
6	Marten	432	26 08	45 00	11,336 16
7	Wildcat	3,783	2 80	12 50	10,592 40
8	Fisher	102	67 33	80 00	6,867 63
9	Ring-tailed cat	1,286	2 62	7 00	3,361 52
10	*Beaver	75	33 23	35 00	2,492 50
11	Spotted skunk	3,586	57	1 00	2,044 02
12	River otter	97	11 88	20 00	1,142 36
13	Muskrat	359	3 14	3 25	1,127 26
14	Bear	116	8 57	20 00	994 12
15	Red fox	28	12 00	20 25	336 00
16	Wolverine	7	30 00	50 00	210 00
17	Badger	197	1 06	2 50	208 82
18	Kit fox	120	1 34	2 50	174 86
19	Mountain lion	20	8 00	20 00	160 00
20	Possum	90	1 25	1 75	112 50
21	Weasel	178	20	1 75	35 60
22	Mole	27	05	05	1 35
	Total	45,804			\$209,292 24

*Taken under permit.

"*Trapping Licenses*—About 4500 issued. Of these, 1300 reported their catch. Persons under 18 are not required, under the present law, to report.

"*Estimated Total Income*—The catch of \$209,292.24 reported by the 1300 licensed trappers is found to be about 40 per cent of the entire value of the catch which totals \$500,000.

"*Average Income*—About \$110 per licensed trapper. The 1300 trappers reporting, including many professional trappers, averaged \$160.

"*Note*—The muskrat is not protected by law in California. For this reason the 25,000 muskrats valued at \$31,000, which investigation has shown to have been caught in the Imperial Valley in 1919-20, were not reported. The figures for the mountain lion and coyote are also low since 229 lions were killed, and their hides presented for bounty, in 1920. Animals trapped and poisoned by predatory animal trappers working under the direction of the Biological Survey of the U. S. Department of Agriculture are not included in the above report.

JOSEPH DIXON,

October 10, 1922.

Economic Mammalogist."

UNITED STATES FOREST SERVICE COOPERATION.

For many years the United States Forest Service has cooperated splendidly in fish and game conservation work. That this cooperation might be improved and might have a common basis an agreement was drawn up and signed by officials of the Forest Service and the Commission early in 1920. The agreement reads as follows:

AGREEMENT.

In order to secure closer cooperation with the Fish and Game Commission, the following informal agreement has been executed:

Whereas, the wild life on the national forests of California is a product of the forest and a great resource, which adds materially to enjoyment of the national

forests by the public, as well as of great economic value, its protection and perpetuation becomes a public necessity; and

Whereas, the Fish and Game Commission of California is the duly authorized agent for the State of California for the protection and perpetuation of this resource, and the District Forester of the Forest Service, United States Department of Agriculture, for the Department; now, therefore

In order to coordinate the work of these departments in the protection of game, fish, birds, and forests of California, Paul G. Redington, District Forester, for and on behalf of the United States Department of Agriculture, and Carl Westerfeld, Executive Officer of the Fish and Game Commission of California, for and on behalf of the State of California, do agree as follows:

1. That under the state laws no differentiation can be made between violators of the law. The law, therefore, should be enforced equally as to all violators.

2. The forest officers, because of their familiarity with the areas on which a large proportion of the wild life in the state exists, can and should assist, by their own personal actions and attitude, in securing the proper respect and enforcement of the state game laws. All forest officers who, in the judgment of the District Forester, can, because of the character of their work be of assistance in the enforcement of the state fish and game laws, will be appointed by the Fish and Game Commission of California as deputy state game wardens. All forest officers so appointed shall assume the following prescribed duties:

(a) Pay strict attention to the enforcement of the state fish and game laws, and by personal actions and attitude assist in creating the right public attitude and sentiment toward the protection of fish and game within the boundaries of national forests;

(b) Report all cases of violations of the fish and game laws to the officer's immediate supervisor who will in turn report the violation to the Fish and Game Commission of California, San Francisco, California;

(c) Make arrests for violations of the fish and game laws committed within the boundaries of the national forests;

(d) Furnish all information available which will assist officers of the state in apprehending or prosecuting violators of the fish and game laws, whether such violation was committed within or outside the national forests;

(e) Submit such reports as may be called for by the District Forester;

(f) Report misconduct or dereliction of duty on the part of any state official employed in the enforcement of the state fish and game laws;

(g) Issue hunting and fishing licenses, receiving therefor the commission allowed by law.

3. The District Forester will cause an annual report to be submitted to the Fish and Game Commission which shall contain complete information as to the present condition of wild life in the national forests and plans for the protection and development of fish and game therein. He will recommend the establishment of such game refuges as seem necessary, the boundaries of which shall not be changed without his approval.

4. The Fish and Game Commission of California will elect a representative of its Commission to act on behalf of the Commission with the District Forester on all matters pertaining to fish and game work on the national forests of California.

5. The duly authorized agent of the Commission shall have power to act upon all reports and requests from the District Forester, furnish upon requisition the number of fish plants necessary to stock streams within the national forests, provide proper facilities for transport to places of destination, and properly supervise shipment from hatchery to nearest railroad point; and shall issue proper instructions to forest officers designated to transport fish from railroad point to streams, giving at least two weeks' advance notice of date of arrival.

6. Upon recommendations from the District Forester, deputy game wardens will be appointed state fire wardens, and the Commission or its duly authorized agent will instruct such wardens to cooperate with the Forest Service in the suppression and prevention of forest fires.

7. All deputy game wardens will pay strict attention to the enforcement of state fire laws, familiarize themselves with the regulations governing the use of the national forests, and by personal actions and attitude assist in creating the right public attitude and sentiment toward these laws and regulations.

8. Deputy state game wardens will report, through the State Fish and Game Commission, any misconduct of forest officers or the dereliction of duties in the enforcement of fish and game laws.

9. The Fish and Game Commission will provide the necessary signs, labor, and material, for the proper posting and supervision of existing state game refuges or those which may hereafter be established within or adjoining the national forests.

10. Necessary expenses of forest officers in the investigation and prosecution of fish and game violations will be paid by the Fish and Game Commission upon properly certified accounts on forms furnished by the Commission.

11. Amendments to this agreement may be proposed by either party upon giving thirty days' notice to the other. Amendments shall become operative immediately after they have been adopted by both parties.

12. It is mutually understood and agreed that this agreement shall terminate at the end of any fiscal year in the event that Congress shall fail to make an appropriation for the ensuing fiscal year.

According to the terms of the agreement forest officers will enforce fish and game laws, make arrests, submit reports and issue hunting and fishing licenses. The force of game wardens will therefore be greatly augmented and better enforcement of the fish and game laws is a certainty. The help of the Forest Service in better posting state game refuges will be another outcome of the cooperation. In return for the services of the forestry men, the game wardens of the state will be deputized as forest fire wardens and will help in protecting the forests and in developing the right public attitude toward the laws and regulations of the national forests. There is to be a continuance of the annual reports on game conditions in the forests furnished by the District Forester.

This cooperation, which has been carefully worked out between the United States Forest Service and the Fish and Game Commission, will make violation of the fish and game laws doubly difficult and will do much to develop a sentiment favoring game conservation.

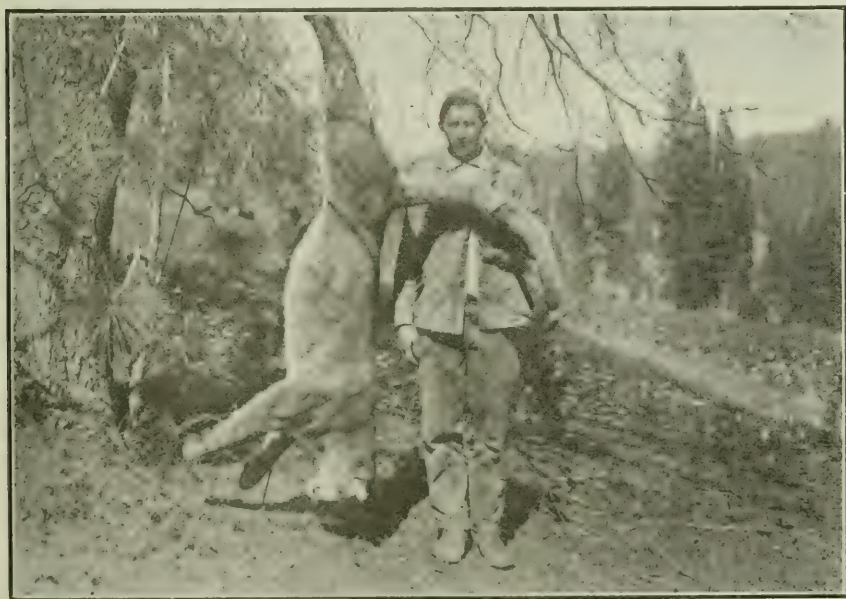


FIG. 6. State lion hunter, Jay Bruce, with large 160-pound male lion, measuring 7 feet $3\frac{1}{2}$ inches, killed near Avery, Calaveras County, March, 1921. Photograph by L. D. Petersen.

STATE FAIR EXHIBIT.

Four years ago the Commission installed a permanent exhibit at the State Fair, consisting of a panorama of the Sierra Nevada from Mount Shasta on the north to Mount Whitney on the south, showing three of the state's hatcheries in miniature and lighted in such a way as to give the changing colors of sunset, night and sunrise. Each year the scene has been changed and new lighting effects added. The floor space was nearly doubled in 1921, by the addition of a well arranged exhibit by the Commercial Fisheries Department. The increase in the fishing industry was graphically shown and fishery products of all kinds from abalones to tuna were on display. Equipment for whale fishing and abalone fishing were particularly enjoyed by the crowds, as were also the materials manufactured from kelp. Educational films shown twice daily attracted large crowds also. Each year there has been a splendid aquarium display of food and game fishes, including the famous golden trout, brought nearly a thousand miles from its home near Mount Whitney. Other aquaria contained the food and game fishes of the San Joaquin and Sacramento rivers, displayed by the northern district office. Through the medium of this exhibit many thousands of people have become intimately acquainted with the work of the California Fish and Game Commission.

NORTHERN DISTRICT.

The northern district reports great success in law enforcement, owing to a growth of public sentiment. Jail sentences aggregating 1219 days were meted out to violators during the two-year period. Everywhere the judges are cooperating in law enforcement by giving such heavy sentences that the violator does not care to make a second violation.

In the winter of 1921-22, heavy snows in the mountain districts made it important that game be fed in order to prevent their starvation. Deputies of the Commission, aided by many public spirited citizens, were instrumental in saving large numbers of quail and deer. The largest herd of antelope left in the state, located in eastern Siskiyou and western Modoc counties, were cared for during the severe weather and consequently the losses were small. Particular attention has been given the protection of this remnant of the former herds which roamed the state. The popularity of the mule deer and the ease with which the hunter reaches the best hunting grounds is endangering this species. Another cause of decrease is to be seen in the fact that the yearling sometimes has branched antlers, and many young bucks are thus killed. A closed season in Modoc and Lassen counties for a few years would help to improve conditions.

The earlier opening of the duck season in the Sacramento Valley has cleared up the situation in the rice fields. The season is now open during the time the ducks are accused of destroying the rice. Deputies of the Commission were kept busy apprehending the market hunters. Many were brought into court and heavily fined and hundreds of birds were confiscated. Each season the profession of "duck boot-legging" becomes more precarious.

The northern district boasts of increasing interest in fishing for the food fishes introduced into the Sacramento and San Joaquin rivers. A few minutes' ride from the larger cities of the district takes one to places where crappie and blue-gilled sun fish are to be found in numbers. The fact that these fishes take the fly and the spinner has increased interest in them.

The Tahoe free camping ground, established on the old hatchery site, continues to serve large numbers of summer recreationists with small expense to the Commission. All campers appear to appreciate this well-equipped sanitary camp furnished them by the state.

SAN FRANCISCO DISTRICT.

Strict law enforcement in the San Francisco district resulted in 1224 arrests, aggregating \$34,442.75 in fines during the biennial period, an average of about \$30 per case. In addition, violators served 322 days in jail. San Francisco courts continued to regard violations less seriously than county courts, as evidenced by the number of dismissals and the smaller average of fines imposed.

Cases show an increased number of does killed illegally and hunting accidents have been numerous.

Agitation made by cattlemen and the forest service to shorten the season on deer and thus reduce violations and forest fires may result in the opposite effect because of the concentrated hunting. It also seems probable that an increased penalty for killing game would simply make law enforcement more difficult; the maximum fine is at present \$500.

Game and fish conditions in the district are satisfactory. However, overfishing in the streams of the bay section is very evident and something should be done to bring fishing back to a normal condition in these streams.

SOUTHERN DISTRICT.

Reports from southern division headquarters at Los Angeles show that a deputy has been placed in every southern county except one, resulting in more effective enforcement of law and closer touch with fish and game conditions. Most southern counties are cooperating by joint-appointment and division of warden expense. Percentage of convictions to cases made was 94.5; average fine, \$28.26. Many forest-rangers have given valuable and appreciated assistance.

Cooperation of county sportsmen's associations toward enforcement and education has been enlisted unanimously; likewise chambers of commerce, the Automobile Club of Southern California and many other organizations less directly interested in conservation. Widest publicity has been given the Commission's work in southern newspapers and, incidental thereto, an information bureau for sportsmen has been organized.

Close relationship and responsibility of the Fish and Game Commission to the sportsmen whose license-dollars support its work, constantly has been respected in the south, resulting in harmonious understanding and mutual assistance. Appreciation manifests itself in sentiment increasingly favoring the license-fees to meet growing demands for a larger hatchery output and extension of specialized work in behalf of game.

Special attention has been paid to conserving the remainder of the native big-game animals, such as antelope and mountain sheep, with favorable results. The deer situation, however, is unsatisfactory and additional protection is felt necessary.

Cooperation with county supervisory boards toward eradication of lions, pests upon stockraiser and sportsman alike, continue bearing apparent results, as one county after another adds enough to make the state bounty attractive to professional lion hunters.

A plan is being worked out to furnish additional sport through the stocking of municipally owned reservoirs with black bass and the opening of these reservoirs to fishermen. This will provide easily accessible and inexpensive fishing.

Regulation of commercial fisheries has had constant attention in cooperation with the Commercial Fisheries Department, whose special responsibility it is, the south now being the center of a steadily growing industry requiring ever-closer patrol.

Special problems of a local nature requiring intensive patrol of the congested centers of duck-shooting interest; the lee waters of Santa Catalina Island, reserved for their attraction-value to sportsmen from the world over; lobsters, clams, all have come in for the necessary special attention, with improvement generally conceded.



REPORT OF THE DEPARTMENT OF FISHCULTURE.

The Honorable Board of Fish and Game Commissioners of the State of California.

GENTLEMEN: In conformity with the law and regulations of the Fish and Game Commission, I have the honor to transmit a report of the Department of Fishculture for the biennium ending June 30, 1922.

During the last two seasons, covered by this report, we have made a record output at our hatcheries, having hatched and distributed 40,974,000 trout fry and 18,037,000 salmon fry with the probability that the season that we are now entering on will exceed the last one in output of trout fry. We have hatched and distributed 19,000,000 salmon fry from eggs collected from the Klamathon station during the last winter and spring that will not appear in the statistical report until the next biennial report of the Commission.

The limit of hatchery operations has been reached until the people, through the legislature see fit to increase our funds for fishcultural operations. We are now operating thirty hatcheries and egg-collecting stations, several pond systems for the rearing of brood fish, two distributing cars, on which we have been paying regular transportation rates over all the railroads in California, as well as a division of screens and fishways. The total valuation of the property of the state in use in the fishcultural work, such as hatcheries, lands, fish cars and equipment and all the other equipment necessary to successfully carry on the work, is approximately \$350,000. The repairs and improvements on this property amounts to a large sum annually. We are continually carrying on experiments and investigations to improve the work of producing more and better fry and to get better results in our work of distribution.

The same condition exists as I mentioned in my two last biennial reports regarding the ever-increasing demand for trout fry caused by the increasing population of the state and the easy accessibility of the lakes and streams caused by the building of good roads and highways and the use of the automobiles that have placed within easy reach of the lover of the outdoors, places that a few years ago were almost inaccessible. A comparatively short time ago, if a person in ordinary circumstances made one trip to the mountains with a team during the season and enjoyed a few days hunting or fishing, he was well satisfied, but now with the advent of the automobile, there are hundreds of persons who go to some stream or lake to fish over each week end and many times during the whole period that the season is open. The limiting of the catch to twenty-five trout per day by the last session of our

legislature was a move for conservation, but without an increased force of deputies to enforce the law, the limit is often exceeded by persons, who otherwise consider themselves law abiding citizens.

The number of deputies should be greatly augmented to enforce the fish and game laws and there is only one way to do it and that is to increase the revenues of the Commission so that an adequate force of deputies can be in the field all the time.

During 1920, the output of our hatcheries was 17,000,000 trout fry. In 1921, the output was 23,000,000 and the present season, 1922, for which a detailed report will not be in readiness until two years hence, will exceed 25,000,000 trout fry. The statistical report of the distribution of trout fry for the seasons of 1920-1921 will be found in the appendix.

In an effort to keep the waters of the state from being depleted of trout thirty hatcheries and egg collecting stations are operated at full capacity. In many streams examined in the last few years, there are very few, if any, breeding fish left. The constant fishing by anglers during the open season of the easily accessible streams, has so reduced the number of adult fish that natural propagation is limited and insufficient and the streams must be kept stocked from the hatcheries, if the public is to continue to enjoy the privileges of fishing.

TROUT.

The total distribution of trout fry from the different hatcheries for the biennial period ending July 1, 1922, was 40,974,000, the largest number planted in the same period of time since the creation of the Commission. Improved methods of hatching, rearing and distributing the fry are constantly being made, but still it is impossible to meet the demand made on our trout waters by the anglers. There is a constant demand for more hatcheries and a larger output of fry, and several more hatcheries are needed in the state, but funds must be provided before any further increase of fish from our hatcheries can be had or new hatcheries constructed. Hundreds of persons applying for fish have been instructed to make a wide distribution of the fry. The best results are obtained where the fry are well scattered and planted on the riffles and in the shallow water of the lakes some distance from shore. A close check of the work has shown good results. The cooperation of the sportmen's clubs, county boards of supervisors, chambers of commerce and others, has been of great assistance in getting the fry planted properly and often in almost inaccessible places. The growing interest in the propagation and planting of trout fry is the result of the success in past years.

We must urge again, as in previous reports, that a shorter open season for trout fishing should be instituted for reasons as stated in other reports, viz., to allow the fish a chance to breed in the spring and fall, as well as to give them a chance to grow when the temperature is favorable.

The thousands of fish taken by anglers from Eel River, Klamath and Feather rivers and other places where our egg-collecting stations are located is greatly diminishing the number of breeders each season and the work of collecting eggs from wild trout becomes more difficult each season. The State Fish and Game Commission should, at an early

date, be furnished with funds to establish several pond systems where fish can be reared in numbers great enough to furnish an adequate supply of eggs for all the hatcheries. One of the best pond systems to be found anywhere, is located at the Mount Shasta station, but it is not large enough and owing to the limited water supply, can not be increased. Nearly one-third of the trout eggs collected in California this year were taken from the stock fish in the ponds at Mount Shasta Hatchery. The eggs can be procured from the ponds for less money than they can be taken from wild fish when all the uncertainties connected with collecting eggs from wild fish are considered. The droughts and floods, deep snows, extremely cold weather and other conditions



FIG. 7. Catch of trout from Lake Eleanor, part of the San Francisco Hetch Hetchy project. Many of the new storage reservoirs in the mountain districts are affording splendid fishing.

always make the work at the egg collecting station uncertain. We do not know from one season to another what to expect. Some years the extremely light rain or snowfall causes conditions that are unfavorable for the collection of trout eggs. In other years, floods and extremely high and cold water change the movements of the fish so that our take of eggs is often far less than that expected. The breaking up of the runs of trout in our streams by high dams, built by hydro-electric companies and irrigation projects are all having their effect and to meet these new conditions, it is imperative that the Legislature provide ample funds for the construction of rearing ponds where a sufficient number of breeding fish can be raised to supply the demand for at least two-thirds of the waters to be stocked.

KLAMATH RIVER.

The great Klamath River, the last stand for the collection of both salmon and wild rainbow trout eggs in any large numbers, should be kept free of dams, so that a dependable stock of trout and salmon may be secured from this source for many years to come. The Klamath River runs through a mountainous region from the Oregon line where it enters California to its mouth on the boundary line of Del Norte and Humboldt counties, where it flows into the ocean. There is practically no tillable land, except Shasta Valley, where the water of this stream could be used for irrigation. Applications have been made to construct large dams on this river for the purpose of developing hydro-electric energy. A protest has been filed against these applications to the Federal Power Commission and a protest will be made before the State Water Commission against the construction of these proposed dams. There is enough water appropriated in the other river systems of California to furnish electric power for the development of the state for many years to come, without destroying the salmon run in the Klamath River by the construction of dams impassable to salmon. The construction of high dams on the Klamath River, will surely destroy the salmon run in that river in a short space of time.



FIG. 8. A trap set at Blackwood Creek, Lake Tahoe, before and after uncovering, April 1, 1922. Spawning operations are often difficult because of the heavy snows.

We are satisfied, beyond any question of a doubt, that the chinook salmon (*Oncorhynchus tshawytscha*) and the silver salmon (*O. kisutch*) will not ascend a fishway over a dam where the elevation is over 30 or 35 feet. Our observations in this state and the experience of the experts of the Bureau of Fisheries in Oregon and Washington confirm this statement. The parent stream instinct of salmon is so strong that no matter how perfect the fishway may be built, salmon, particularly the chinook, will only ascend a fishway a short distance, then their instinct impels them to follow the main stream and they leave the fishway and return to the river, and attempt to ascend the main stream, following the bed of the river that their progenitors have followed through centuries past.

While it is true that the species of the Salmonidae will enter tributary streams to propagate, each stream, to a certain extent, has its own race or run of fishes that have been propagated in it. Otherwise, all the salmon that enter a large river would ascend the first tributary that was favorable and suitable for spawning purposes. Competent engineers

who are not fish culturists or scientists, suggest as feasible long fishways on easy gradients with rest pools at convenient places for the passage of salmon over and around the high dams that are being proposed by promoters of hydro-electric power enterprises. The instinct of the salmon to follow the main stream is sure to make any of these plans a failure.

The salmon run in the Klamath River should be maintained for the use of the people as a food supply as well as to furnish eggs to keep up the supply in the Sacramento and Eel Rivers. Hydro-electric projects and irrigation canals have cut off eighty per cent of the spawning grounds on the tributaries of the Sacramento and San Joaquin rivers. The Bureau of Fisheries is assisting in every way possible to maintain the salmon supply by operating their hatcheries and egg collecting stations at Battle Creek, Mill Creek and Baird in Northern California. Their work must be augmented by the surplus eggs from the Klamathon station on the Klamath river, if we are to have the salmon run maintained in numbers sufficient to be of any great benefit to the people.

Referring again to the situation on the Klamath River; if the fishways should be constructed that would allow the salmon to ascend above the dams to their natural breeding grounds and to the egg collecting stations, the fry, the result of natural propagation or from the hatcheries, would be destroyed in passing through the wheels used to operate the generating plants as it is impossible to construct a screen of sufficient fineness to prevent the fry of anadromous or sea running species of fishes from entering the pipes or tubes that furnish the water to the power plants. A great deal has been said and written by the promoters of the projects regarding the installation of electric fish stops, by the use of electrodes to develop an electrical current in the water near the end of the intake pipe. Experiments have satisfied us that the plan is not practical. Freshwater fishes or those that spend their entire lives in fresh water, do not descend the streams in schools or with such a strong instinct to descend with the current as do the anadromous fishes. The anadromous fishes such as the different species of salmon and the steelhead trout are impelled by their instincts to descend the rivers to the ocean, no matter what obstacles may be placed in their way. They must enter the ocean to develop to maturity, and no electrical current passing through the water that causes a tingling or stinging sensation is going to stop them. If the electrical current is made too strong or strong enough to stop their power to swim, they are either killed or stiffened up so that their powers of swimming are paralyzed and they will drift with the current into the pipes leading to the impulse wheels. Screens with meshes small enough to stop the descent of the fry would choke up during the flood season when the fry are making their descent to the sea and at other times, and would be removed by operators of these power plants, so the flow of water to their generators would not be interfered with. Screens in ditches and canals can be easily installed and cleaned, but screens fine enough to prevent the fry of anadromous fishes from entering pipes leading from high dams to power wheels are not practical. Freshwater fishes whose habits are to live their entire lives in the streams and lakes and rivers are easily turned away by ordinary screens as they are not impelled by a strong instinct to descend the streams. They move from different places in the stream in search of food and breeding

grounds and quickly adapt themselves to a changed environment. If the freshwater fishes come in contact with a screen even if the meshes are quite wide apart, they will not make any great effort to pass through unless they are forced to do so by roily water or high temperatures. In ordinary temperatures and normal conditions, they are content to remain in their natural habitat, viz., the pools of the stream where they have been propagated and find conditions suitable for their existence. But the anadromous fishes following their instinct to descend the streams make every effort possible to do so, when the periods of their migrations are on.

CHINOOK SALMON.

The propagation of chinook salmon becomes a matter of greater importance each season, as the natural spawning grounds are being cut off in the rivers and streams of the state by the erection of high dams for the development of hydro-electric power and irrigation. As near as we can estimate, over eighty per cent of the natural spawning grounds on the Sacramento River, San Joaquin River, Feather River and their tributaries are now cut off from the salmon runs. The chinook salmon must of consequence, be greatly reduced in numbers or greater efforts made to propagate them artificially at the hatcheries. The Bureau of Fisheries stations at Battle and Mill Creeks have been operated during the past two seasons, but owing to the flood in the fall of 1920 and the drought of 1921, the take of eggs by the Bureau of Fisheries was very light at Battle Creek and Mill Creek stations.

Owing to the impassable condition of the dam of the Anderson-Cottonwood Irrigation District at Redding, the salmon were prevented from entering the McCloud River and consequently the Bureau of Fisheries did not collect any eggs at Baird. Injunction proceedings against the Irrigation District were begun by the Fish and Game Commission during 1920, through Honorable Jesse W. Carter, district attorney of Shasta County, assisted by our attorney, R. D. Duke, and an application made by him for a temporary injunction restraining the district from operating the dam until an efficient fishway was constructed that would allow the salmon to pass this barrier. The resultant agreement provides that the fishway is to be made efficient by such changes as the fishway inspector and the engineer of the irrigation district should decide was necessary. This fall the necessary changes will be made.

During the fall of 1920, the run of salmon was rather light on the Klamath River but an average take of eggs was expected, but a severe storm caused the Klamath River to rise damaging the racks to such an extent that a large portion of the salmon escaped causing the take of eggs to be materially decreased. Nevertheless, 2,766,000 eggs were collected and shipped to Fall Creek Hatchery, Mount Shasta Hatchery and Fort Seward Hatchery on Eel River.

During the fall of 1921, conditions were very favorable on the Klamath River and the egg collecting crew managed to procure 19,000,000 chinook salmon eggs, the largest number ever collected from the river. The eggs were shipped to Fall Creek Hatchery at Copco, Mount Shasta Hatchery at Sisson and Fort Seward Hatchery on Eel River. The resulting fry were hatched and reared in good condition. The fry hatched from the eggs at Fall Creek Hatchery, were held in

ponds and will be released this fall when conditions of the river and temperature are favorable.

We desire again to call particular attention to the salmon run in the Sacramento and San Joaquin rivers. Already greatly depleted, it is threatened with extermination, if measures are not taken at once to increase the output of salmon fry from the hatcheries. The construction of impassable dams and the diversion of water for irrigation is fast cutting off the last remaining spawning beds in the tributary streams of these rivers and this excellent fish is doomed to extermination if prompt action is not taken. This department has called attention to this condition for the last four years, but the legislature and the commercial fishermen as well as the general public pay no heed to the recommendations offered and no action to save this fine fish is taken. The Fish and Game Commission is waging an uphill fight when it comes to conservation as the people do not realize the destruction of wild life until it is too late.

MOUNT SHASTA HATCHERY.

During the season of 1920 and 1921, the Mount Shasta Hatchery has been operated to its fullest capacity, 10,966,000 salmon fry and 21,676,800 trout fry being hatched and distributed from this station. The Mount Shasta Hatchery is one of the best equipped stations in the country. The pond system alone furnished 18,000,000 trout eggs during the last biennial period. These with the additional eggs shipped from outside stations, gave this splendid total of trout fry that were distributed throughout the state, from this hatchery.

The Mount Shasta Hatchery has had the necessary repairs to keep this important station in a condition to operate without unnecessary loss and damage. During 1921, the following repairs and improvements were made: Lumber shed 18 feet by 20 feet, with corrugated steel roof; garage 30 feet by 24 feet, 10 foot walls; new foundation under water tank that furnishes water to the superintendent's residence and cottages for the help; new culverts and gates in five of the large ponds; new foundations under Hatchery B and old shingle roof replaced with corrugated steel roofing; all troughs from Hatchery D removed and new sills put in under the building and new columns supporting the roof; also forty-six new troughs were installed in the place of those too badly decayed for further use; new sills were put under Hatchery C and a new floor in the aisle; a new settling tank for Hatchery E was built, 8 feet by 48 feet by 4 feet in depth; an addition to the carpenter and repair shop 12x16 feet was made, ceiling placed in the laundry at the superintendent's residence; fourteen new electric light poles were placed on the grounds and wires restrung; new stringers placed under main bridge across the head of inlet ponds; new furnace constructed in food preparation room.

Repairs in 1922: Waste gates repaired to date on ponds 28, 29, 30 and also walls repaired on ponds 5, 39 and 40; hatcheries B, C, D, meat house, woodshed, barn, lumber shed, repainted; other buildings will be painted during the year; 800 feet of new railing placed around ponds to replace those that were rotted and falling down; 2½-inch well driven for domestic supply and connected with pump to supply three of the dwellings on the hatchery grounds, as well as to furnish

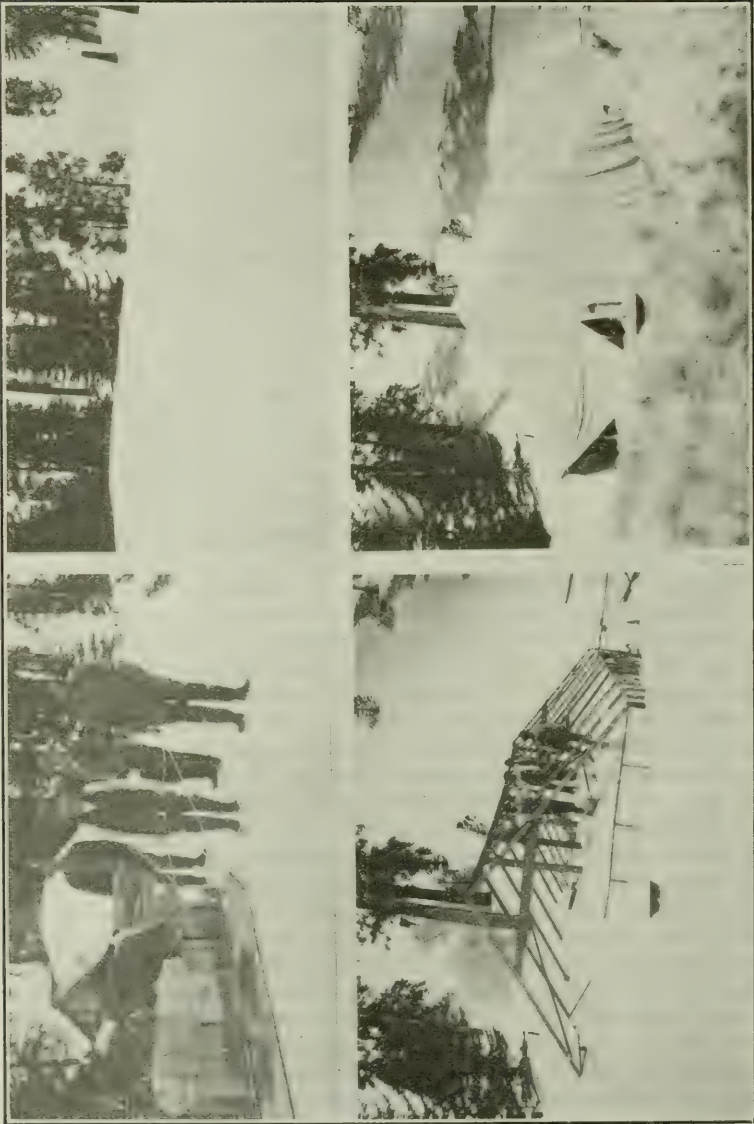


FIG. 9. Scenes at the Feather River Hatchery on arrival of the spawntakers, April 5, 1922. A. The spawntakers arrive with provisions. B. The hatchery site. C. Uncovering the frame work. D. Ready for operations.

water for irrigating lawns and flower beds; foundation under hatchery A renewed; repairs made on pond walls that had rotted and were unsafe; new floor placed in the living room of the superintendent's residence. A great many other improvements were made to maintain the ponds, hatcheries, power plant, truck, wagons and other things too numerous to mention in a brief report.

A number of permanent improvements are needed at the Mount Shasta Hatchery to improve conditions and reduce the cost of operations. One of the most important is the installation of a refrigerating plant, where ice could be made to supply the distribution cars as well as to keep the fish food from getting tainted during the warm weather.

The large ponds that the state has been leasing from their owners for the rearing of salmon fry have passed into other hands and if the leases can not be renewed for a term of years, a new location should be found on some tributary of the Sacramento River, where suitable ponds for the rearing of salmon can be constructed and the salmon fry given the benefit of several months of pond culture before being released into the river.

Money is needed to make these improvements. This state is progressing and if the people desire to enjoy the angling in the many streams of the state and save the salmon, the fish par excellence of all our food fishes, the necessary funds must be furnished to the Fish and Game Commission to improve and enlarge the hatcheries and pond systems for rearing of fish. It is up to the people to make their decision, for in their hands rests the future development of fish cultural work.

BOGUS CREEK STATION.

This fine egg-collecting station has kept up its record during the last two years. There were 5,000,000 eggs collected during this period and shipped to the different hatcheries. A number of improvements were made during the two seasons last past: a tank for holding the spawning fish was built 30 feet long, 8 feet wide and 8 feet high; a board roof covered with malthoid roofing was placed over the tank; the old cabin was torn down and a new four-room cottage was built for the use of the station; concrete foundations were placed under the holding tank and a concrete toe wall was constructed under the racks and a concrete bed under the trap, besides other improvements to better conditions at the station.

HORNBROOK STATION.

This station did not come up to expectation in 1921, owing to a drought during the springs months, but the conditions were normal in the spring of 1922 and a good collection of eggs was had. During the biennial period of 1920-1922, there was collected from this station 2,172,000 rainbow trout eggs.

The following improvements were made at this station during the last two years:

Sixteen feet added to the holding tank, besides placing a concrete toe wall under the racks across the bed of the creek, eight feet in width; two extra concrete piers were placed under the rack frame to support the structure against the flood waters and a rock wall was built on the east

side of the creek to prevent the creek bed from washing out and widening the channel. This was necessary to prevent the high water from allowing the fish to pass around the trap in ascending the creek. During the seasons of normal rainfall, this is one of the best egg-collecting stations in the Klamath River basin.

KLAMATHON STATION.

The total take of chinook salmon eggs at this station during the last two seasons was 28,076,000. During November, 1920, a severe rain-storm damaged the racks at this station to such an extent that a large portion of the salmon in the pool between the racks escaped and passed up the river. This materially affected the take of eggs. The take during the fall of 1920, was 8,898,000 eggs, which were hatched at Fall Creek and Mount Shasta hatcheries.

During the summer of 1921, the piers were repaired and other improvements made on the racks and during the fall and early winter of 1921, 19,178,000 chinook salmon eggs were collected and shipped to Fall Creek Hatchery, Mount Shasta Hatchery and Fort Seward Hatchery in Humboldt County. These eggs hatched out in excellent condition and the resulting fry were distributed in the Sacramento, Klamath and Eel rivers.

The Klamathon Station is now one of the most important salmon egg-collecting stations in California, as the Klamath River salmon run can be increased by successfully planting several millions of salmon fry in the river each season. It is of vital importance that the salmon run be maintained in the Klamath River, to furnish eggs for the Sacramento, Eel and San Joaquin rivers and this can only be done by keeping high dams out of the river below the Klamathon Station.

FALL CREEK HATCHERY.

This station has been a success since it was built. All the salmon and trout fry reared at this station have been planted in excellent condition, except one small lot of salmon fry that became affected with a bacterial disease early this season. Fortunately this lot soon yielded to treatment when the pond was disinfected with the chemicals used for such purposes.

During 1920 and 1921, the following improvements were made at this station: three ponds completed: pond No. 1, 70 feet by 20 feet; pond No. 2, 115 feet long, 30 feet wide and $4\frac{1}{2}$ feet deep; pond No. 3, 116 feet by 65 feet, average depth of 4 feet. These ponds are used for rearing salmon fry. A large settling tank was constructed to remove the sediment from the water supplying the hatchery.

The pond system has been a success. The temperature of the water and other conditions make the Fall Creek Hatchery an ideal place for the rearing of salmon fry. Several more ponds are needed at this station for this work as soon as the funds are available.

CAMP CREEK STATION.

This station has kept up its record as one of the best of our egg-collecting stations. There were 4,100,000 rainbow trout eggs collected during the last two seasons. The following repairs and improvements were made since our last biennial report: a large holding tank for

spawners was built 30 feet long, 6 feet wide, and 8 feet high, with concrete foundation; a toe wall or concrete bed was laid across the bed of Camp Creek, 8 feet wide on which the rack for the traps are placed; a concrete foundation was placed under the trap and a small concrete pier was built on the south bank of the creek to prevent the washing away of the banks; an addition was built on the cabin used by the men for living quarters; an extension of 16 feet was made on the large holding tank and a small tank used during the time the fish are being handled for spawning purposes; 365 feet of new flume was built from the creek to the holding tank, and a suspension bridge was constructed across the Klamath River, 257 feet long to be used to carry the eggs from Camp Creek Station across the river to the railroad so that they can be shipped to the different hatcheries. This was necessary as the river is so rapid that the men were constantly in danger of losing their lives by the overturning of the boat used to convey the eggs across the river.

MOUNT WHITNEY HATCHERY.

Mount Whitney Hatchery has been operated to its full capacity during the last two seasons. The remarkable growth of the fry in this hatchery still attracts the attention of the applicants and fish culturists.

During the fall of 1921, an epidemic appeared among the fry at this hatchery that caused considerable concern for a time but a protracted treatment brought the fry out in good condition with a very small loss. We were assisted in our investigation of this disease by the members of the State Board of Health and the state bacteriologist at Berkeley, who kindly made laboratory examinations for our department, as our laboratory equipment has not been unpacked owing to the fact that we have not been able to procure a room in which to work.



FIG. 10. Fresno County Sportsman's Club planting fish. The Commission depends largely upon the work of such organizations for the successful transfer of the fish from the fish distribution car to the stream. Photograph by Bart Harvey.

The grounds at Mount Whitney Hatchery have been improved by the planting of trees and flowers. The lawn and flowers are being kept in good shape, and the hatchery is one of the most attractive places in Inyo County. Hundreds of tourists and vacationists going into the upper part of Inyo County, Mono and Alpine counties, stop at the hatchery every week during the summer and fall.

This hatchery has proven to be one of the most important and valuable hatcheries in the country. It supplies a large district with trout fry in excellent condition. The distribution area that is covered from this hatchery includes the country adjacent to the eastern side of the lower San Joaquin Valley, Inyo and Mono counties to the north and the counties below the Tehachapi Range to San Diego, except San Bernardino County, which receives the bulk of its trout fry from Bear Lake Hatchery. The demand for fry from this hatchery is greater than the capacity of the hatchery to produce. Additional hatchery equipment should be added to this station when funds for this purpose are available.



FIG. 11. Type of pack can utilized by Fresno County Sportsman's Club. Several of the clubs own their own cans. Photograph by Bart Harvey.

Pack trains should be provided to carry trout fry to the barren lakes in the high Sierra to the west of the hatchery, and to other sections, as well as to restock the depleted streams and lakes where the fish are greatly depleted in numbers by the excessive fishing of the last few years. This important hatchery should be enlarged by the addition of smaller auxiliary hatcheries erected on the same grounds, all under one management and where the same water supply can be used that is now being used in the main building.

COTTONWOOD LAKES STATION.

The collecting of golden trout eggs during the season of 1920 was carried on from the middle of June to the latter part of July. There were 782,000 eggs collected and conveyed to the Mount Whitney Hatchery. These eggs were very delicate and produced a great many structurally

weak embryos. These succumbed early in the season, but the remainder, 319,000 were distributed in the lakes of the high Sierra and in lakes in the Yosemite National Park. Reports received from a number of lakes where these fish have been introduced are, that they are thriving and making a rapid growth. The golden trout is a very delicate fish and is not resistant to bacterial infection of a pathogenic nature. This, no doubt, is due to the fact that these fish have inhabited the pure water of the high Sierra range, that is free from bacteria and fungoid growths for many ages and have not the resistance of the species that have their range in lower altitudes or the exotic species that have been introduced into this state from the eastern states and Europe.

The golden trout by their bright colors, fall prey to the other species. They will not thrive where other species of trout are living and should only be planted in waters where no other species of predaceous fish exist. No collection of golden trout eggs was made during 1921 or 1922, as we were desirous of determining the results of the plants already made. We would recommend that the golden trout distribution be confined only to the barren lakes of the high Sierra range, until at such time as a resistant stock of these fish can be propagated.

RAE LAKES STATION.

The Rae Lakes Egg Collecting Station was operated during the seasons of 1920, 1921 and 1922. During these three seasons, 1,488,000 eggs were collected. The fish do not yield over 250 eggs each on an average caused by the lack of proper food in the lake owing to the high altitude, 10,500 feet. The eggs are delicate and considerable extra care must be given them in the early stages to produce strong fry. As soon



FIG. 12. On the summit, 13,000 feet, with rainbow trout eggs from Rae Lakes, July 20, 1920. Photograph by L. J. Stinnett.

as the fish cultural department can make further investigations, efforts will be made to introduce the proper aquatic plants and insects to furnish a greater abundance of food for the fish in these lakes.

During 1920, species of gammarus were introduced into Rae Lakes, but we have not been in a position to have an examination made as to whether they have thrived or not. This work should be taken up as soon as funds are available and a survey made of the Rae Lakes and other regions to introduce insects for fish food where such life is scarce.

TAHOE HATCHERY.

The new Tahoe Hatchery building was completed during the fall of 1920. It was operated during 1921 and is being operated during the present season of 1922. During these two seasons 1,500,000 trout fry were hatched in excellent condition. The new site is a great improvement over the old hatchery site near Tahoe City. There is an abundance of pure water. The only condition that must be overcome, one which was planned for when the new site was selected, is the construction of shallow ponds surrounding the springs that furnish the supply of water for this hatchery so that the cold water may be increased in temperature, in order not to retard the development of the fry. While the fry raised in the cold water are very strong and healthy, they do not grow as rapidly as they should and the ponds for warming the water should be built at an early date.

The plan of fencing and improving the grounds around the new Tahoe Hatchery, of building roads and cottages for the help and a building to be used for a storeroom and for preparing the feed for the fish, have not been carried out, as there was not sufficient funds to complete this work and to carry on the increased amount of work at the other stations of collecting eggs, hatching and distributing the fry.

The new Tahoe Hatchery, when all the work on the grounds and water system, is completed will be one of the most attractive and up-to-date hatcheries in the country and one in keeping with the general progress of improvements around Lake Tahoe.

BLACKWOOD CREEK TRAP.

A trap was installed in Blackwood Creek during 1921-1922 as has been done in former years, when conditions were such that we desired to collect an extra number of eggs. A good take of eggs was secured considering the seasons. During the season of 1921, the water was rather low. During the season of 1922, there was a deep snowfall on the watershed of Blackwood Creek and the snow melted rapidly during June, causing extremely high water which wrecked the trap. During the two seasons 1,000,000 eggs were collected that well repaid the Commission for the efforts made.

WARD CREEK TRAP.

A trap was placed in Ward Creek during the spring of 1922 in an attempt to collect a larger number of eggs for the Tahoe Hatchery. The melting of the deep snow caused very high water in the creek and caused the crew considerable trouble to keep the racks in place. A number of fish escaped over the racks, but 200,000 eggs were collected.

All of these traps should be constructed with concrete toe walls across the bed of the creeks and permanent racks built. The traps made of light material and built on temporary cribs or make-shift affairs are damaged whenever there is a flood on the creeks and consequently we do not get as many eggs as we should. All of this kind of work should be made permanent whenever funds for permanent work can be obtained.

TAYLOR CREEK TRAP.

During the fall of 1921, a trap was constructed in Taylor Creek near Tallac Hatchery as it was estimated that it would be cheaper to operate a trap than a seining crew at the mouth of the creek, until the scattered run of fish would be attracted to the creek by the overflow of Fallen Leaf Lake which had held the water of Taylor Creek back for several years during the period of drought. The management of the



FIG. 13. Fish pond No. 3 at the Fall Creek Hatchery, one of the ponds utilized as a nursery for young salmon.

Tallac Hotel had been storing the water in this lake for hydro-electric purposes and caused the flow of water to be so low in the creek during the spawning season that the fish were not attracted to the stream as in former years and consequently the take of eggs fell off. This past spring, the melting snow and the early rains last fall caused the lake to fill and there was an abundance of water in the creek. The water was so high that the trap was damaged, but the crew managed to collect approximately 250,000 eggs. With the return of the average seasonal rainfall and snow storms, the creek will have its normal flow and in a year or two the same good run of trout will be found in the creek as during the past twenty-five years, with the exception of the years when the water was being stored in the lake; then seining operations will be the proper means of collecting eggs at the mouth of Taylor Creek.

MOUNT TALLAC HATCHERY.

This hatchery has been operated during the past two seasons, with the usual results. The seining operations at the mouth of Taylor Creek were discontinued owing to the run of fish being broken up and scattered by the low water in the creek during the last four years of drought, lasting up to the winter of 1921-1922, when a normal snow and rainfall prevailed throughout the Tahoe basin. We operated traps in the surrounding creeks to collect our supply of eggs for this station as well as shipping eggs from other stations. With the return of normal weather conditions, the run of trout in Taylor Creek will soon be as good as in former years. We have made our usual plants of trout fry in Taylor Creek and no doubt when the seasonal storms are normal and the creek discharges its usual amount of water into Lake Tahoe, the trout will enter the stream as in former years and in as great a number.

There were hatched and distributed from Tallac Hatchery during the



FIG. 14. Racks and trap on Taylor Creek, Lake Tahoe, April 1, 1922. Such temporary racks are utilized in securing black-spotted trout for spawning purposes.

last two seasons 1,318,000 trout fry. During 1922 we are hatching 800,000 eggs. The troughs at this station need renewing and the station needs a general overhauling and many needed repairs.

UPPER TRUCKEE RIVER EGG-COLLECTING STATION.

In the fall of 1920, a trap and egg-collecting station was established on the Upper Truckee River, between the mouth of the Upper Truckee River and Myers Station. The station was built to collect black-spotted trout eggs of the variety known as the large lake trout which ascend this stream to spawn; also to prevent the fish from ascending the stream to its upper reaches, ultimately to be destroyed on descending the stream by the farmers and stock raisers damming the river to flood their meadow lands during the summer and fall. There does not appear to be any law to prevent landowners from placing temporary dams in streams to raise the water level so that it will run over the land on

either side of the stream and thus flood their cultivated lands. A law should be passed to prevent this method of irrigating as it is impossible to screen the water where it is allowed to pour over the banks of a stream for a distance of several hundred feet, to flood a piece of land.

The trap has been successfully operated during the spring of 1921 and 1922. One million eggs were collected and shipped to the different hatcheries.

UKIAH HATCHERY.

Ukiah Hatchery, the property of the town of Ukiah, has been operated under a lease for the last two seasons as in former years. This small station is a very valuable one for our purpose. It furnishes fry for the local district as well as providing for the eyeing of eggs collected at the Snow Mountain Egg-Collecting Station at Cape Horn dam on the South Eel River. The water at Snow Mountain Station is not fit for hatching or the eyeing of eggs as soon as the warm weather of the spring sets in. We are now negotiating with the trustees of the town of Ukiah for a lease for a term of years so that needed improvements can be made at this station. The state should own all its hatchery sites and not be compelled to operate on leased lands. The majority of the egg-collecting stations and small hatcheries are on leased land owing to the fact that the commission has not had the funds to purchase lands and water rights. The funds of the Commission have never been adequate to carry on the work of propagating fish and distributing the same and at the same time furnish money enough to purchase land and erect as many suitable hatcheries as the work demands. If the lease on Ukiah Hatchery can not be renewed, another site in that section will have to be selected as it is necessary that the Commission have a permanent hatchery in that section in which to hatch eggs collected in the South Eel River section. Of the eggs retained and hatched at this hatchery during the last season, there were 512,000 fry shipped to the applicants of this region.

SNOW MOUNTAIN STATION.

The total take of eggs at Snow Mountain Station during the two seasons covered by this report were 2,873,000 steelhead trout eggs.

The drought of 1920 and the excessive fishing in the lower reaches of the river caused a falling off of the number of spawning fish that reached the Snow Mountain dam. We are planning to have an increased take of steelhead eggs from this section as the stopping of commercial fishing in the lower reaches of Eel River will allow a greater number of spawn fish to reach the station and the holding of a portion of the water in Lake Pillsbury will give us an opportunity to raise rainbow trout for stock fish.

LAKE PILLSBURY.

This body of water was made by the Snow Mountain Light and Power Company constructing a dam across the South Eel River about twelve miles above Cape Horn dam. The dam is situated below the junction of the Rice Fork of the Eel River, Salmon Creek and the main South Eel River. The dam is over one hundred feet high and the

reservoir covers an area of approximately 2000 acres. This reservoir holds back the flood water of the river and will be used for developing electric power and irrigation. The water will be drawn down each season, except a portion that will be left in the bed of the reservoir next to the dam. There will be a basin left of from 50 to 80 acres, from 12 to 15 feet deep. In this basin the trout will enter as the water recedes from other portions of the lake.

This area will be ample to keep the fish in good condition until the lake begins to fill from the winter rains raising the streams flowing into the lake. During the spring months the eggs can be collected by catching the spawners as they ascend the three tributary streams. Traps and a small hatchery will have to be built to collect and handle the eggs. The tributary streams will have to be stocked with a number of rainbow fry each year to maintain the brood stock in the lake. Fishing should be prohibited in the lake as well as in the South Fork of the Eel River above the dam, Rice Fork of the river, Salmon Creek, as well as in one or two other small streams that empty into the lake for a distance of several miles from the lake, so that the streams can be used as a rearing ground for the trout fry that must be planted in these streams each season to maintain the breeding stock in the lake.

FORT SEWARD HATCHERY.

Fort Seward Hatchery was established in 1916 for the purpose of raising trout and salmon fry for the region covering northern Mendocino County, Humboldt County and western Trinity County. The hatchery has proven a success from the time it was established. The ever-increasing demand for trout fry in this district demonstrated that this hatchery was too small for the district to be stocked. During the fall of 1921 plans were made to enlarge the hatchery and make general improvements at this station. An addition was built on the hatchery building and forty troughs added. The hatchery now has a capacity of 100 troughs which if operated to the best advantage will furnish all the fry necessary for this district for a great many years.

A number of improvements were made since our last biennial report. A tram and cable line with a skip have been installed to convey fish egg cases and supplies to the hatchery as well as to transport fish cans from the hatchery to the railroad stations. This tram system is operated with a gas engine located in the hatchery. It has operated successfully and saved the expense of keeping and hiring teams to transport articles to and from the hatchery. The bridges leading to the hatchery on the roads from Fort Seward on one side and Alderpoint on the other, have been washed away and the only way the foreman and the hatchery employees have to get their supplies is by railroad and from the railroad station to the hatchery over the aerial tram system. Whenever funds are available, these roads should be placed in repair and the bridges rebuilt and an auto truck or team furnished this station. The Fort Seward Hatchery is one of the most important in the state as it has a large territory to supply with trout and salmon fry and has the only water supply on the line of the Northwestern Pacific Railroad that can be depended on to furnish suitable water for hatchery purposes all through the year.

During the two seasons covered by this report, there has been distributed from this hatchery 1,850,000 trout fry and 1,000,000 salmon fry, besides 1,375,000 trout fry and 2,000,000 salmon fry that are now being planted that will be reported in the next biennial report.

There was an epidemic among the fry at this station this season, caused by bacterial infection. The exact cause was not determined. The fish were given the best care possible and everything done to keep them in good condition. Laboratory examinations were made of the water from the creek and smears and water from the troughs, but too much time had elapsed between the time the trouble ended and the laboratory examination, to determine the cause. The opinion of those at the hatchery was that the trouble was caused by the carcasses of a couple of deer decaying in the creek above the hatchery supply. The decomposition of animal matter in the water will often cause trouble among the fry at the hatchery. After the loss, caused by the affection among the fish, the remainder of the fry were shipped out in good condition.

BROOKDALE HATCHERY.

All the steelhead trout eggs collected at Scott Creek Egg-Collecting Station were transferred to this station as in former years. The usual number of eggs to supply sufficient fry to stock the streams of Santa Cruz County were hatched at this hatchery, and the remainder of the eggs were shipped to other hatcheries. The Brookdale Hatchery is the property of the county of Santa Cruz and is operated by the state under an agreement providing that half a million steelhead trout fry be hatched and planted in the waters of Santa Cruz County each season under the direction of the board of supervisors of the county. The building is getting old and the foundation is rotted. A new hatchery should be built on some other site in Santa Cruz County, where there is a larger supply of water. The water supply is not sufficient to hold the trout at Brookdale Hatchery as late in the season as they should be held, and a larger hatchery is desirable. An increase in the number of fish to be planted in this section is very important to supply the demand of the anglers. If funds are not provided for the construction of a new hatchery in this section, a large sum will have to be spent in another year to repair and improve the old building, which the water supply does not justify.

SCOTT CREEK STATION.

This station which has been leased from Santa Cruz County was purchased by the Fish and Game Commission during the fall of 1920. The site was purchased from Mr. Gianoni and the county of Santa Cruz relinquished their rights to the cottage, tanks, traps, dam, etc. This gives the state full control of a very good egg-collecting station, where an average of 2,000,000 steelhead trout eggs are taken annually. This was a good investment for the state as Scott Creek has been set aside as a fish preserve by the legislature, thus insuring a permanent supply of eggs for that district. There was collected during the two seasons covered by this report, 4,200,000 eggs.

ALMANOR HATCHERY.

This hatchery, located near the outlet of Lake Almanor was abandoned during the fall of 1920. During the latter part of each season there was not sufficient water to operate the station successfully, as the Great Western Power Company uses so much of it for the domestic supply at their cottages, thus depriving the hatchery of its supply. The building was torn down and the troughs moved to Domingo Springs Station. The lumber was also used in making improvements at Domingo Springs.

DOMINGO SPRINGS STATION.

This egg-collecting station and hatchery has been successfully operated during the last two seasons. The rack across Rice Creek where the trap is situated was damaged by high water during the spring of 1920. New cribs were built and timbers for the main chord replaced and the rack and traps generally overhauled. This station furnished us with 3,500,000 rainbow trout eggs during 1920-1921.

WARNER CREEK TRAP.

During the fall of 1920, a rack and trap were placed in the mouth of Warner Creek. Warner Creek rises in Warm Spring Valley on the basal slopes of Mount Lassen and flows southerly to its junction with Rice Creek, the two streams forming the North Fork of Feather River, tributary to Lake Almanor. During the spring, the water in Warner Creek rises to a great height in the narrow canyon at its mouth. A large number of rainbow trout ascend this stream each spring. A permit was obtained from the Forest Service to erect a cabin and place a rack and trap in this stream. The high water made it difficult to operate at this place, but our crews managed to procure 896,000 eggs during the springs of 1921-1922. This station is located about five miles below Domingo Springs Station. There should be one large rack constructed across the North Fork of Feather River below the junction of Warner Creek and Rice Creek and all the work concentrated at one place. This will insure a large take of eggs each season and at the same time be more economical.

A lease for a hatchery site and egg-collecting station below the junction of Warner Creek and Rice Creek was procured from Curtis, Collins, and Holbrook Company three years ago, but as we have not had sufficient funds to construct the station, the work has been deferred until the financial condition of our Commission would permit the work being done.

CLEAR CREEK HATCHERY.

Clear Creek Hatchery and Egg-Collecting Station has been operated as in former seasons. The run of fish from Lake Almanor entering Clear Creek, a tributary of the Hamilton branch of the Feather River which has its mouth in Lake Almanor, still maintains a good run of rainbow trout despite the heavy fishing in the lake. Two million eggs were collected at this station and 600,000 fry hatched at Clear Creek Hatchery. The remainder were shipped to other stations. The traps and tanks were enlarged and plans are being made to enlarge the holding tanks and to

place more troughs in the hatchery. A cabin will be built for the accommodation of the help. This station can be improved so that several hundred thousand more eggs can be collected annually.

JOHNSVILLE EXPERIMENTAL HATCHERY.

This station was established during the spring of 1921. It is situated on Jamison Creek, a tributary of the Middle Fork of the Feather River, seven miles from Blairsdon on the line of the Western Pacific Railroad and two miles from the mining town of Johnsville. The site was selected on the property of the Plumas-Eureka Mining Company in a narrow valley lying between Eureka Peak and Mount Washington. The object was to establish a hatchery in this region to furnish fish for the South Fork of the Feather River, the Middle Fork of the Feather and their tributaries, South Fork of Yuba River and tributaries and the lakes in the Gold Lake region, as well as other streams along the line of

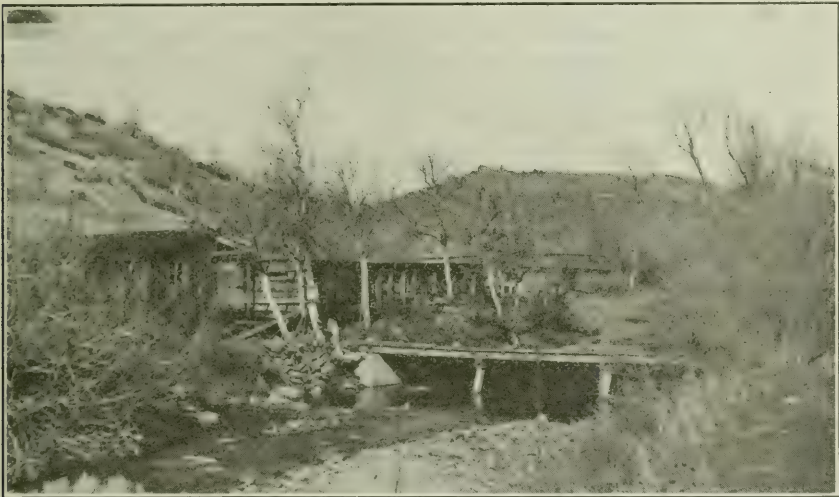


FIG. 15. Rack at Camp Creek, a tributary of the Klamath River, April 12, 1922. The Camp Creek Egg Collecting Station furnishes many thousands of rainbow trout eggs annually.

the Western Pacific Railroad. The hatching troughs, forty in number were placed in a tent and a temporary tank and flume for the water supply installed. This work was done under great difficulties owing to the depth of the snow. There were 689,000 rainbow trout fry and 111,000 steelhead trout fry distributed from this station. The rainbow fry did not thrive during the early part of the season. They were affected with a fungoid disease probably brought to the hatchery with some shipment of eggs. There was considerable loss among the fry for a time; but as the season advanced the fry improved and were planted in good order.

During the spring of 1922, when our men arrived on the ground to begin operations, the snow was from 12 to 15 feet deep on the level with great masses on the slopes of the adjacent mountains, threatening to come down in the shape of an avalanche at any time. The work of

shoveling out the snow and opening the station was an arduous one and one fraught with danger from the threatening snowslides. Mr. Doney and the foreman, Justin Shebley, after studying the conditions carefully recommended that after this season's operations, the temporary equipment be moved to a site at a lower altitude on a site easier of access to the railroad.

During the spring of 1922, 750,000 rainbow and steelhead trout eggs were shipped to the hatchery, but the work of getting the eggs from Johnsville and Blairsden over the deep snow on hand sleds was a very hard task. The eggs hatched in excellent condition and all the fry were planted in good condition. A suitable new site was found on the property of William A. Adams, on Sulphur Creek, where the snow does not fall so deep and where there is no danger of snowslides wrecking the building. A lease for this site was procured from the owners of the property and during the fall the cabin, troughs, tent frame, flumes and foundation will be moved to the new site and set up for next season's operations on a temporary basis. If the new site proves suitable, as it appears to from our study of conditions there, a permanent hatchery will have to be constructed with a capacity sufficient to furnish trout fry for the district mentioned above.

BEAR LAKE HATCHERY.

The new hatchery at Green Spot Springs, is known as the Bear Lake Hatchery. We have distributed from this station in Bear Lake and in the streams of San Bernardino County during the last two years, 2,228,000 trout fry. The eggs, in 1920-1921 were collected at the egg-collecting stations on the small tributary streams flowing into Bear Lake; viz., Metcalf Creek, North Creek, and Grout Creek. During the spring of 1922, owing to conditions prevailing at these stations, caused by extremely cold weather and low water, the spawning fish did not enter the creeks when they were ripe and ready to spawn, but congregated in schools off the mouths of the creeks where they remained until maturation had taken place in the ovaries, and when they did enter the creeks only a small percentage of the eggs could be fertilized, owing to the over-retention of the eggs. The average number was collected but owing to the small percentage fertilized, we were compelled to ship eggs from our northern California stations to furnish the Bear Lake Hatchery with its capacity number of eggs. Fishing has continued good in Bear Lake all season and if conditions are favorable, the usual number of eggs will be collected.

Reports have reached us several times during the last two seasons that someone had introduced black bass into Bear Lake without a permit from the Fish and Game Commission which is a violation of the law. No proof of this was had until a large mouth black bass was taken from the lake this summer. This is to be deplored, as the bass and trout will not thrive together in the same waters. In a few years, if the bass increase, they will gradually destroy the trout, and trout fishing in Bear Lake will be greatly diminished. The fishing for black bass will not take the place of trout fishing as bass will not bite in high altitudes except when the weather is favorable. The law against the introduction of fish into the waters of this state by private parties, without a permit,

should be made a felony. Incalculable damage may be done at any time by the owners of private fish farms and others who do not know anything about the habits of the fish they are handling, and care less, if they can but make a few dollars profit. We hope that the black bass will not thrive in Bear Lake, as there is every prospect that there will be good trout fishing in the lake if the limits and other laws are observed and the lake kept well stocked with trout fry each season.

NORTH CREEK EGG-COLLECTING STATION.

This station has been operated during the last two seasons as formerly. The run of trout during 1920-1921 in North Creek averaged about the same as during the two former seasons. There were 4,000,000 trout eggs collected during the two seasons covered by this report. 1,150,000 eggs were hatched and the resulting fry distributed as soon as they were swimming up well, which is the better way to plant fry in a lake such as Bear Lake where the water is shallow along the shores and where the large trout do not feed. There is an abundance of insects in Bear Lake so that the trout do not want for natural food. The fact that Bear Lake still affords good fishing for the anglers who visit it each season, is proof that this system of planting in Bear Lake is producing good results, as there are no natural spawning streams flowing into the lake in which the trout can spawn. The traps and tanks at North Creek Station were damaged by the flood water that came down the creek during December, 1921, as were all the traps at our egg-collecting stations on Bear Lake. These were temporarily repaired for the operations during the spring of 1922. Permanent traps with concrete foundations should be built as soon as the funds are available for this work. It will be more economical in the end than to be repairing damages caused by high water on traps that are not built on firm foundations.

METCALF CREEK TRAP.

This small station is an auxiliary of the North Creek Egg-Collecting Station. The same conditions prevailed at this place as are described for the North Creek Station. The trap was washed out during December, 1921, and temporary repairs made. This trap should have a concrete foundation and a different type of trap installed.

GROUT CREEK TRAP.

Likewise, the trap located on Grout Creek, one of the streams flowing into Bear Lake was washed out by the flood of December, 1921, and carried a quarter of a mile down the stream and deposited on the sand covered flat and there it was left when the flood waters receded. This trap was not used this season as the expense was too great to repair it or to build a new one.

WAWONA HATCHERY.

This hatchery has been operated during the last two seasons, with good results. During the fall of 1920, the troughs, foundations and tank, were renewed and repaired where it was found necessary. A bridge was constructed over the Merced River opposite the hatchery so that supplies could be delivered to the hatchery and the fish cans taken across

the river to the road without going over the almost impassable trail on the south side of the river. This bridge is a great improvement and facilitates the handling of fish and supplies at the hatchery. There was distributed from this station during the last two seasons, 690,000 fry. A cabin or small cottage should be built at this hatchery as the foreman has to live in a tent or board at the Wawona hotel, three-quarters of a mile from his work, which makes it inconvenient for him. Someone should live near the hatchery during the time the fish are being hatched and distributed.

KAWEAH HATCHERY.

The Kaweah Hatchery has been operated in a tent for the last three seasons as there has not been money enough in our funds to construct a permanent hatchery according to the plans submitted by the state architect. The fry that have been hatched at this hatchery were a strong, healthy lot, proving that the water is suitable for hatchery purposes. Plans should be made to construct a permanent building at this site as the demand for trout in the Sequoia and General Grant National parks and other sections of Tulare County and streams in the high Sierras east of this section, is very great. This station should be improved as soon as possible.

BRANSCOMB EXPERIMENTAL EGG-COLLECTING STATION.

During the summer of 1921, leases were procured for the sites of three traps and a temporary egg-collecting station on the South Fork of Eel River, Kinney Creek and Charlie Creek, tributaries of the South Fork of Eel River. Traps were installed and cabins of rough boards built for the accommodation of the men. A tent frame was erected on Kinney Creek and twenty hatching troughs set up. The work at this station was undertaken to determine whether a sufficient number of salmon and steelhead trout eggs could be collected in this branch of Eel River to supply Fort Seward Hatchery with salmon eggs to keep up the greatly depleted run of salmon in Eel River as well as to collect steelhead trout eggs to supply Eel River and other streams where the demand for steelhead trout fry is very great. The traps were installed during the summer and fall of 1921, and everything put in readiness to collect eggs if the salmon should run in such numbers as they did in former years.

Owing to the excessive fishing in the lower reaches of the river and the extremely low water in Eel River at the time that the salmon should have ascended the stream, no eggs were collected. During the spring there was such high water in these creeks that attempts to collect steelhead trout eggs were practically out of the question.

FISHWAYS AND SCREENS.

During the period from January, 1920, to June 30, 1922, the inspections of screens and fishways has been carried on efficiently. We find that there is less opposition in installing fishways and screens than when the work was first begun. The only ones to resist the law until threatened by injunction proceedings are some of the large hydro-electric companies, who do not want to comply with the law as they fear that if they construct fishways they will have to give up some of the

water to operate the fishways properly and maintain the fish below their dams. The amount of water that is necessary to comply with the fishway law, during the minimum flow of water in the late summer and fall is not great enough to work any damage to the power companies.

During the spring and late fall when the fish are ascending the streams to spawn there is ample water for all purposes. All that is required during the minimum flow is that enough water be allowed to pass through the fishway, culvert, over or around the dams to maintain fish life below them.

Following is a list of fishways surveyed and inspected for repairs or alteration by inspectors since our last report.

SURVEYS AND INSPECTIONS OF FISHWAYS.

January 14, 1920. The new dam at Mendota, known as the Mendota Weir, property of Miller & Lux, Incorporated, inspected.

January 15, 1920. Campbell Weir, property of San Joaquin Valley Farm Land Company, San Joaquin, surveyed. Stimson Weir owned by Zalta Irrigation Company, Fresno, surveyed.

January 27, 1920. Folsom fishway inspected with G. N. Bergren, engineer, and A. Lindstrom, carpenter foreman. Repairing of seven pools that required it, and the flashboards required to put fishway in working order arranged for.

January 29, 1920. The P. M. Doyle dam, Truckee River, surveyed for a run-around fishway at south side of stream.

February 3, 1920. Fishway of Western States Gas and Electric Company on South Fork of American River at Chute Camp, ten miles above Placerville, El Dorado County, inspected.

February 10, 1920. Fishway of Crocker Hoffman Company, Merced River at Snelling, Merced County, inspected.

May 12, 1920. Dam of Red River Lumber Company, Hamilton branch of Feather River, Plumas County, surveyed for fishway.

June 18, 1920. Dam in San Lorenzo River, tributary of Salinas River and owned by San Lorenzo Ranch, inspected.

June 30, 1920. Dam of Anderson Cottenwood Irrigation District on the Sacramento River, at Redding, Shasta County, inspected. Affidavit filed with District Attorney Carter.

July 6, 1920. Dam of California Fruit Exchange in Grey Eagle Creek, Plumas County, and dam in Long Valley Creek owned by Murphy Lumber Company at Sloat, surveyed.

July 14, 1920. Fishway at Boca Dam, Little Truckee River, owned by the Union Ice Company, inspected.

Fishway of Truckee Lumber Company dam in Truckee River at Truckee, Nevada County, California, inspected, and the Union Ice Company dam at Prosser Creek in Nevada County, surveyed for fishway.

July 24, 1920. Philadelphia Dam in South Stanislaus Creek, Tuolumne County, which is owned by the Pacific Gas and Electric Company, surveyed for fishway.

July 25, 1920. Relief Dam, Relief Canyon, tributary of Stanislaus River, Tuolumne County, and owned by the Pacific Gas and Electric Company, inspected.

July 25, 1920. Pine Crest Dam on South Fork Stanislaus River which is used as storage and owned by the Pacific Gas and Electric Company, Tuolumne County, inspected.

July 26, 1920. Sand Bar Dam on Middle Fork Stanislaus River, Tuolumne County, which is owned by the Pacific Gas and Electric Company of San Francisco, surveyed.

August 4, 1920. Fishway at Mendota Weir, San Joaquin River of Fresno and Madera Counties, inspected.

August 5, 1920. The dam of East Side Canal Company on San Joaquin River, San Joaquin County, surveyed.

August 16, 1920. Kerckhoff Dam, which is owned by the San Joaquin Light and Power Company, Fresno, and San Joaquin River below dam, inspected.

August 17, 1920. Adit 1 San Joaquin River, owned by the San Joaquin Light and Power Company, Fresno County, inspected.

September 15, 1920. Dam in upper Truckee River owned by Wm. Barton, El Dorado County, surveyed. Dam in upper Truckee River owned by J. D. Kyburz, El Dorado County, surveyed.

December 28, 1920. Dam of Anderson-Cottonwood Irrigation District at Redding, inspected.

January 1, 1921. San Clemente Dam in Carmel River, Monterey County, owned by Del Monte Properties Company, inspected.

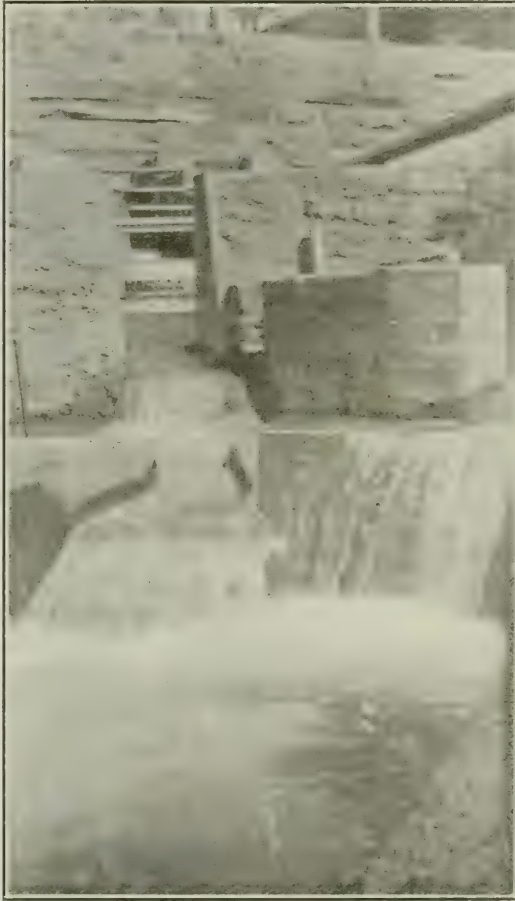


FIG. 16. A steelhead trout on its way up the fishway on the Folsom Dam in El Dorado County, proof of the satisfactory working of the fishway designed by the Fish and Game Commission.

February 11, 1921. Dam in Novato Creek, Marin County, owned by Marin Meadows Ranch, inspected.

May 24, 1921. Verdi Power Dam, in Truckee River, Washoe County, Nevada, owned by Verdi Power Company, inspected.

May 24, 1921. Mogul Dam in Truckee River, Washoe County, Nevada, owned by Truckee River General Electric Company, surveyed. Fishway for Hyland Dam in Truckee River owned by the Reno Light and Power Company, Washoe County, Nevada, surveyed. Electric Light Dam, Truckee, owned by Reno Power and Light and Water Company, Reno, Washoe County, Nevada, inspected.

May 25, 1921. Fishway at Derby Dam, Washoe County, Nevada, owned by U. S. Government, inspected. Indian Dam, Numana, Washoe County, Nevada, owned by U. S. Government, inspected.

May 27, 1921. Taylor Creek Dam. Taylor Creek, El Dorado County, owned by Anita Baldwin, surveyed. Ditch to Wm. Tevis place. Dam at Blackwood Creek where trap was washed out, inspected.

May 29, 1921. Fishway at Truckee Lumber Company dam in Truckee River, Nevada County, which is owned by the Truckee Lumber Company, inspected. Dam of Polaris Ice Company, Truckee River, Nevada County, fishway of Truckee River Electric Light and Power Company, owned by P. M. Doyle, Nevada County, and dam of Pacific Fruit Express Company, Donner Creek, Nevada County, inspected.

June 13, 1921. Dam in Little River, Humboldt County, which is owned by Little River Redwood Company, at Bullwinkel, surveyed.

June 27, 1921. Dam in Hat Creek, Shasta County, which is owned by Pacific Gas and Electric Company, surveyed. Dam No. 2 in Hat Creek, Shasta County, owned by Pacific Gas and Electric Company, surveyed, for fishway at rapids.

July 26, 1921. Page Dam in Los Gates Creek, Santa Clara County, inspected.

October 13, 1921. Dam in Sugar Pine Creek, Tuolumne County, owned by E. O. Sylvester and F. D. Nowell, surveyed.

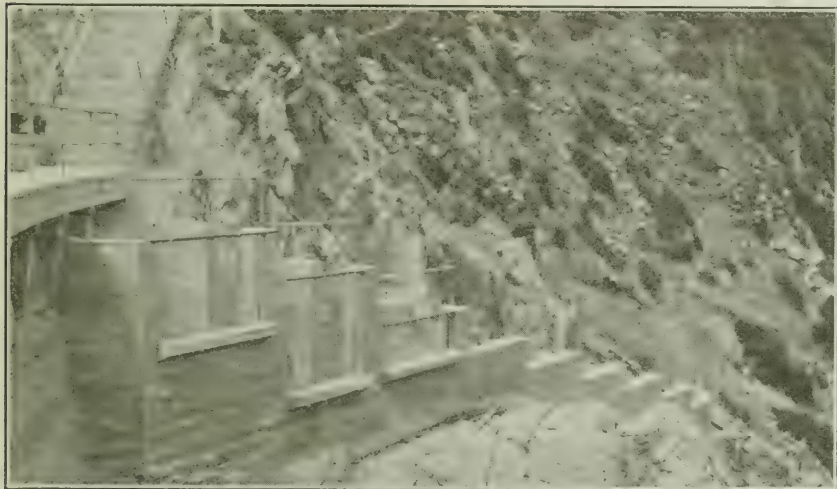


FIG. 17. Fishway at San Clemente Dam on the Carmel River in Monterey County, a fishway recently completed. Photograph by A. E. Doney.

November 4, 1921. Dam on South Fork of American River which is owned by Western States General Electric Company of Stockton, inspected.

November 17, 1921. Fishway over Capay Dam, Yolo County, which is owned by Yolo Light and Power Company of Woodland, surveyed.

December 2, 1921. Salmon Falls Dam in American River, which is owned by Natomas Company, inspected.

January 4, 1922. Indian Dam and outlet of Truckee River which is owned by the U. S. Government, Washoe County, Nevada, inspected.

April 31, 1922. San Clemente Dam in Carmel River, Monterey County, owned by the Del Monte Properties Company, inspected.

May 15, 1922. Ponds and streams at State Industrial Home, Sonoma County, inspected.

June 3, 1922. Dam in Little Chico Creek, Butte County, owned by H. M. Baker, surveyed.

June 15, 1922. Dam at Redding in the Sacramento River, owned by the Anderson-Cottonwood Irrigation District, inspected.

June 19, 1922. Dam on Browns Creek, Trinity County, owned by Robert Gibson, inspected. Dam in Hay Fork River, Trinity County, owned by John Enos, and dam in Hay Fork River, called the "Trow dam" owned by John Enos, Trinity County, surveyed.

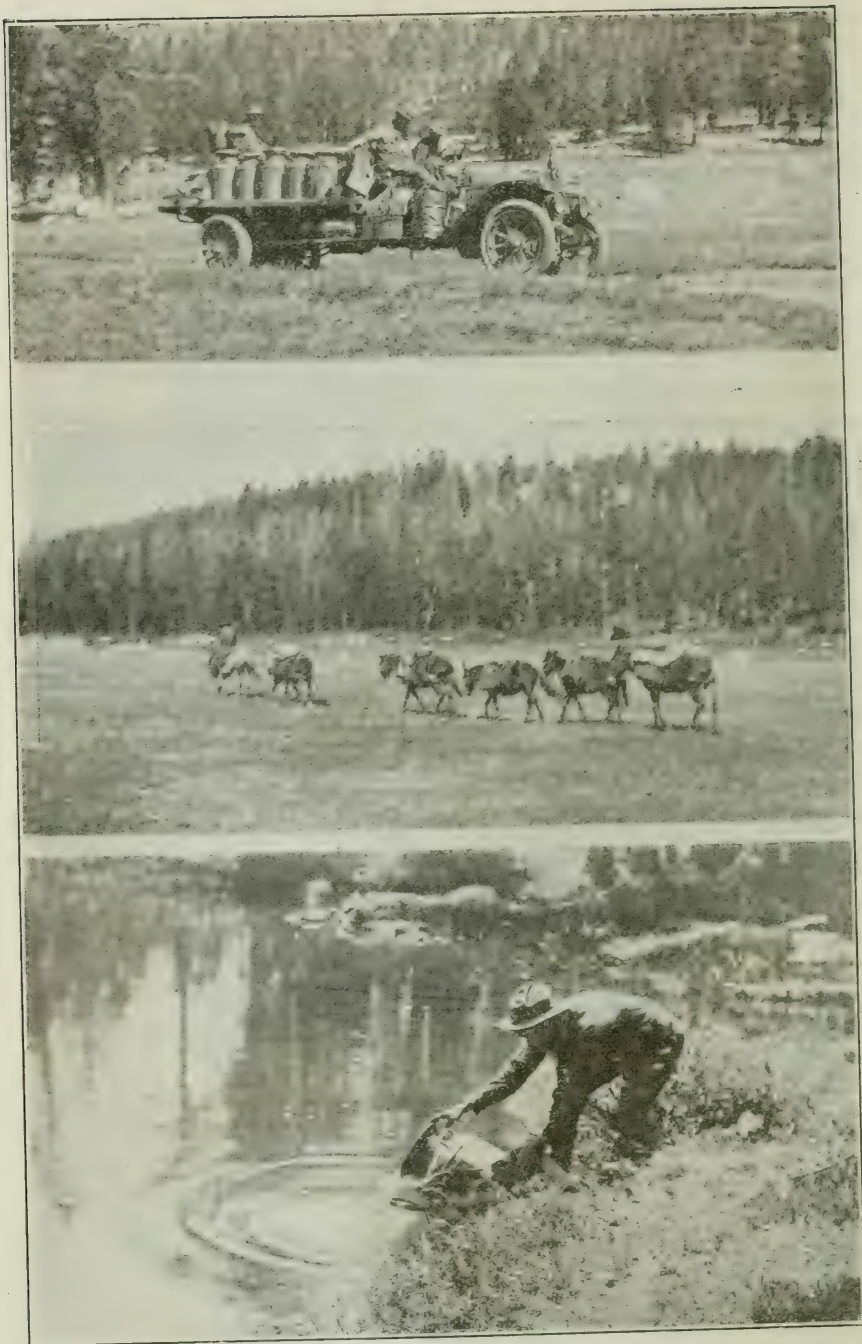


FIG. 18. Planting trout in Yosemite National Park. Many fish before reaching the streams must journey by rail, by motor truck and by pack train. Photographs by H. C. Bryant.

June 29, 1922. Dam in East Fork Carson River, Nevada, owned by Douglas Milling and Power Company, Douglas County, Nevada, and the Curtz Dam in East Fork of Carson River, Alpine County, owned by Peter Curtz, inspected.

June 19, 1922. The Hercules dam in East Fork of Carson River, owned by the Hercules Mining Company of Reno, Nevada, surveyed.

July 2, 1922. The fishway and dam of the Crown Willamette Paper Mill Company, Floriston, Nevada County, inspected.

July 2, 1922. Dam and fishway of the Truckee River General Electric Company, Reno, Nevada, in Nevada County; dam and fishway at Wicks Spur, Truckee River, Nevada County, owned by the Union and National Ice Company, and dam on Prosser Creek, Nevada County, owned by the Union Ice Company, inspected.

July 18, 1922. Dam and fishway of Anderson-Cottonwood Irrigation District at Redding, Shasta County, inspected.

July 22, 1922. Dam in Lost Creek, Butte County, owned by the South Feather River Land and Water Company of Butte County, and the dam on South Fork of Feather River, owned by the Palermo Land and Water Company, Butte County, surveyed.

July 25, 1922. Fishway over dam of the Sutter-Butte Canal Company, Feather River, Butte County, inspected and surveyed.

Total inspected, 41.

Total surveyed, 28.

SCREEN SURVEYS AND INSPECTIONS.

The surveys for installation of screens in ditches, canals, pipes and flumes has been carried on systematically during the period since our last report. From July 1, 1920, to July 1, 1922, 187 surveys for screens were made and 254 notices served on owners or occupants of ditches to install screens. It often happens that a ditch or canal is owned by several persons cooperating in the use of the water and in maintaining the ditch or canal, but not a legal or incorporated body and it is necessary to serve each individual with a notice to compel them to build the screens and to pay their proportion of the installation.

Eleven hundred and eight inspections of screens were made during the period since our last report. A number of ditches and canals had to be inspected several times to get the data and to see that the screens were installed and after they were installed to see that they were kept in repair or in efficient condition. Twenty injunction suits have been filed by our attorney against ditch owners who have not complied with the screen law. Several of these have been settled by the owners carrying out the plans and instructions given them. The other cases are in the hands of the district attorneys of Trinity, Butte, Tehama, Alpine, Mono and Inyo counties. A number of large canals have been screened during the last two years. The most important of these, is the canal of the Glenn-Colusa Irrigation District, where a screen of the pivotal type 238 feet long by 11 feet in depth, built in sections, each unit so arranged that it can be reversed and the debris allowed to escape with the current, has been installed. Reclamation District 2047 in Colusa County has installed two screens of the De St. Maurice type over their two nine-foot pipes leading from their pumps. During the past six months, the Pacific Gas and Electric Company has built and installed a number of rotary screens in Stanislaus, Butte and Tehama counties.

COOPERATION WITH THE DIVISION OF WATER RIGHTS.

We again respectfully recommend that legislation be passed that will arrange for the cooperation and coordination of the Division of Water Rights with the Fish and Game Commission in regard to the appropria-

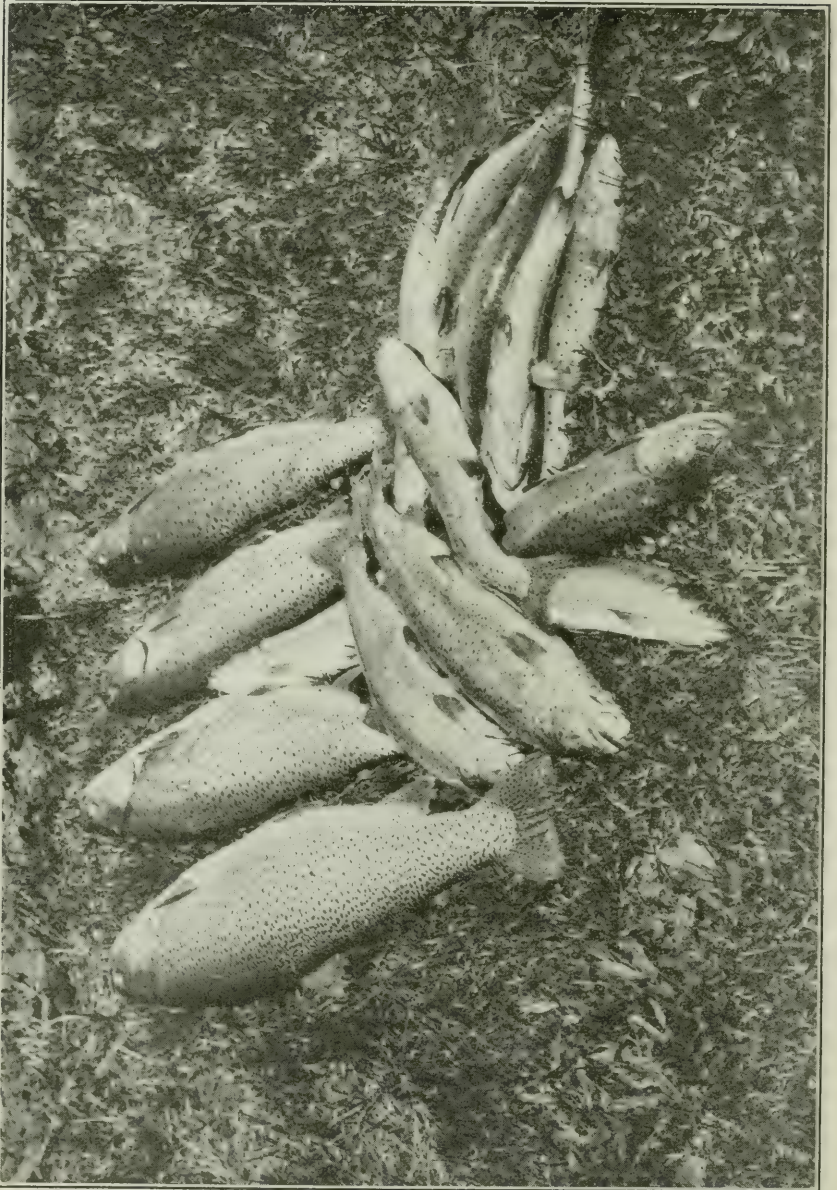


FIG. 19. Catch of Tahoe black-spotted trout. Photograph by Leon Greenbaum.

tion of waters. We made this recommendation in our last biennial report, but it was unheeded by the legislature and Water Commission.

The Division of Water Rights should be compelled to allow enough water to remain in our streams during the period of minimum flow to maintain the fish life below all diversion points on the rivers and streams. In the mad scramble for the appropriation of water for irrigation and the development of hydro-electric energy, no attention is paid to the fish life, which can be conserved without injury to other interests, if a little good judgment is used in granting appropriations. The rights of the people to enjoy fishing both for food and pleasure should be safeguarded before it is too late. No stream should be entirely diverted.

The Water Commission or the Division of Water Rights has allowed the appropriation of the entire flow of streams without any consideration being given to the fishing interests. Those interested in conservation are indifferent to these vital problems. After the water is all appropriated and the streams are dried up below the diversion points, then they complain that the Fish and Game Commission has not done their duty. We have repeatedly made recommendations that are for the best interests of all the people, but they are unheeded.

RECOMMENDATIONS.

We respectfully recommend the following to be acted on as soon as possible if the work of this department is to keep up with the progress of the rest of the state. An increase of the anglers' license sufficient to enable us to maintain the hatcheries now in existence in the state and to improve and construct others in different sections where the demand for hatchery work is greatest, and the construction of two or three more pond systems for the rearing of trout for breeders to insure at least 25,000,000 eggs annually from pond-reared fish is necessary if we are to meet the demands for trout fry. This is necessary to supply the streams and lakes until a greater demand is made by the increasing population of the state.

That the Klamath River be set aside as a fish preserve from Klamath to its mouth and that no dams be allowed to be constructed in the river below the egg-collecting station at Klamath. This measure would enable the Fish and Game Commission to collect salmon eggs for the maintenance of the salmon supply in the Sacramento River, San Joaquin River and Monterey Bay. The Klamath is the one remaining stream in which the chinook salmon can spawn as well as where salmon eggs can be collected for the purpose of propagation in numbers sufficient to justify extensive operations. There are enough power plants constructed and plans made for others on the tributaries of the Sacramento and San Joaquin rivers to furnish power for many years to come without interfering with the salmon run in the Klamath River. We would also recommend that wherever dams for the development of hydro-electric energy or irrigation are constructed which interfere with the movements of spawning trout or salmon and where in the judgment of the Fish and Game Commission, it is necessary to construct hatcheries in lieu of fishways, that the owners or occupants of such dams, be compelled to furnish the Fish and Game Commission with the money necessary to operate such hatcheries, the amount neces-

sary to be determined by an estimate submitted to the State Board of Control. It is only right and just to the people that those who are benefited by the appropriation of water and by the construction of dams that are impassable to fish and over which efficient fishways can not be built owing to the great height of the dams, furnish the money to operate the hatcheries that must be established to save the run of fish. These hatcheries should only be built where conditions are favorable for the propagation of fish.

The law relating to the Division of Water Rights should be amended so that an appropriation of all the water in a river or stream would be impossible. A sufficient flow of water should be allowed to flow in the bed of our rivers and streams during the period of minimum flow to maintain fish life below all dams.

The fishing season should be shorter in certain districts.

The spearing of trout should not be permitted in any district.

The distribution of trout fry should be improved by the employment of experienced fish planters. Under our present system we have not money enough in our funds to keep men skilled in this work employed the year around. Consequently the crews, excepting the car superintendents are generally inexperienced men that are employed to assist in this work each season when the distribution begins. Then in the fall, when the season's work is over they are laid off and generally find other employment before the next season. The fish planting operations could be greatly improved if experienced men were kept for this purpose who would make a special study of this work. This can only be done when adequate funds are provided to employ these men at the hatcheries and on the distributing cars, the year around. Some of the sportmen's clubs are employing men who are making a study of fish planting and the results are gratifying. If all the instructions given in our instruction sheets were carried out by the applicants, this would not be necessary, but a number of the applicants disregard the instructions given to them and the fry are not always planted to the best advantage.

The present law preventing the planting of fish in any of the waters of the state should be amended so as to make the act an indictable misdemeanor triable in the superior court and the penalty made very severe. The introduction of undesirable or predatory species of fish into waters where game and food fish are liable to be destroyed, should be safeguarded against as much as possible.

A systematic survey of the lakes and streams of the high Sierras should be made by a competent entomologist under the supervision of the Department of Fishculture to determine the proper aquatic insects and plants to be introduced to furnish a more abundant supply of food for the trout. We have successfully introduced the large salmon fly (*Corydalis*) in the Tahoe region and have made attempts to introduce scuds or gammarus in some of the other lakes, but to make this work a success, a careful study of the insects and aquatic plants in each region should be made to find out where new species can be introduced to improve the natural food of the trout.

Respectfully submitted.

W. H. SHEBLEY,

In charge Department of Fishculture.

REPORT OF DEPARTMENT OF COMMERICAL FISHERIES

The Honorable Board of Fish and Game Commissioners of the State of California.

GENTLEMEN: In our last biennial report the rapid and spectacular growth of California's fisheries was reviewed; of how California had reached first place amongst the states in the size and value of its fisheries, with an annual catch of over 250,000,000 pounds and with a wholesale value as fresh fish and manufactured products, of over \$25,000,000. The tuna and sardine industries which were responsible for most of this increase were experiencing a healthy growth prior to and during the early period of the great war. Upon our entry into the war our fish packers responded to the government's call for an increased production of food by putting up an enormous pack of sardines in pound oval cans. Many new canneries were built and nearly all of those already in existence were enlarged. The pack of sardines in 1918 was about a million and a half cases, requiring a catch of 150,000,000 pounds of fish. Our fishermen made increased catches of sardines without increasing their price and the canners in turn were able, through increased production, to sell to the people for even less than before the war. As far as we know the only food product which did not increase in price during the war was California sardines. Our canners and fishermen are deserving of credit for that.

Much of this great output of sardines, instead of going into consumption in this country and especially in Europe as was intended, was held by jobbers and others in this country for speculative purposes. With the fall of prices in 1920 and the collapse of foreign exchange our canned fish, instead of reaching foreign markets as was intended, was left in this country. Our sardine packers were especially hard hit for the reason that this country is as yet a rather poor market for sardines. Our packers of tuna suffered in the same way and all lost heavily as they were compelled to sell the large stocks they had on hand for less than the cost of packing.

The past biennial period has been one of readjustment with our fishing industries. It was dangerous to put up large packs during a period of falling prices. It was necessary to dispose of the goods on hand and to wait until the stocks hoarded by speculators had been largely consumed.

Some of our canners have failed financially while most of them have had a desperate struggle to weather the storm. The output of the fisheries has naturally been much reduced. This was expected. The present year of 1922 has been one of rather rapid recovery and it now seems quite certain that much of the ground gained during the period of expansion is going to be held, and that the industry will continue on a much higher level of production than existed at the beginning of the war. Until rates of exchange will permit them to again sell in foreign countries our canners have turned their attention, with considerable success, to enlarging the market of tuna and sardines in this country. The demand for California canned tuna was the first to revive and canners are endeavoring to pack all of these fish they can

get during this season of 1922. So far they have failed to get as many fish as they would like. This has been most disappointing for they were depending on profits from a good tuna pack to help offset the losses of last year.

The long-finned tuna or albacore, which is known by the trade name "White meat tuna," is found within a very narrow range on the west coast of North America and it is not likely that this fishery can be expanded much beyond its present dimensions. In fact certain phenomena have developed which may indicate depletion and these are causing us to watch this important fishery most carefully. We feel confident, however, that the other varieties of tuna will support a larger industry than they have been called upon to supply in the past. Our larger fisheries, with the exception of salmon, are of quite recent origin and it is believed that none of them with the exception of salmon and possibly albacore, have been fully developed. It is to be expected our sea fisheries will grow and that our sardine industry will surpass the importance it reached during the war.

As has been pointed out in former reports, the primary and almost the sole duty of this department is to look out for the conservation of our fisheries, so as to safeguard this valuable resource of the state against overfishing and, as far as possible, to keep our fisheries up to their highest stage of usefulness. The law is very definite in stating that it is the duty of the Fish and Game Commission to carry on such investigations as are necessary to determine the real abundance of our principal commercial fishes; to collect accurate data which will show natural fluctuations in abundance as distinguished from those due to overfishing; to make recommendations to the legislature for the conservation of the fisheries and to enforce the conservation laws which the legislature passes. These duties, delegated mainly to this department, we have carried out to the best of our ability with the funds which are available for the purpose.

SALMON FISHERIES.

We first take up the subject of salmon for, while the salmon fisheries of the state are not of first importance economically, they are of first importance from the standpoint of conservation. The salmon in this state are most urgently in need of greater protection if we are to prevent their commercial extinction. The need of better protective measures has been urged at each session of the legislature, but the measures passed have been inadequate and far short of our recommendations. In our report of four years ago it was pointed out that the development of salmon trolling in the sea, together with the more intensive fishing in the rivers, and the shutting off of salmon from their spawning beds in the rivers by power and irrigation dams, made it absolutely necessary that radical fishing restrictive measures be adopted. Very little was accomplished at that session. In fact, salmon conservation on the Sacramento River went backward instead of forward, for Sacramento River fishermen had a bill introduced in the legislature which proposed to open up the main fishing grounds (District 12b) for salmon fishing during the general closed season of June and July. A compromise was finally arrived at under which June and

July were to be kept closed but the continued use of trammel nets was to be permitted in the district during open seasons, a concession which had been granted as a war measure by the United States Food Administration. That part of the law which provided a closed season of June and July in District 12b was later attacked by counsel for the fishermen who claimed that the section of the Penal Code which describes the kinds of nets which may be used, permitted the use of gill nets of certain mesh in the district during June and July. The case was finally decided in favor of the fishermen, Judge McKenzie of the superior court of Contra Costa County deciding that laws restricting the right to fish must be clear and without ambiguity. The final result was that salmon were getting less protection than ever.



FIG. 20. State Fisheries Laboratory, East San Pedro, California. It is here that important research work on the commercial fisheries is being carried on by a staff of scientists. Photograph by W. F. Thompson.

At our request a bill was introduced at the 1921 session of the legislature which proposed to give the Sacramento salmon a fair measure of protection. It provided that salmon netting be eliminated in the river above the city of Sacramento; that the months of June and July be closed to conform to the season already provided for striped bass and shad; and that the fall season be closed on September 15th instead of the 25th. Closed seasons were also provided to curtail the catch of salmon in sea trolling. The measures finally adopted were inadequate. Fishing in the upper Sacramento continues; the months of June and July are still open and the closed seasons adopted for the outside trolling districts were cut down so as to give but little protection. The only salmon measure of importance adopted was closing the fall season on September 17th, eight days earlier than before.

Since that time the salmon catch in Monterey Bay and in the San Francisco and Sacramento River regions has decreased most alarmingly, so that most of our fishermen and fish dealers are now agreed that something must be done if we are to save the salmon. The

number of salmon has been so greatly reduced that it is not very profitable for the fishermen to fish either in the open sea or on the Sacramento River so that now many are arguing that fishing be stopped entirely either in the sea or in the river. The policy of the Fish and Game Commission, which has been to keep both forms of fishing and to preserve the salmon by restricting the fishing in both of these regions, is no longer tenable for the reason that the startling decrease of the past two years in the abundance of salmon has now made it necessary to so restrict the catch that it would not be profitable for either the sea fishermen or the river fishermen to operate if the catch must be divided between the two places. It would seem necessary under these circumstances to follow the lead of Washington and Oregon and eliminate the catching of salmon in the sea. The chief argument against outside trolling is that many immature salmon are caught by that method and that the fish being full of feed are difficult to market in the best of condition.

It will also be necessary, in our opinion, to adopt radical protective measures on the Sacramento River even if outside trolling is stopped. Any protection given the salmon outside will result in more intensive fishing inside and a sufficient number of salmon would not escape the nets and reach the spawning grounds unless inside fishing is also restricted. The closed seasons inside are not sufficient even now and the distance fishing as permitted up the river is entirely too great. For the protection of salmon as well as of striped bass and shad, we recommend that net fishing be prohibited above Rio Vista; that there be adopted a closed season from May 15th to July 15th, and that the use of trammel nets and "diver" nets be prohibited in the river.

Power and Irrigation Dams a Menace to Salmon. Salmon at maturity leave the sea and ascend streams nearly to their source where the two sexes pair off and the female deposits her eggs in a crude nest where they lay buried in the gravel until they are hatched. In the Sacramento River tributaries it takes the eggs about two months before the embryo breaks from the egg. It is about a month more before the yolk of the egg is used up by the embryo and it is necessary for it to seek other food. It then emerges from the gravel and feeds upon insects and whatever other food it can find in the water. Within a year it drifts down the stream and passes out to sea where it remains until it has reached maturity three or four years later. It then ascends its native stream, as its parents did before it, for the purpose of reproduction.

It can plainly be seen that if salmon are to be saved from extinction they must not only be saved from the fishermen's nets, but they must be able to ascend their parent streams in sufficient numbers to perpetuate the race and the young after hatching must be able to pass down the stream into the sea. Any dam or artificial obstruction in the river will, if high enough to prevent the salmon from leaping over, prevent the salmon from reaching the spawning grounds in the headwaters. If the young salmon, in their migration to the sea are permitted to pass into irrigation ditches and thence on to the land where they would die; or if they are permitted to pass through the turbines or power plants where they would be killed, the future supply of salmon in that par-

ticular river would be destroyed. It is possible under ordinary conditions to keep the young salmon out of diversion ditches by means of screens, and it is possible under ordinary conditions to construct fishways on dams so that salmon and trout in their up stream migration may pass. But within the past few years we have been facing conditions in this state which are not ordinary. Dams are being constructed for the purpose of developing power which are far too high for a salmon to pass over by means of any fishway which has so far been devised. Fortunately the first of these high dams have been built in tributaries where, although their effect on the salmon has been serious, they have blocked the salmon from reaching only part of the spawning beds in the watershed. The streams which the salmon choose are those which have a good summer flow, just the ones which are the most valuable for the development of hydro-electric energy. Electric power companies are now seeking to get concessions from the state and federal government to construct high dams on a greater scale than heretofore attempted and these dams they propose to build in the main rivers where they will obstruct most of the salmon and prevent them from reaching their spawning grounds. The attitude of these companies appears to be: If the spawning migration of salmon can not be gotten above these dams and the young after hatching can not be gotten safely down past the dams, the salmon will have to go, for the electric power is worth more in dollars than the salmon. At first thought this seems a reasonable view to a good many people, but a good deal can be said on the other side. The fish happen to be one of the things which still belong to the people of the state and it is very doubtful if the people's right in the fisheries can be taken from them even by an act of the state legislature and it certainly can not be taken from them by the federal government.

The state should not permit the extermination of these fish just because more money can be made out of the stream if the water is used for other purposes. We are not altogether sure that the salmon can not be gotten over these high dams and the young gotten down again but it is not up to the people to go all the way in demonstrating how this can be done. Those wishing to use the water are the ones to demonstrate how the water can be used for power or irrigation without destroying the salmon. This should be an actual demonstration on dams now existing and should not be tried out as an experiment on dams to be constructed in the future. The expense of these experiments should be borne by the power companies, and they should also bear the expense of the future operation of the fishways and screens. If hatcheries are operated to offset the damage caused by one of these dams the company should not only build and equip the hatchery but should bear the expense of its future maintenance.

SALMON INVESTIGATIONS.

It requires no research by trained men to determine if the salmon in our state are likely to become depleted by overfishing. The greatly reduced commercial catch of what may be called our Sacramento salmon, coupled with a corresponding falling off of the number of salmon which escape the hooks and nets and reach the spawning grounds in the river,

show us clearly that our salmon of the Sacramento are well on the road to commercial extinction. Salmon investigations have been carried on for the purpose of determining what protective measures should be adopted in cutting down the commercial catch. Another, secondary object of the investigations is to gain information which will throw light on the methods employed in artificial propagation; more especially on the question of when and where the young salmon should be liberated.

The salmon investigations are in charge of Prof. J. O. Snyder of Stanford University. He has one full-time assistant, Mr. E. A. McGregor, and has employed one other assistant during the summers.



FIG. 21. Photomicrograph of scale of salmon marked at the Mount Shasta Hatchery in 1917 and taken at Monterey, April 6, 1920. Length 73 centimeters. Numerals mark the end of the first, second and third years of growth.

Much work has been done in gathering data and material at the several salmon fishing centers. Much of the material has yet to be studied and analyzed. This material has at all times been gathered so that as far as possible it was representative of the commercial catch. An age analysis has been made of each season's catch through a study of the scale samples which have been systematically taken. This knowledge will be of invaluable assistance in devising closed seasons for the different sea trolling districts for the purpose of minimizing the catch of immature salmon.

It was hoped that through a study of the samples of scales collected it would eventually be possible to identify the salmon of any stream when

they are caught at sea. If this could be done it would then be a simple matter to determine what streams are furnishing the salmon which are being caught in any sea trolling district—a very necessary piece of information if we expect to regulate the sea or river fishing properly. It has been concluded that it will take a vast amount of work and a good deal of time before we can hope to identify the chinook salmon of any of our streams by the character of that part of their scales which was formed while they were fry in their native stream. It may never be possible to do this.

It has been decided that this knowledge can best be gained by marking given numbers of salmon fry of the different streams as they are liberated from the hatcheries. Several of these marking experiments have been carried out and the results have been so encouraging that a series of these experiments on a more extensive scale has been planned. It has been found from these experiments that salmon from the Sacramento River are caught in the sea by trollers from Monterey Bay, to Shelter Cove in Mendocino County. Just what proportion are caught in each of these widely separated trolling districts will not be known until more extensive marking experiments are carried out.

In the light of this slight knowledge gained it seems highly probable that the development of the Mendocino County salmon trolling, was largely at the expense of the Sacramento River salmon. It is quite certain that the large catch by trolling off the Mendocino coast came from sources other than our northern California streams, and we now can not help suspecting that the fishery was drawing heavily on the Sacramento River salmon supply. This suspicion is strengthened by the fact that the salmon catch off Mendocino and in the Sacramento have experienced the same slump during the last three or four years. It is very necessary that we know how much of the Mendocino catch is from the Sacramento if we are to properly regulate the sea trolling on the Mendocino coast. The question is of the utmost practical importance and serves well as an illustration of the practical value of investigation work.

A second lot of Sacramento River salmon fry were marked and liberated in the Sacramento two years ago. These fish will be in their fourth year next season and it is expected that captures of these marked fish will throw much light on the movements of the Sacramento salmon in the sea.

Klamath River salmon fry were marked and liberated in the Klamath three years ago. Some of these fish were recovered last year, when they were in their third year, after they entered Klamath River. These salmon were all mature males or "grilse." These marking experiments have been reported upon by Professor J. O. Snyder in past numbers of CALIFORNIA FISH AND GAME. This year the salmon which were marked on the Klamath River are in their fourth year, and individuals were captured by trollers in Monterey Bay, off Point Reyes, Eureka and in the Klamath River. The results of this season's work also will be reported in CALIFORNIA FISH AND GAME.

The first of a new series of marking experiments on the Klamath River, was started this year by marking and liberating 25,000 fry. Next year this number will probably be doubled, half of them to be liberated in the Mad River, the other half in the Shasta River, a tributary, in order to get additional light on the parent stream theory.

Funds Insufficient for Salmon Conservation Work. With the growing scarcity of salmon the Fish and Game Commission's salmon conservation work has had to be increased. This has necessarily been accompanied by an increased expenditure of money along this line. There is a necessity for increasing the salmon hatchery work as well as a necessity for increasing the salmon investigation and patrol work. The state spends annually more than \$25,000 in hatching salmon and the United States is spending a like amount in this state for the same purpose. The Commission desires to increase this work. Added to the hatchery work there is the expense of the salmon patrol and investigation work which amounts to more than twenty thousand dollars each year. The Fish and Game Commission receives no appropriation for this work but must finance it out of the revenue from commercial fishing licenses and the very small amount received from the tax on salmon which are canned or salted. The entire amount received from all commercial licenses sold in northern California together with the tax on salmon for canning and salting is not nearly sufficient to pay even the state's portion of the expense of salmon hatching, to say nothing of the patrol and investigation work which are equally necessary. The bulk of the salmon which are caught are used in the fresh markets and the fish which are used in the fresh markets are not taxed for conservation work. It will be necessary in the fight to save the salmon to increase the revenue for conservation work in the districts where the salmon work is being done. Fish used in the fresh markets should be taxed to furnish a revenue sufficient to carry on this very necessary work.

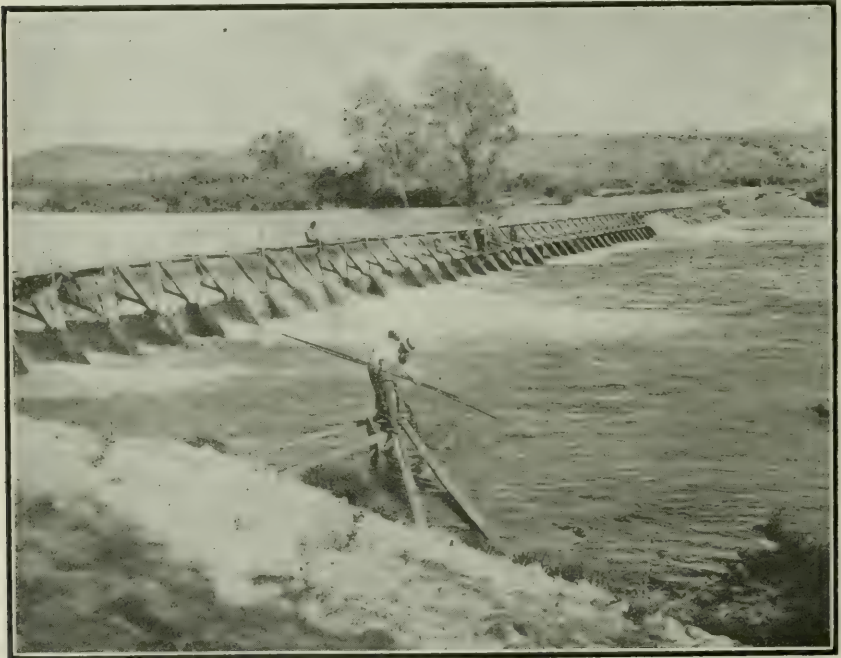


FIG. 22. The Redding Dam, which for several years acted as a barrier to migrating salmon. Better conditions now exist at the dam and some salmon succeed in passing. Photograph by E. A. McGregor.

STRIPED BASS DECREASING.

The annual commercial catch of striped bass in California shows a decrease of about fifty per cent since 1915 and along with this decrease in the commercial catch is a decided scarcity of bass in many of the haunts where both anglers and commercial fishermen formerly found them abundant. The present scarcity is most noticeable in most parts of San Pablo Bay and in the mouths of sloughs tributary to it. On the other hand striped bass are apparently more plentiful in some other places and good angling has been enjoyed in places where they had been caught only in very limited numbers before. There are some ardent striped bass anglers who believe that these fish are just as plentiful as they ever were. They believe that some of the sloughs have been fished out by anglers but that in most cases the bass have moved from their old haunts and have to be sought in other places. Commercial fishermen say that the bass are about as numerous as ever but that they have moved and that the best net fishing is to be found in places where the bass were formerly not so abundant.

Most bass anglers, however, are firmly of the opinion that the bass are not only less plentiful but that they are on the road to extermination. It is our belief after reviewing all the evidence that striped bass are not so plentiful and that they are being over-fished at the present time.

It should not be argued that the falling off of the commercial catch shows that the bass are being fished out by the nets and that there are less than half as many bass as in 1915. It is very much more likely that the fifty per cent decrease in the commercial catch is almost entirely due to the very good restrictive legislation which has been obtained through the efforts of the Fish and Game Commission and the commission's efficient enforcement of the protective laws.

The usual method of protecting fish against over-fishing is to restrict the catch and when efficient protective measures are adopted and enforced the resulting decrease in the catch should not be used as evidence that the fish are being exterminated. The scarcity of bass in some of their old haunts about San Pablo Bay we believe is largely due to the bass moving to other regions. This movement is largely due to the pollution of San Pablo Bay waters by the government's dredging operations about Mare Island and in deepening the channel from Mare Island to Pinole Point. Much dredging has also been done about the mouths of the more important sloughs. The continued stirring of the mud by dredging operations has caused the tides to carry great quantities of silt over the bay and into the mouths of the sloughs where it has settled to the bottom like a blanket and has pretty effectually killed the diatoms and other plant life which form the basis of the food supply of fishes. This condition was called to our attention by Dr. Albert Mann of the Carnegie Institute after he had made a diatom survey of San Francisco and San Pablo Bay waters. Dr. Mann was alarmed by the conditions he found in San Pablo Bay and stated that if we are to preserve our fisheries we will have to guard against the blotting out of diatom life by silt from dredging operations such as is taking place in our bays and rivers. There can be no doubt that the pollution of the waters by sediment from the dredgers has caused the bass to largely

abandon their old haunts about San Pablo Bay. Oil pollution may also be a contributing factor.

The best evidence that striped bass are being depleted by fishing operations is the growing scarcity of large individuals. This is one of the surest signs of depletion and very nearly every one agrees that there are fewer large bass. Striped bass need more protection but protection is more urgently needed in the case of the salmon. As these two fish in the San Francisco Bay region are caught by the same fishing methods and are to a large extent caught at the same time in the nets, it is necessary to protect both if we are to protect either, so striped bass and salmon protectionists are proposing to get together and aid the Fish and Game Commission in the better protection of the two fish.

CLAM INVESTIGATION.

Since our last report Fish Bulletin No. 4, entitled "The Edible Clams, Mussels and Scallops of California" by Professor F. W. Weymouth has been issued as a contribution from the State Fisheries Laboratory. This bulletin gives descriptions and illustrations of over forty species of California clams and scallops, which are likely to have a commercial importance, together with the localities where they are found, their abundance and the condition of the beds. There is a key which will enable any one to identify the species with but little difficulty. The methods of our shellfish industries are given, together with something of the habits of the more important species. Future possibilities of forming and extending the beds of the introduced soft-shell clam are discussed. The need of state control of the tide lands suitable for clam farming is also discussed. This is one of the best bulletins the Commission has issued and it has attracted considerable notice and favorable comment.

Since the publication of this bulletin Mr. Weymouth has been giving part of his time to the study of the Pismo clam, one of our most important mollusks. This work was first begun in 1919 while completing the survey for the bulletin above mentioned. A report on this work has been submitted and soon will be issued as a bulletin. Although the matter treated in the report is of high scientific value the layman will find it very interesting. It will give the life history of the clam; its habits, age, rate of growth and fluctuations in abundance. A census of the clams on the Pismo Beach, San Luis Obispo County, has been made each year, which shows a remarkable fluctuation in the success of each year's crop of clams. In that respect the bulletin will illustrate in a remarkably clear manner what is termed the natural fluctuations in the abundance of year classes, which in the conservation of one of our fisheries must be distinguished from fluctuations due to over-fishing. It was found that, with the exception of the year 1919, the spawning seasons of the past six or seven years have been comparative failures. The census of the clams on the beaches show that the clams of the 1919 year class, now in their third year, constitute 90 per cent of all the clams to be found.

For the purposes of conservation, the most important information gained is that the clams during their first three years before they have reached the best size limit, pass their life in the sand of the beaches

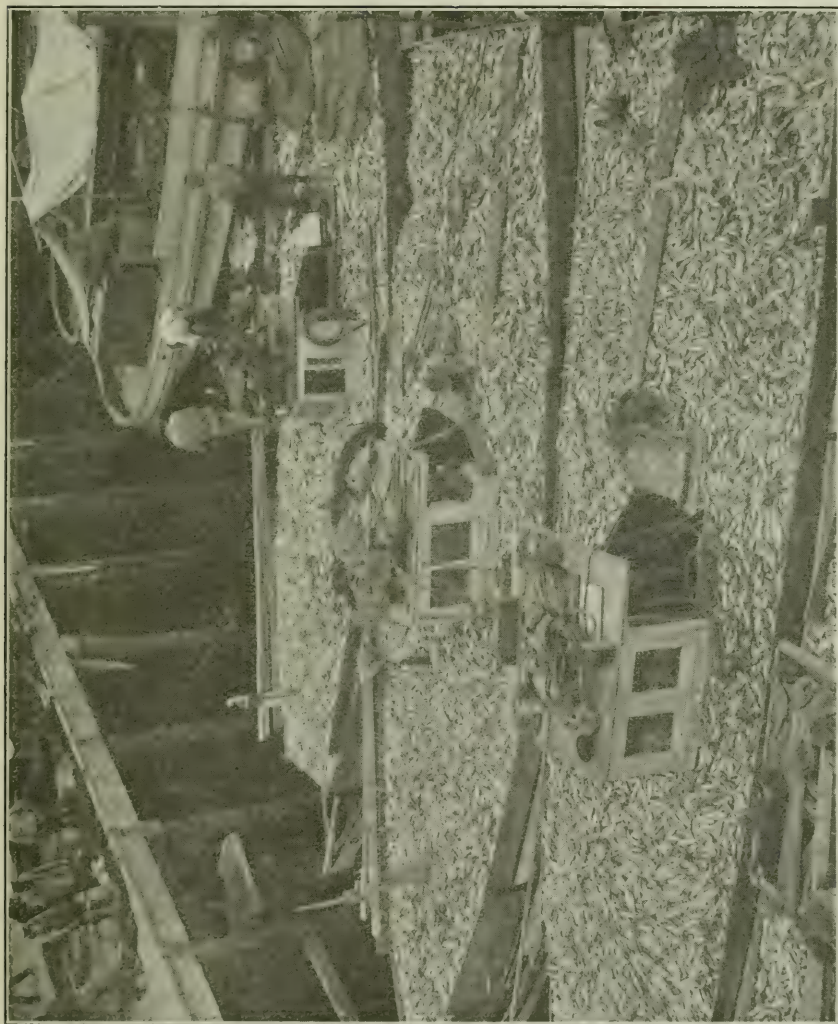


FIG. 23. Sardine boats waiting to unload at San Pedro. The sardine industry is now the most important fish industry in the state. Photograph by E. M. Nielsen.

above the low tide line. As the Pismo clam inhabits only such beaches as are the most frequented by people for surf bathing, they are, during these years, exposed to the illicit digging not only of the visitors but of local people as well, for one of the attractions of the beaches is the serving of clams in the restaurants and chop houses. It is clear that even if the commercial digging of the larger legal-sized clams is entirely stopped, the continued taking of these small clams will result in the practical extermination of the beds in San Luis Obispo County as they have been exterminated in the past in the southern part of the state.

ALBACORE INVESTIGATIONS.

Publication of the results of the albacore investigations has been delayed partly because of the necessity of economy, the personnel of the State Fisheries Laboratory has been cut down and much of Mr. Thompson's time has been taken up with directing the sardine and other investigations; and partly because of the fact that with the continued analysis of each season's albacore catch, new problems have presented themselves which have necessitated the reworking of much of the earlier data.

On account of evidence that the albacore may now be undergoing depletion it is probably best to delay publication of the results of the investigation until the data collected during the present season can be worked over. In the case of the albacore it has been extremely difficult to determine whether evidences of decreasing abundance of albacore were caused by actual depletion of the fish from over-fishing or only a fluctuation due to natural causes. To determine this point it will probably be necessary to wait until the comparative abundance of the older year classes can be determined in future seasons, although it is possible this can be determined from the data of the present season.

If we are to conserve these fish in an intelligent manner we must learn, from the commercial catch, what is their actual abundance from year to year. To determine this and to be able to distinguish depletion caused by over-fishing from natural fluctuation in abundance, it is necessary to determine the relative abundance of the year classes from year to year. This can only be done by determining the age and rate of growth of the species. This has been a difficult task as the age can be determined from the structure of the scales only with the greatest difficulty. To decipher the age from the scales it was necessary to develop a special technique for the purpose which would not be subject to the criticism that the age determination was largely the individual opinion or guess of the observer. It was necessary to supplement this by determining the age from the length frequency. That is by measuring great numbers of individuals and finding the size groups into which they fall. Theoretically there is a different size group into which they fall.

After the first three years the albacore grows so slowly and irregularly that the size groups overlap so that it is not possible to determine age beyond the second or third group by this method. Nothing which has been done by the countries most advanced in fisheries conservation work gave any knowledge of how to proceed under these circumstances. It was necessary to work out an entirely new principle and after a great deal of work it was discovered that the age groups are indicated by a sex ratio analysis in comparison with the size of the fish. The results

from this procedure confirmed the determination of age and rate of growth as determined from the scales. A great amount of work had to be done in developing new principles, for the science of fisheries conservation is a young one as yet and this work, as well as much of the work done in the sardine investigation, will be distinct contributions to the methods employed in this science. After developing methods of finding the age of the fish it is an easy step to working out the comparative abundance of the year classes, which will enable one to say quite positively which is a natural variation in abundance as distinguished from actual depletion from over-fishing.

This question of depletion is the all-important one but it is necessary to observe the relation of the several year classes through several seasons before depletion is positively proven.

The average yearly catch of a boat fishing for albacore has decreased rather steadily over a period of years. This does not necessarily mean depletion but it is enough to cause anxiety. Last season there was a falling off in the proportion of older fish which, if it continues in subsequent seasons, is the best of evidence that depletion is occurring. The problem is more difficult than it appears at first sight for the methods of the fisheries are undergoing change. During the past two seasons one-man or "jig" boats, which catch the albacore by trolling, have increased rapidly in number and the hook and line boats, which catch the albacore by short lines on poles or by hand after they are attracted around the boat by live sardine bait, complain that these "jig" boats scatter the schools and are the cause of the reduced catches of the boats fishing with the old Japanese method. These are questions which we are now confident are subject of solution with the methods being pursued in the investigation.

SARDINE INVESTIGATIONS.

The sardine investigation has continued along the line of the program laid down in 1920 and published in this Commission's quarterly magazine, (Vol. 6, No. 1, pp. 10-12.)

The objects of the investigation are stated by Mr. Thompson in an article on the progress of the work, in CALIFORNIA FISH AND GAME, Vol. 6, No. 4, page 180, as follows:

"The program under which the work has been done contemplates (1) the discovery of depletion if it should occur; (2) the discovery of any great natural fluctuations in abundance or quality other than those due to over-fishing; (3) the foretelling of these fluctuations, which in other fisheries have at times caused great damage; (4) the deciphering of those habits of the species which are of importance to the canner and fisherman, such as migration, and (5) a knowledge of such facts as will aid the legislator. The absolute completion of this program is without doubt well removed, but contributions to it of great value will be made in the very near future, enabling us to make at least provisional answers, a thing impossible now. Among these we may list the age and rate of growth, the breeding season, and the degree of independence of the sardines in different regions. That the foretelling of fluctuations is not visionary may be seen from the work of the Norwegian fishery authorities on the herring. The other elements of

the outline given are dependent entirely upon the records we obtain—and we are acquiring the very best possible.”

Some of the details of the work in carrying out this program at San Pedro and Monterey are given by Elmer Higgins and O. E. Sette in CALIFORNIA FISH AND GAME, Vol. 6, No. 4, pp. 180-182 and in subsequent articles in the same publication by Mr. W. F. Thompson.

For a period of two years daily samples of the fish have been taken as they were unloaded from the boats at the cannery, careful measurements made, weights taken, and the sex and state of maturity observed. This mass of data has been systematized and analyzed so that now important results are being obtained.

In determining the age and rate of growth of the sardine it was found that the scales as an index of the age were very unsatisfactory. It was necessary therefore to get this knowledge by reverting to the old method of tabulating the length frequency of the fish. (See CALIFORNIA FISH AND GAME, Vol. 5, No. 2, p. 53.)

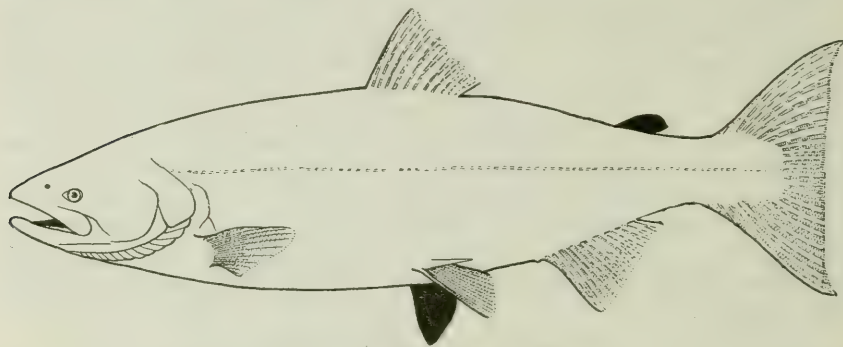


FIG. 24. Drawing showing the way in which young salmon have been marked by removing the adipose and right ventral fins. Returned marked salmon are furnishing much valuable evidence as to the life history and habits of this, the finest of food fishes.

By this method the rate of growth of the fish during their first four or five years has been worked out, and a paper on this phase of the subject by Mr. Higgins is ready for publication. This ability to determine the rate of growth and the abundance of the year classes which go to make up the various sizes of commercial importance, is not only of great importance from the conservation standpoint, but it will also be of great importance to the industry in that it will enable us to forecast the relative abundance of year classes which will be drawn upon for canning. This applies more especially to the quarter oil pack, as the small fish used for the quarter oil cans, come mostly from one year class.

It has been determined from the data gathered that our sardines, as we had suspected, do show the phenomenon of dominance of year classes, and for that reason the sardine industry may be subject to great natural fluctuations in abundance. It is extremely important, for the good of the fishery, that we be in a position to know just what the fluctuations mean. To foretell that certain sizes will be plentiful

or scarce, as we now will be able to do, will be of benefit to the canners. It will also be of benefit to them to know that a scarcity is due to natural causes and not to overfishing.

The sardine, it has been found, grows rather rapidly in length at first. At the end of the first year's growth they average not quite four inches in length; at the end of two years about six and three quarter inches; at the end of three years about eight and one-quarter inches; while at the end of four years they reach a length of about nine inches. From the growth curve established from these known figures the age of the larger sizes can be estimated approximately. The largest sizes may be ten or twelve years old. The growth curve of our sardine is similar to that of the European sardine. Our sardine is also similar in its spawning habits, in that the spawning season extends over several months of the spring and summer and in that the spawning sardines leave the coast and probably spawn well off shore.

The sardine work had not progressed very far before it became evident that there were several factors which influence the size of the sardines taken by the fishermen. A great deal of work has been done in determining the effect of these factors and this work will be treated fully in the report of the work now about completed.

The influence of these other factors on the size of the fish in the catch would probably not have been detected had samples of the catch been taken only a few times a month as has been done in Europe in similar work. In fact entirely erroneous conclusions could have been arrived at. This led to an investigation by Mr. Sette to determine the error involved in different methods of sampling. This work is a contribution of considerable value to the methods employed in fisheries investigations and besides casting doubt on some of the conclusions arrived at through insufficient sampling in Europe, it shows how large the samples should be and how frequently they should be taken.

Daily samples of the catch have been taken over a period of two years in order to work out and determine the seasonal fluctuations in size and also the fluctuations in size within the lunar periods and also to explain the causes of these fluctuations. That these factors are important is shown by the fact that the rate of growth in this instance, and the dominance of year classes could not have been determined without knowledge of the fluctuations in the size of the fish taken by fishermen during different phases of the moon. After this season samples need be taken only at intervals of twice a week at Monterey as was done the present season at San Pedro, and on that account the work will be simplified and reduced to a large extent and it will be necessary only to follow the abundance of the year classes as is now being done in the case of the albacore. We will then be able with our present force to take up the investigation of other important fisheries which are in danger of depletion, such as the barracuda and white sea bass.

PURSE SEINE INVESTIGATION.

We mentioned in our last report how purse seine fishing had been introduced into Southern California mainly for the purpose of catching blue-fin tuna. It was complained by other fishermen that these boats in using their nets for other kinds of fish caused great waste,

especially of small barracuda and sea bass and that they frequently made such large catches of mackerel and more especially of barracuda that they could take only part of the fish on their boat while the balance were all dead before they could be released from the net. Fishermen's organizations which are opposed to purse seines are seeking legislation which will either abolish these nets entirely or else greatly restrict their use. In order that we might be fully informed on this matter Dr. Skogsberg of the State Fisheries Laboratory staff was detailed to make a thorough study of the operations of these nets during the 1922 season. He has not only observed the operation of purse seines, but has studied the other methods of fishing as well in order that comparisons may be drawn. The report of this investigation will be submitted after the close of the season and will be available for use at the next session of the legislature.

Although Dr. Skogsberg has not given his final conclusions, several things are quite evident. First: The purse seine boats are not making any money and any radical regulation, such as the proposed regulation of size of mesh, will put them out of business. Second: The canners are dependent upon them for the blue-fin tuna for canning. Third: The fresh fish markets in San Pedro are almost entirely dependent on purse seiners during the winter months. Fourth: The loss of barracuda on account of flooding the markets occurs in May and June due to great catches being made while the fish are schooling preliminary to their spawning period. At those times the prices obtained hardly pay running expenses. He probably will propose a closed season for barracuda during these months.

FISH REDUCTION.

At the 1921 session of the legislature the law regulating the use of fish in reduction plants was amended so as to permit the use of food fish under the following conditions: food fish to be used only if, after application, evidence is adduced at a hearing held before the Fish and Game Commission that there is no market for the fish for human food, and secondly that in no case was it permissible for more than 25 per cent of the capacity of the cannery to be used for reduction purposes. The Fish and Game Commission's attorney gave it as his opinion that although the wording of the percentage provision was ambiguous, the law intended that a cannery could not use fish in its reduction plant unless it was canning fish, and that they could not use more than 25 per cent of the catch in their reduction plant.

After hearings before the Fish and Game Commission held at Monterey and at San Pedro, the percentage limit of sardines which could be used for reduction purposes was fixed at ten per cent for Monterey, while later twenty-five per cent was fixed for the southern district, for it was shown that it would be difficult for them to get along on less on account of different fishing conditions in that region. There was a very strong incentive to use more than the limit for reduction for there was a very poor market at the time for the canned sardines while there was a fairly good market for fish meal and oil. As a result two or three of the Monterey canners exceeded the limit.

No prosecutions were made partly due to the lack of definite evidence and partly due to some misunderstanding on the part of the canners as to whether over-supplies of fish due to accident on the boats or to the machinery of the cannery were to be counted in determining the percentage.

It is also evident that some were receiving more fish from the fishermen than appeared on the records but this could not be proven. As there was considerable dissatisfaction among some canners and fishermen in regard to methods of arriving at the weight of the fish delivered at the canneries we presented the case to the State Superintendent of Weights and Measures. He called a meeting of the canners at Monterey during the present summer at which it was determined that the box or measure used in hoisting the sardines from the boat should



FIG. 25. Purse seine boats at San Pedro Harbor. An investigation of this type of fishing has been in progress to determine whether or not it be dangerous to the fisheries.

be either of wood or metal and that the capacity of each be accurately determined by the state sealer. Also that each canner under the law is a public weigher and must take out a license and give a bond and issue certificates of weight under a state seal. As the Superintendent of Weights and Measures has the authority to revoke this license, as well as forfeit the \$1,000 bond for falsification of the weights, it is believed that by this cooperation of the two state departments the evils which have existed will be eliminated and it will be possible for us to enforce strictly the limit of sardines which may be discarded for reduction purposes. This program is also to be carried out in Southern California.

By February, 1922, ten companies in the San Pedro district were actively engaged in packing sardines and the investigation which followed at the end of the month indicated that seven plants had exceeded the 25 per cent limit. In accordance with the provisions of the

Fish Reduction Act complaints were filed in due time and hearings held in East San Pedro, to take testimony in each case. The evidence offered showed that seven companies had violated the fish reduction regulations and orders were subsequently issued, on May 15, 1922, suspending the fish packing license of each company found guilty of exceeding the 25 per cent limit.

Three companies later obtained writs of review with an order attached restraining further action suspending operations at their respective plants, and, at the same time, a new organization of leading packers was formed which made the suspending order ineffective in the case of three other companies. No further action was taken until



FIG. 26. Hauling a purse seine.

the last of June, when the orders suspending the packing licenses of seven companies found guilty of violating the fish reduction regulations were rescinded by the Commission.

During the present summer of 1922 the Monterey sardine canners again made application to be permitted to use a percentage of the sardines for reduction purposes. A hearing was held by representatives of the Fish and Game Commission at Monterey and from the evidence submitted it was determined that to place a lower percentage limit on the amount of sardines which could be diverted for reduction at Monterey than is granted in the Southern California districts placed Monterey canners at an unfair disadvantage, and as it was deemed necessary, from the evidence submitted by canners in Southern Cali-

ifornia the season before, to allow a 25 per cent limit for the San Pedro district, the Fish and Game Commission issued an order to each canning company instead of one order for all as in the previous season, in which it granted the 25 per cent limit but reserved the right to revoke the reduction privileges of any company if it used more than the limit or if it did not keep sufficiently accurate records from which we could determine the actual percentage used for canning and for reduction.

The fish reduction law is working fairly well but several amendments should be made so as to make it more easy of enforcement.

FISHERIES PATROL.

In the San Francisco District no changes have been made in the fisheries patrol. During the past crab season crabs were smuggled out of Humboldt County (District 7) and taken into the San Francisco markets. The law prohibiting the shipment of crabs out of the northern districts, on account of the wording of the law, is very difficult to enforce. To put a stop to these violations the patrol launch *Steelhead* was shipped to Eureka by steamer and remained on that part of the coast during the season.

The closed season on salmon established in the outside trolling districts is difficult to enforce without a more seaworthy boat than our launch *Steelhead*. It will be necessary very soon to get a boat which can cover the coast from Monterey to Eureka.

In southern California the fisheries patrol is conducted in the same manner as described in our last report, except that one extra patrolman has been employed to help prevent the landing and sale of undersized halibut, barracuda and lobsters and also to prevent fishermen from operating nets within 750 feet of pleasure piers and thus bother the sportmen who fish with rod and line therefrom.

The commercial fisheries patrol in southern California is a difficult one to handle for the reason that there is no love lost between sport fishermen and commercial fishermen. This feeling has been heightened by reserving for sportsmen certain waters about Catalina Island and around all piers, jetties and breakwaters along the mainland. Certain compromises were made by the sportmen who fish at Catalina and very little trouble is now experienced in keeping net fishermen out of the closed island district.

Most of the time of the patrol boat *Albacore* is taken up with trying to prevent the operation of "drag nets" within the three mile limit. There is no doubt that these nets are very destructive if operated in shallow water along shore, for it has been shown that when so operated three tons of small unmarketable halibut will be destroyed for each ton which can be marketed. Used in deep water, however, this net becomes unobjectionable for it does not destroy an excessive amount of young fish and operates in a territory where other styles of nets would not be used. To encourage this offshore fishing the legislature, at our request, while prohibiting the use of these nets within the three mile limit, permitted their possession in order that they might pass back and forth through the closed zone. This was recommended

by us for the recognized spokesman for the fishermen assured us they would cooperate with us and would see to it that these nets would not be used within the three mile limit. This promise has not been kept. On the other hand the number of these nets has been on the increase and most of the fishermen using them have become experts in avoiding being caught with sufficient evidence against them to cause their conviction. We therefore expect to ask the legislature to prohibit the possession of these nets in any of the southern California districts.

EXPERIMENTAL LABORATORY OF THE U. S. BUREAU OF FISHERIES AT SAN PEDRO.

In May, 1919, the United States Bureau of Fisheries established a laboratory at San Pedro for the purpose of aiding the fishing industries of the coast by an experimental study of the methods of canning and preserving fish. The bureau proposed to carry on experiments for the development of new methods for canning heretofore unutilized fishes, to improve on the methods already in use, and to experiment on new methods for species already being used in the California canneries.

The first line of experiments constituted the major part of the work of the laboratory during its first year. To quote from the Commissioner's report for the fiscal year, 1920: "It (the bureau) has devoted its attention particularly to little used fishery products for which satisfactory canning methods have been lacking and to the establishment of standard methods which will yield standard packs. The mackerel (*Scomber japonicus*), an abundant fish but little esteemed on the California coast, has received more consideration than other species. Over 80 different packs of this fish have been put up and subjected to careful examination, with the result that a number of promising methods have been developed, several of which have been released for the use of the trade. Other species experimented with are bonito, barracuda, pilchard, sea bass, smelt, tunas, and yellowtail, several hundred packs of the various species having been put up and held in storage for examination periodically. A number of special problems have been encountered in the course of this work which may require rather extended study before a solution is found, as, for example, the unpleasant odor and taste in canned bonito and the detinning of cans in packs of such fish as barracuda. A vital desideratum of the bureau, if it is to fulfill its functions and render the largest measure of service to the fisheries, is adequate provision in the matter of personnel and funds to enable it to render the canning industry of all sections aid in the preservation of crabs, shrimps, turtles, and certain fishes, and determining more definitely the possibility of applying newer methods in the case of staple canned fishery products. The need for accurate data in these fields is well shown by the large number of requests that the bureau receives."

The bureau expended on the laboratory during the fiscal year about \$20,000. This included equipment, materials, remodeling and rent of quarters in one of the municipal dock buildings and the salaries of the director, Mr. L. F. Lingle, a chemist, a technologist and a stenographer-assistant. By the beginning of the fiscal year 1920-1921 the spirit of economy had taken hold of Congress with the result that

the Bureau of Fisheries failed to get the appropriations necessary to carry on the work of its technological laboratories. Its fishery products laboratory at Washington City of necessity remained practically idle during the year and the laboratory at San Pedro would have been abandoned had not the State Fish and Game Commission agreed to carry the expense of the laboratory for the year. The Bureau of Fisheries and this Commission have cooperated for many years in fisheries conservation work. This cooperation began when the bureau established a salmon hatchery in this state on the McCloud River about the year 1875. A few years later when the bureau, then the United States Fish Commission, was short of funds, the Fish and Game Commission, then the State Fish Commission, financed and ran the bureau's hatchery through several seasons. Later, in 1897, the State Commission in turn being short of funds, the bureau took over, by purchase, the state's salmon spawn-taking station on Battle Creek and an agreement was entered into which has been continued to this day, under which the two cooperate in the propagation of salmon. The bureau maintains all of the salmon spawn-taking stations in the state, with the exception of the one near Hornbrook on the Klamath River, which was recently turned over by the bureau to the State Commission, and the state has carried on the bulk of the salmon-hatching operations at its Mount Shasta Hatchery.

In other words the bureau is assisting the state by spending annually more than \$25,000 in salmon propagation. State and federal employees have also assisted each other in the salmon investigations and this mutual help has been most beneficial. Under the circumstances it was natural that the United States Bureau of Fisheries, when it failed to get the appropriation necessary to carry on the work of its San Pedro laboratory should call upon the Fish and Game Commission for aid. Not only would the laboratory have been lost to the state but a large part of the work of the first year, if left uncompleted, would be lost. The Fish and Game Commission, therefore, agreed to carry on the work of the laboratory for the year, or until the bureau could get an appropriation for the purpose.

The work of the laboratory during the fiscal year 1920-1921, was partly devoted to completing the experiments on methods of canning little used varieties of fish as well as the varieties already being canned. Satisfactory methods were developed for practically every species of fish studied. The information thus gained should be of future value to the industry and obviate the necessity of individual canners wasting their energy and time on experiments for which few of them are equipped.

A large part of the laboratory's work was devoted to a study of sardine packing methods and a study by the chemist of the sardine fry baths with the object of cleansing and rectifying the oil or devise means whereby the fry bath might be entirely done away with. Much valuable information was gained which is resulting at the present time in improvements being made in the processing of the larger, "pound oval" sardine. The chemical changes which take place in the fry bath were published by this Commission in 1922 as Circular No. 1

entitled "Changes in Oil Used for Frying Sardines," by Harry R. Beard, assistant to the laboratory.

For the past fiscal year the bureau received an appropriation for its technological investigations which, while entirely inadequate, has enabled it to carry on the work of its San Pedro laboratory by reducing its personnel and to a large extent its efficiency. This Commission aided it to the extent of furnishing the stenographer assistant, and agreeing to stand good for the rent of the building if the Los Angeles Harbor Board could not be induced to donate it temporarily. During this last fiscal year the work of the bureau's laboratory has been devoted largely to experiments on methods of packing sardines in which the oil fry bath has been eliminated.

Respectfully submitted,

N. B. SCOFIELD,
In Charge.

REPORT OF THE LEGAL DEPARTMENT.

The Honorable Board of Fish and Game Commissioners of the State of California.

SIRS: I herewith submit to you a report of the work performed by the legal department for the two years ending June 30, 1922.

Much of the work of this department is in conjunction with the other departments with the exception of the prosecution of violators and trials of civil cases and hearings under the law governing screens and fishways and the commercial fishing laws; therefore much detail is eliminated for the reason that it would be a repetition of the statements found in the reports of the various departments.

During the biennial period 2258 arrests were made of which number 2091 were convicted or plead guilty, 162 dismissed or acquitted and 5 cases still pending.

The amount of fines imposed was \$66,421.50 and of this amount \$63,027.30 was collected.

The number of days of imprisonment imposed was 2283.

The number of arrests made, the number of convictions had, the amount of fines imposed and collected and the number of days of imprisonment show a marked increase over the previous biennial period.

The district attorneys throughout the state have cooperated with the Commission and have rendered excellent service in the prosecution of fish and game cases and likewise the justices of the peace, by inflicting more jail sentences and imposing heavier fines, are joining with the Commission in an endeavor to stop game law violations.

The appropriation of our waters for irrigation and power purposes is making serious inroads on our inland fisheries due to the fact that the operating companies consider the fish of little or no value.

The laxity on the part of the farmer to maintain screens in their irrigating ditches causes a tremendous loss of fish each year and it requires the utmost vigilance on the part of the Commission to see to it that the law compelling the installation and maintenance of screens is complied with.

Criminal prosecutions under the law have seemed ineffective for in scarcely any instance has any court imposed a penalty on any person, firm or corporation charged with failing to comply with the screen or fishway law. As a consequence it was deemed advisable to proceed against such persons, firms and corporations by way of injunction.

The Anderson-Cottonwood Irrigation District constructed and has maintained and operated a dam across the Sacramento River above Redding, Shasta County, California, that has prevented the passage of salmon and other fish and threatened the extermination of the salmon run on the Sacramento River. An order was served on said district to construct and maintain a fishway over said dam as provided by law, but said irrigation district refused to comply with said order, contending that an opening in the center of the dam was a sufficient fishway. The force of the water through this opening was so great that no salmon or other fish could pass.

Injunction proceedings were begun against the district in December, 1920, and the case came on for hearing before the superior court of Shasta County on January 30, 1922. After the people had presented their case an agreement of compromise was reached between the district attorney of Shasta County and the representatives of the Commission on behalf of the people and the representatives of the Anderson-Cottonwood Irrigation District whereby a good and sufficient fishway would be constructed over said dam that would permit the free passage of salmon at all times during the year.

Injunction proceedings were instituted against a number of persons, firms and corporations in Butte, Tehama, Inyo and Trinity counties seeking to restrain said persons, firms and corporations from permitting fish to enter the ditches or canals of the defendants and thereto destroyed by reason of their failure to install and maintain proper screens at the intake of their respective ditches.

Most of these cases are at issue and will be tried shortly.

The last large run of salmon is in the Klamath River. An application was made by the Electro-Metals Company, a trust, to the Federal Power Commission for a permit to construct two dams on the Klamath River near the forks of the Salmon River. One dam 75 feet high and the other 200 feet high. The construction of these dams, or either of them, would completely destroy not only the salmon run but also the steelhead run.

The Fish and Game Commission filed a protest against the granting of this permit with the Federal Power Commission. The matter of the protest came on for hearing before Mr. F. H. Fowler, district engineer of the United States Forest Service at Yreka, Siskiyou County, May 5, 1921, and at Requa, Del Norte County, May 26, 1921, and many witnesses were heard on behalf of protestant and applicants.

The best authorities in the country on the habits of fish maintained and proved that fish have not and will not pass over a dam more than forty feet high at the most and therefore the granting of this permit and the construction of either of these dams would absolutely destroy the run of salmon and sea run trout on the Klamath River.

There is a dam on the Klamath River at Copeo about twenty-five miles above the mouth of the Shasta capable of developing over fifty-five thousand horsepower with only one-third developed and several more dams of like capacity can be installed between the present dam and the mouth of the Shasta River besides the hydro-electric development on the Pit River and the Feather River. The present power program of the various companies already operating on our streams and rivers will produce enough power to supply the demands of our state for years to come and the salmon and sea run trout on the Klamath River should not be sacrificed until the time comes when every other river and stream now devoted to the production of electric energy is developed to its highest potential capacity.

The Commission has and should do its utmost to save the last large run of salmon in California. A hearing on the protest will be had in Washington before the Federal Power Commission shortly.

The legislature of 1921 passed a law prohibiting the use of sardines fit for human consumption or canning for human consumption to be used in a reduction plant, but authorized the Commission after a hearing to allow an amount of sardines not to exceed twenty-five per cent of the canning capacity of the person, firm or corporation canning or packing sardines to be used in a reduction plant. Several hearings were had and orders made granting permission to use sardines as provided in the act. Almost every person, firm or corporation granted such privilege violated the order of the Commission. Charges were filed against those violating the privilege as provided by the act and hearings were held and the licenses of several of the canners were suspended as provided by law.

There has been a marked decrease in the number of cases and complaints for the pollution of public waters.

The large number of letters of inquiry received continually show a desire on the part of the public to be informed of the laws respecting the seasons for taking fish and game and a desire to comply with the law.

Our fish and game is one of our great natural resources attracting many thousands of people to the outdoor life and the automobile and our highway system bring the remote sections of the state within easy reach of the hunter and fisherman. As a consequence the utmost vigilance must be kept in order that our fish and game may not become exterminated and to prevent this, laws must be made with due regard for the breeding season, a reasonable bag limit to be taken during the open season and a strict enforcement of the law governing the same.

Respectfully submitted.

R. D. DUKE,
Attorney.

REPORT OF THE BUREAU OF EDUCATION, PUBLICITY
AND RESEARCH.

The Honorable Board of Fish and Game Commissioners of the State of California.

SIRS: We have the honor to submit herewith a report on the work and accomplishments of the Department of Education, Publicity and Research, covering the period from July 1, 1920, to June 30, 1922, this being the fourth report of this kind since the inauguration of the department.

The following brief outline of aims which has been followed by the department since its inception gives an idea of the character of the work:

- I. Education of the youth especially but also of all to an understanding of the nature and extent of the state's natural resources and the need and value of conserving them.
 - A. To be attained by means of:
 1. School and public lectures.
 2. Bulletins and leaflets.
 3. Magazine articles and the press.
- II. Wide publicity concerning the work and accomplishments of the California Fish and Game Commission.
- III. Backing of the educational and publicity campaign by exact and dependable data secured by painstaking and scientific research.

There is seldom anything spectacular to report in the obvious results of an educational campaign, nor can current results be depended upon to furnish evidence of the effectiveness of the plan. Fruition of the project to instruct the youth of our state regarding the conservation of natural resources is to be looked for far in the future and then only can a fair measure be made of the actual success attained. Pending the time when the actual results are more apparent, your attention is called to the outstanding accomplishments of the biennium.

LECTURES.

Increasing demand has been made on our services for conservation lectures and displays of motion pictures. Many more people have been reached in this way than in any similar period since the beginning of the work. As heretofore, the attempt has been made to distribute the lecture work as nearly as possible over the entire state. When a request comes in for a lecture, it is filed and as soon as convenient lectures at nearby places are arranged for certain dates, thus making the trip of the lecturer most worth while.

In many instances all of the school children in a town have been dismissed in order to attend the lecture given. In one instance every high school in the county having proper facilities was given an illustrated lecture at the request of the county superintendent of schools. An endeavor to reach fish and game protective associations of the state has resulted in five splendid meetings with such organizations. Illustrated lectures are always one feature of the Commission's exhibit at the State Fair during September.

During the spring of 1922 a series of nine lectures on fish and game was given to a large class in general forestry in the University of California. This work appears very valuable because of the fact that many prospective teachers are thus reached, as well as many who will some day be connected with forestry administration in this state. As the lectures were open to the public, many townspeople attended.

The following is a summary of the lectures given. This does not include the numerous lectures given during the summer in connection with the summer resort work, a tabulation of which will be found on another page.

<i>Organization.</i>	<i>Number lectures.</i>	<i>Attendance.</i>
High schools	36	9,199
Grammar schools	28	9,778
Normal schools	3	138
Universities and colleges	14	1,520
Civic groups and public	32	9,763
Boy scouts	6	313
Game Protective Associations	5	930
State Fair	19	2,610
Miscellaneous	4	850
Totals	147	35,101



FIG. 27. Field study class in Yosemite, 1921. Nature walks form part of the summer resort educational program of the Fish and Game Commission. Photograph by H. C. Bryant.

SUMMER RESORT WORK.

The educational work in the summer resorts started by this department in 1919, at Lake Tahoe, has been continued the past three seasons in Yosemite National Park. A cooperative scheme worked out by the National Park Service and the Fish and Game Commission has resulted in the forming of a nature guide service, designed to awaken visitors to their natural history opportunities and to convince them of the need and value of wild life conservation. By means of lectures and camp fire talks, trips afield, office hours and exhibits visitors to this national park have been made acquainted with and interested in the living things of the park. The work has fully demonstrated that persons on their summer vacations in the mountains are more susceptible to information regarding fish and game and its conservation than they are at any other time. Furthermore, reference to attendance figures shows that nowhere could so many persons be reached with a conservation message, in so short a length of time. These two points alone should gain increased support for this work, although the success of the work can best rest upon the enthusiasm and spirit of those who have come in contact with it.

Lectures and camp fire talks are given at the principal resorts in the park each evening. The more formal lectures are illustrated with motion pictures or lantern slides. Shorter talks usually deal with some bird or animal or answer some oft-repeated question on natural history.

The daily field trips offered form an important feature, for here individual instruction is given and a direct personal contact made. How better can conservation be taught than to use a living individual of a species as a basis of discussion! The sight of a family of Sierra grouse makes a more lasting impression than word pictures or even photographic studies. Many teachers make use of this opportunity to obtain first-hand information regarding living things. As these teachers go back to their classes, conservation ideas are spread through the schools.

SUMMER RESORT WORK.

Yosemite Free Nature Guide Service.

	<i>Field Trips.</i>		<i>Lectures.</i>	
	Number.	Attendance.	Number.	Attendance.
1920				
July-August	58	899	34	14,937
1921				
June-August	104	2,214	52	31,545
1922				
June—	48	1,069	19	12,425
Totals	210	4,182	105	58,907

During the office hours questioners appear by the hundred—“What kind of a trout did I catch yesterday?” “What bird has a red head, yellow breast and black wings?” “What kind of deer is found in the park?” Such are the questions asked. Exhibits of mounted birds and mammals and colored pictures aid in this educational work. Small nature study libraries, furnished by the California Nature Study League, have filled the need for reference works.

Splendid publicity has been obtained through weekly news items issued to over a hundred newspapers. The attitude taken by the newspapers and by the public has been very gratifying.

That the nature guide movement has been a success is evidenced by the fact that the number of people touched has almost doubled in each succeeding year, and interest has been so keen that a similar service is now offered in Yellowstone National Park, Glacier National Park and, in a small way, in Sequoia National Park.

Due to the interest of Mr. Stephen T. Mather, Director of National Parks, an opportunity was afforded of advertising the Yosemite Nature Guide Service in eastern states. A trip arranged by Mr. Mather, enabled Dr. H. C. Bryant and his associate, Dr. L. H. Miller, to spend two weeks in lecturing in the larger cities of the east during January, 1921. This also made possible attendance upon the National Game Conference held in New York, and an opportunity to explain the work of the California Fish and Game Commission to this gathering of sportsmen.



FIG. 28. Conservation taught first hand. A group of children listening to conservation stories in Yosemite, summer, 1921. Photograph by H. C. Bryant.

MOTION PICTURES AND LANTERN SLIDES.

Over sixty thousand persons have seen the Commission's educational films during the past biennial period. There is great need for some new films. Exhibits and motion pictures are the chief means by which the people of the state can visualize the work and accomplishments of the Commission. It is important, therefore, to augment this part of the work. Only two new reels have been added, both of these dealing with the nesting birds of the Farallone Islands. The Salisbury Wild Life films are still in use, but they are badly worn. A film showing the life history of deer is particularly desirable. The salmon fisheries would also make a good subject for a film.

Three worn duplicate films have been given wide distribution by the University Extension Division, the reported attendance being 16,400.

Sets of lantern slides dealing with wild life conservation have been loaned to schools on several occasions. Where motion picture apparatus is not available they form the illustrations for lectures. Slides now belonging to the Department number 240. A print of the Tuna Fishery film was furnished the United States Bureau of Fisheries for use at the International Exposition at Rio de Janeiro.

The following is a list of our educational films:

Salisbury-----	6 reels, badly worn set
Salisbury-----	2 reels, loaned University Extension, badly worn
Hatchery-----	2 reel (1 colored) in fair shape
Tuna-----	1 reel, in fair shape
Birds of Farallone Islands-----	2 reels, in fair shape

PUBLICATIONS.

Demand for the quarterly magazine, CALIFORNIA FISH AND GAME, continues so great that the edition has now reached 7000. It is now the oldest publication of its kind in the United States, most others having been discontinued during the war. An attempt to clean up the mailing list during the spring of 1922 did not materially reduce the size of the mailing list.

Every number issued in 1921 was a special number, attention being given to salmon, history of the Commission, hawks and to the sardine.

The first two numbers in 1922 were also special numbers, that of January being a Game Refuge number, and that of April being a Hatchery number. A complete list and index of the publications of the Fish and Game Commission since its establishment in 1870 appeared in the April, 1921, number. The Hawk number, (July, 1921,) contained two colored plates and many other illustrations designed to correct the usual misunderstanding as to the value of California hawks. The 96-page Sardine number, the material for which was furnished by the State Fisheries Laboratory, has been in great demand and the supply is now nearly exhausted. The valuable historical and statistical data contained in the Hatchery number (April, 1922) will become more and more valuable in years to come. Attention should also be called to a series of reports by Professor J. O. Snyder of Stanford University, on results of the Commission's salmon marking experiments. Volume 7, (1921) contains 286 pages and 93 illustrations, together with complete reports and index. Analysis shows 26 general articles and more than 150 notes, all relating to fish and game and its conservation in California. Separates of the more important articles have been secured for distribution.

Two additions have been made to the series of Fish Bulletins, as follows: Fish Bulletin No. 4, "The Edible Clams, Mussels and Mollusks of the Pacific Coast," by Frank W. Weymouth; and Fish Bulletin No. 5, "A Key to the Families of Marine Fishes of the West Coast," by E. C. Starks. A new series of publications to be known as Circulars has been started with the appearance of Circular No. 1, entitled "Changes in Oil Used for Frying Sardines," by Harry R. Beard. The plan is to place in this series small technical papers of interest only to certain groups.

No additions to our series of teachers' bulletins has been made the past few years, nor has a revised edition of the useful pamphlet on "Bird Study in the Public Schools" been issued. These are projects which should be cared for in the near future.

An article dealing with work of the Fish and Game Commission, prepared by this bureau, appeared in the March, 1922, number of *Western Out-Of-Doors*. At the request of the National Research Council, a paper on the research work of the California Fish and Game

Commission was prepared. This is to be published in one of the bulletins of the Council.

In 1920 the biennial report contained 149 pages and 28 illustrations, together with an appendix containing the statistical reports.

The summer resort work of the Commission has been given wide publicity in eastern magazines and newspapers, as well as the local ones.

A free newspaper service has been maintained and the numerous items issued have been widely used by editors throughout the state. Matters of import to hunters and anglers and results of work done by the Commission have most frequently been used as subjects for the press items. Items taken directly from CALIFORNIA FISH AND GAME frequently appear in newspapers and sporting magazines, thus giving wider publicity to the work of the Fish and Game Commission. This newspaper publicity work really needs the sole attention of one man and our recommendation is that a trained newspaper man be added to the staff of the department. By so doing, this end of the work could be greatly augmented and full advantage taken



FIG. 29. Children receiving instruction from a nature guide. Yosemite, summer, 1921. A fair share of the educational work is devoted to educating children regarding the need and value of wild life conservation. Photograph by H. C. Bryant.

of the wide opportunity presented along this line.

In our opinion nothing has helped to gain the confidence of the people of our state as has our quarterly, CALIFORNIA FISH AND GAME, which has periodically taken to those most interested, the activities and accomplishments of the California Fish and Game Commission.

Exhibits of the publications of the Commission have been installed at the State Fair each year to supplement the splendid panorama and display of fish made by the Hatchery Department.

RESEARCH.

Unfortunately, the time of your director has been so fully occupied that it has been possible to undertake less and less actual research work. This is unfortunate and it is to be hoped that certain research work, already planned, can be undertaken in the near future. Fisheries research work is well supported and game research should have its share of attention in addition.

Work has continued on the investigation of the food of ducks in California. The results of stomach examination of hundreds of ducks has been tabulated and summarized and additional analyses made.

Further studies of methods of identifying and the food habits of hawks culminated in the publication of an article on California hawks in the July, 1921, number of CALIFORNIA FISH AND GAME. Considerable material relative to game has been added to the regular files kept for holding this material. A study of game conditions within a protected area has been afforded in the past two summers' stay in Yosemite National Park. The effects of total protection can nowhere be studied to better advantage than in this national park.

The department continues to compile data on the annual deer kill, on hunting accidents and on the work of the scientific collector.

Respectfully submitted.

(Signed) HAROLD C. BRYANT,
In Charge,

Education, Publicity and Research.

WATER POLLUTION.

Honorable Board of Fish and Game Commissioners.

GENTLEMEN: Complaints of water pollution have been fewer during the past biennial period than ever before during a like period. This is, no doubt, due largely to the fact that manufacturers have at last realized that prevention is better, (and more profitable), than cure.

Complaints were filed and convictions obtained against the Northwestern Pacific Railroad, the Shipping Board Steamer *Eastern Sailor* and the tanker *Buccinum*, (under charter to the Shell Oil Company).

A complaint was also filed against the Sacramento Gas Company for lampblack pollution of the Sacramento River. This company at once began construction of a filter of sufficient size to handle all their waste waters and thus preclude the possibility of further cause for complaint and this filter is, at the present time, in successful operation.

A number of accidental losses of oil occurred during the period resulting, fortunately, in a minimum of damage to fish life.

The largest amount of oil thus lost was caused by the earthquake of March tenth which ruptured the pipe lines of the Union Oil Company where they crossed headwaters of the Salinas River. Flood waters carried all, (so far as can be ascertained), of the oil to Monterey Bay without depositing it either upon the river banks or the shore of the bay. The amount of crude oil lost was 2,500 barrels.

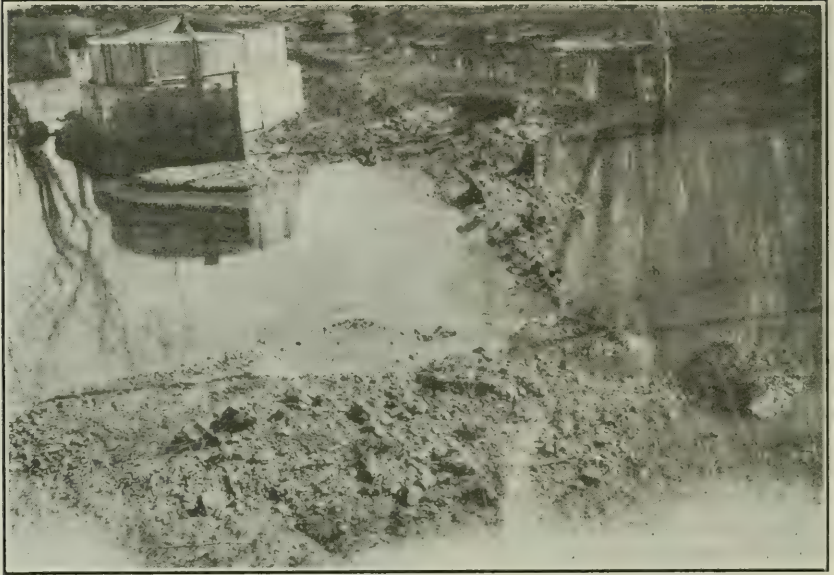


FIG. 30. Sump of Sacramento Gas Company on March 1, 1922. Flood waters have opened sump and lampblack is passing into Sacramento River. Photograph by A. M. Fairfield.

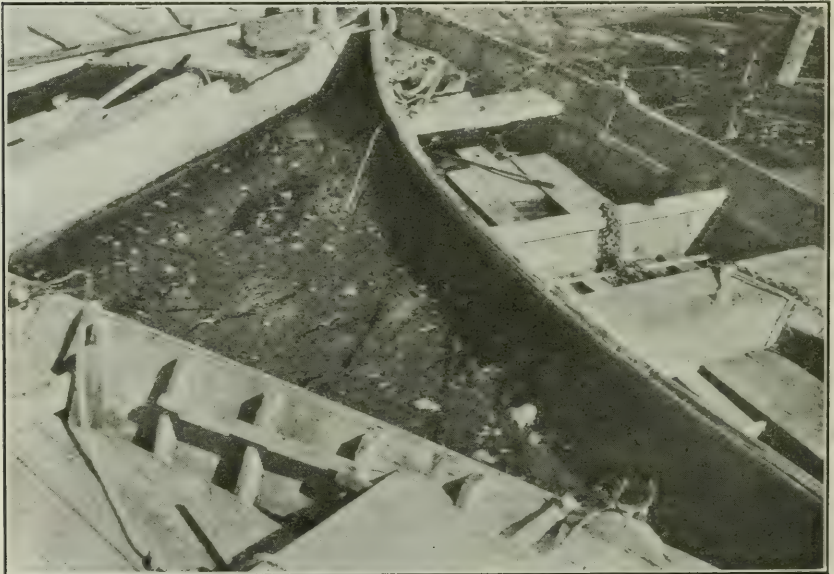


FIG. 31. River bank a short distance below plant of Sacramento Gas Company on March 1, 1922. Gray matter between skiffs is lampblack carried from a sump by flood waters. A law prohibits this sort of pollution and enforcement is in the hands of the Fish and Game Commission. Photograph by A. M. Fairfield.

The next largest amount was lost from the Union Oil tanker *La Placencia* at Port San Luis on July 30, 1921, and was due to the ignorance of one of the crew who failed to understand orders. Some 500 barrels of fuel oil went overboard. The beaches at Pismo and Oceano were "smeared," with consequent damage to clams and decided inconvenience to bathers.

Pollution by small amounts due to breaking of loading hoses are of fairly frequent occurrence but the damage is probably slight.

This department receives frequent requests from other states for information regarding our laws and their enforcement. These letters indicate clearly that California has the reputation of having the cleanest waters in the Union in spite of her area, length of coast line, enormous production and use of petroleum and the magnitude of her manufacturing industries. We are fortunate in that the greatest percentage of our firms and industries are in favor of the enforcement of our pollution laws and endeavor to comply with them no matter at what cost. Two millions of dollars have been expended during the last ten years by corporations to prevent pollution *without recourse to law!*

Very truly,

A. M. FAIRFIELD,
Pollution Expert.

NORTHERN DISTRICT REPORT.

*The Honorable Board of Fish and Game Commissioners
of the State of California.*

GENTLEMEN: It would require a volume larger than the biennial to do justice to the fish and game conditions of the northern or Sacramento District. It contains a larger mileage of streams and lakes populated with many species of fishes, and a greater area of hunting grounds than any other district. A summary of the outstanding features of fish and game conditions is all space will permit.

CONSERVATION.

Perhaps the most important outstanding feature of the Sacramento Division during the biennial period is the marvelous growth of sentiment regarding the enforcement of fish and game laws. A few years ago a person who gave information concerning game law violations was classed as an informer or spy. Today not only sportsmen but those who do not hunt or fish, but who realize the value of California's wonderful wild life asset report violations that come under their observation as fearlessly as though it were a more serious crime. This is particularly true of the female sex—made possible perhaps by the family auto, which brings them in direct contact with all things beautiful outdoors.

So strong is the sentiment of game protection growing that many justices of the peace have a standard schedule of penalties to fit the crime. Game law violations are at a minimum in El Dorado County since a well-known and popular justice of the peace has said to several offenders: "My price for violating the deer laws is \$300; for killing a doe it is 150 days in jail in addition." This has a very deterrent effect. Jail

sentences are now given to second offenders and aggravated cases. Records for this district show jail sentences for the year 1919-20, a total of 102 days; for 1921-22, 1219 days. There are a few justices of the peace who are loath to inflict a fine, but the moral support of a live sportsmen's organization is rapidly eliminating this.

WINTER FEEDING.

The winter of 1921 was the most severe on game animals and birds since the winter of 1916.

By the publicity given to the press by circular letters and by cooperation with the Forest Service and game protective organizations in the snow belt previous to the heavy fall, especially in Plumas, Lassen, Siskiyou and El Dorado counties, the counties in which deer and quail suffered most, we were enabled to succor many of them, although lions and coyotes took a heavy toll in the soft snow. Generally speaking, the deer and quail wintered fairly well. Thanks are due to many sportsmen and others in donating feed and in assisting our deputies in this laudable work.

Between 300 and 400 deer and between 2000 and 2500 quail were fed in Yuba County. At Indian Valley, Ranger C. E. Whittier fed 1200 pounds of hay and 237 pounds of wheat. Tony Laveszolla fed hay to the value of \$16.75; salt, \$1.25. Mr. Otto Riffel of Blairsden rendered valuable assistance in giving information and feed and Mr. Lyons, looked after a bunch of deer. Deer were reported dying for lack of salt in the Trinity National Forest. Four hundred pounds of salt were purchased for them. Mr. James Harris of Clio voluntarily fed a large bunch of deer. Forest Supervisor Albert E. Gould of Quincy rendered valuable assistance in the work. Deputy Lippincott of Yreka fed 250 quail at Orofino.

A summary shows expenses of winter feeding in Yuba, Sierra, El Dorado, Trinity, Plumas, and Siskiyou to the amount of \$140.25, exclusive of feed voluntarily donated by residents of the above counties, which was greatly in excess of that purchased by deputies.

ANTELOPE.

Deputies in Modoc, Lassen and Siskiyou counties took a census of the remaining antelope in 1912. This showed but 19 of these animals remaining. Countless herds of them roamed the above named counties at one time, especially in the Madeline Plains district. By a strict patrol of their winter and summer range we were able to increase the herds until the last census taken last December showed over 200 of them. Particular credit is due to Fish and Game Deputies Geo. W. Court-right of Straw and J. O. Miller of Bray, whose letters are appended:

Straw, Cal., Feb. 16, 1922.

DEAR SIR: I will hereby give you a brief report of my knowledge of the remaining antelope of Modoc and Siskiyou counties.

Early settlers of Modoc tell of the large herds of antelope which they used to see on the big sage plateau, seven to fifteen miles from the town of Alturas, approximately twenty-five years ago. There were several small herds left, which each year dwindled down to three or five animals at most. This big sage herd of antelope in Modoc County numbered approximately fifteen in 1909.

During the 90's several small herd were known to visit the many little valleys of the above sections, but not to remain longer than a few days. During the summer of 1894 I, with my father, saw three antelope on the bed of Egge Lake, which is

located well to the southwest corner of Modoc County. These three have never been seen since by any person in the vicinity of Egge Lake. During the winter of 1898 I saw just one antelope in township 43 north, range 7 east, M. D. M. near Timber Mountain. I was told this antelope was killed the following day by Ed. Comins of Straw, California.

During the winter of 1894 I made a trip to Pecord, Siskiyou County, which was then located a few miles west of the town of Dorris. In conversation over antelope the cowboys would tell of racing the large herds of antelope a few years back. On this trip I personally observed a small herd of antelope near Mount Dome, Siskiyou County, having approached within a few rods of the antelope before they detected my presence. I became very much impressed. I counted twenty-three head. I made many inquiries relative to the number then existing in that vicinity. The cowboys informed me that this small herd was at that time the total of the remaining antelope in that section.

During the spring and summer of 1901, I, in company with my grandfather, R. P. Courtright, spent considerable time in the vicinity of Medicine Lake, which is located in township 43 north, range 3 east, M. D. M. Here I had the pleasure of seeing a small herd of antelope at the Bray Wells, a few miles north and west of Plumas Lake, which is located approximately 7 miles west of Medicine Lake, Siskiyou County. I also saw small herds near the lower sheep camp wells, approximately 8 miles south of Mount Dome, and at the headwaters of Willow Creek, near Mount Dome.

It appeared that the animals were on a slight increase between 1894 up to 1910 or 1911 and 1912. Since 1913 I have taken great interest and have made numerous countings during winter months, which gave me a fine opportunity to see all the remaining animals. While the residents of the near vicinity of Mount Dome estimate there were from 150 to 300 antelope, I was only able to locate approximately 76 during the years 1913 to 1920. During these winters I often saw the young animals in a poor, weak and sickly condition following the herd with their ears dropped down, without apparent vitality or strength to follow.

G. W. COURTRIGHT, Deputy.



FIG. 32. Walter H Bray of Hornbrook, with his predatory animal dogs.

BRAY, CALIFORNIA.

DEAR SIR: The accompanying picture was taken of a band of 87 antelope. I watched them for some time and got the direction they were traveling, then I got ahead of them and waited for them. I was hid in a juniper, but the leaders spotted me and lined up to take a look. The picture was taken at a distance of fifty-five yards. These animals are not wild at this time of the year. It is no trouble to get within 150 or 200 yards of them in the open, but it is some job to get close enough to take a good picture. I am going out there again in a short time and will try to get some more pictures of the herd. The same day I took the picture I found three more antelope in Mitchell's field, making 90 altogether. It is possible that there was another small band somewhere that I did not find.

J. O. MILLER, Deputy.

This is an example of what a strict application of game patrol will do for game conservation. A refuge should and no doubt will be created for their winter and summer range by the 1923 legislature.

DEER.

Irrespective of any action taken toward surrounding the black-tail deer with more protection, either by limit or season, it is absolutely



FIG. 33. Winter feeding of deer at Blairsden, California, March, 1922. Photograph by Otto A. Riffles.

necessary to afford greater protection to the mule deer of Lassen and Modoc counties, especially in the Lava Bed sections, before they are finally exterminated. This grand animal, the largest of the deer family, with the exception of the elk, many of which weigh nearly 300 pounds, is laboring under a protective handicap placed by nature. It is unlawful to kill a spike buck, which among the black-tail is usually a yearling deer. About 98 percent of yearling mule deer have forked or branched antlers. Very few have spikes. They consequently are legal deer to kill even before they are yearlings. As the youngest buck deer are more valuable for service, it does not take much calculation to figure out the great disadvantage under which this species of deer labor. A closed season in the counties of Lassen and Modoc for two or more years would result in bringing back this splendid animal.

QUAIL.

The excessive snowfall at such low altitudes was more or less destructive to both mountain and valley quail. One compensative feature was the fact that the snowstorms were intermittent and the birds were able

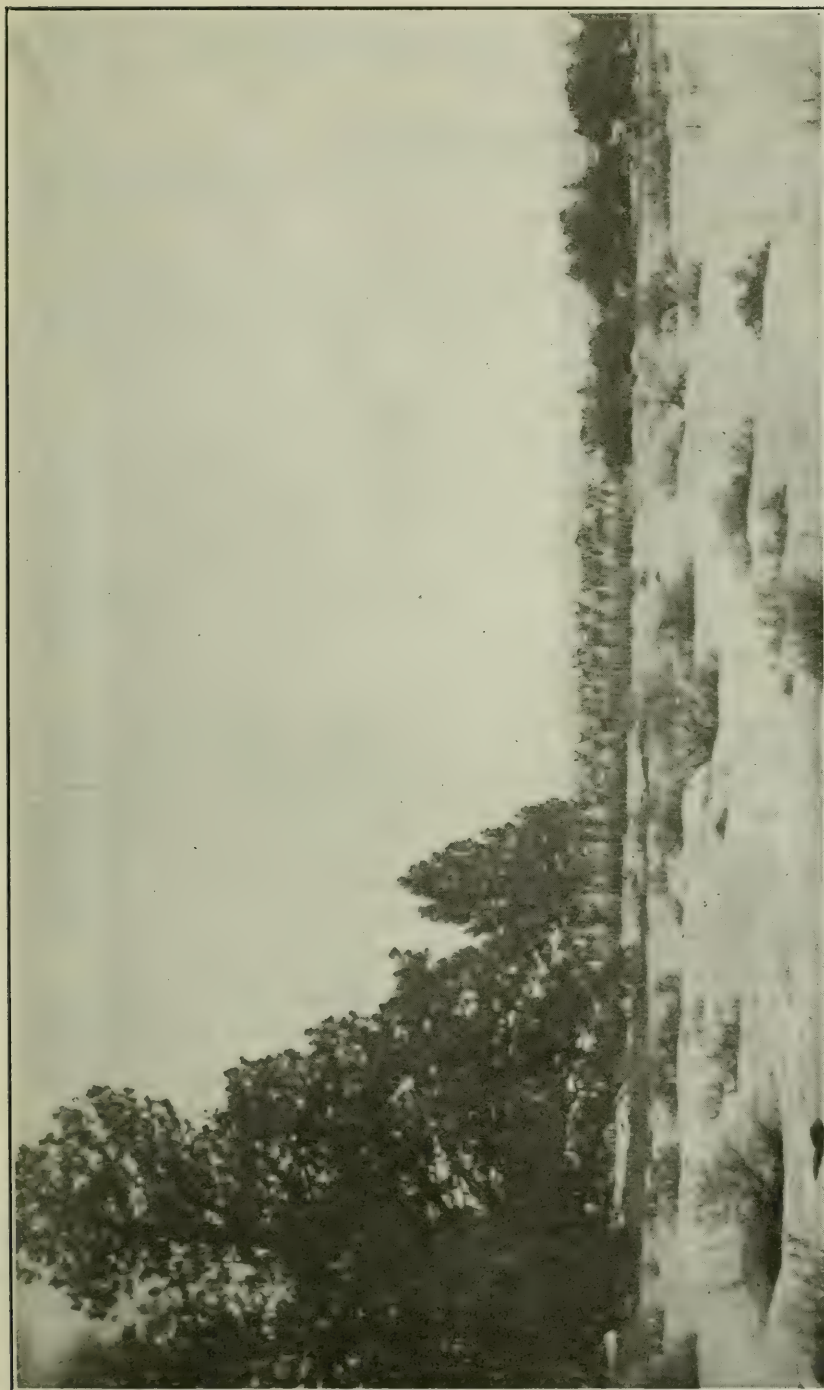


FIG. 34. Part of the Mount Dome herd of antelope, the last large herd left in California. Careful protection is being given these antelope. The picture shows 87 animals and was taken by Deputy J. O. Miller in December, 1921, during winter feeding operations.

to recuperate between these periods. Intelligent feeding enabled many flocks to weather the storm. An outstanding feature of this was that hundreds of quail made the small towns their temporary home and were fed in the main street by residents.

SAGE HEN—GROUSE.

These birds are not abundant, and like certain other game birds, are victims of the efficiency of the trinity of the auto, good roads and the ever-increasing efficient marksman.

DOVES.

The later open season of September 1st, established by both the federal and state law, has made a remarkable improvement in the number of these birds. It has demonstrated that these birds remain late enough in the season if not molested.

DUCKS—GEESE.

The inauguration of an earlier open season by sixteen days by the United States Biological Survey, Department of Agriculture, which now controls migratory waterfowl, and by the state, has solved the problem of alleged damage to rice crops by ducks. The rice farmer is now enabled to "take it out on the duck" while he is with him, thus removing the incentive to violate both the state and federal laws. While this season is not entirely satisfactory to the average hunter, owing to weather conditions, still it is more satisfactory to all as a remedy to the condition which previously existed.

INTRODUCED FISH.

The phenomenal growth and increase in our introduced fishes, the bass, sunfish, and crappie, is most remarkable, and is eagerly taken advantage of by the rapidly increased interest taken in this outdoor, gentle sport. These fishes may now be found in all waters of the lower altitudes, and in many waters up to 2500 feet in which it would be unwise to plant trout. The crappie appears to be taking the place of the Sacramento perch near Sacramento. This species seems to become more abundant from year to year, and every week-end and holiday sees hundreds of men and boys angling for this splendid game fish.

The crappie takes the fly readily and is easily caught on a spinner. Anglers maintain that the crappie compares favorably with the black bass as a pan fish. A splendid exhibit of these fishes has been made annually at the State Fair.

LAUNCH PATROL.

The patrol launch Rainbow, with a speed of nearly 30 miles an hour, has maintained its reputation for the speedy breaking up of and preventing of violations of the netting and other laws.

FREE CAMPING GROUND.

The Fish and Game Commission has maintained a free camping ground on the old hatching property at Tahoe City for the past three seasons. A much larger number of people patronize it each succeeding year and pronounce it the most ideal spot, the best equipped and most sanitary they have visited.

Respectfully submitted.

(Signed) GEORGE NEALE,
In Charge.

SAN FRANCISCO DISTRICT REPORT.

The Honorable Board of Fish and Game Commissioners.

SIRS: During the two years closing June 30, 1922, 1224 arrests were made by the deputies of the San Francisco District for violations of the various laws relating to fish and game. Fines totaling \$34,442.75 were paid into the state treasury and in addition jail sentences aggregating 332 days were served by defendants.

Outside of the city of San Francisco the support received from the various justices of the peace of the district was most satisfactory. Only 3 per cent of the actions filed were dismissed and only 4 per cent placed on probation. These for the most part were minors and technical offenders. The average fine imposed was slightly under \$30.

In San Francisco while the percentage of dismissals was even smaller than in the district in general, 2 per cent, the percentage of defendants placed on probation was much greater, 23 per cent. The average fine imposed was smaller, \$23. The San Francisco courts evidently do not regard violations of the fish and game laws as seriously as do the country courts. While there has been a gradual increasing sentiment during the past several years, there still is a reluctance on the part of hunters to report violations until after so great a time has elapsed that there is no possible chance of catching the culprits.

California has much more to contend with in protecting her game than do most of the eastern states. During the summer time thousands of our people live out of doors in their automobiles. They can go to every part of the state, camping where night overtakes them. Guns and fishing outfits are in almost every car. The temptation to kill game out of season is so strong that many can not resist—with a result that game is killed during the breeding season when the loss of one bird means the destruction of an entire flock.

In the east, on account of the summer rains, there is not one camper where there are hundreds in California and it is not so difficult to enforce the laws during the breeding season.

It is impossible in California without funds available to employ wardens to control all of the violators. If every sportsman would take it upon himself to see that the laws were respected and report violations there would be a much greater respect for the law and there would be much more game.

There seems to be an increased number of careless or wilfully criminal deer hunters. The law prohibits the killing of does and spike bucks. The legal deer must be forked horn or better. This law makes it necessary for the hunter to be certain that he is shooting at a legal deer. Unfortunately there are many hunters who shoot first and look afterwards. If it happens to be a legal deer they bring it into camp, but otherwise it is left to decay in the hills.

Many hunters are so careless in shooting at moving brush that in many instances their target is a human being. Year after year many hunters are killed or wounded by their own companions. Any individual killing a person in this way should be prosecuted for man-

slaughter, if not murder. He is guilty of violating the law and also grossly careless, and if that carelessness results in the death or injury of a human being he certainly should be held responsible and made to pay the penalty.

In September, 1921, a sixteen-year-old boy was shot by a hunter near Mount Hamilton. That boy is lying on his death bed today hopelessly paralyzed. The man responsible for the shooting has never been to see him and has not contributed one cent to the hundreds of dollars paid out for medical treatment.

Another shooting occurred in Trinity County. A draftsman employed by the government was on his vacation and was shot in the arm by a companion. This man shot into the brush only a very few moments after the man who he had shot had disappeared from view. Fortunately the man's arm was saved but he had to give up his occupation and it is a question as to whether he will ever regain full use of the arm.

These two instances of many are cited in order to call the attention of readers to the fearful penalty that is frequently paid on account of the gross carelessness of an irresponsible individual. Careless hunters have also caused a great deal of complaint on the part of stockmen, setting fires, leaving gates open, killing and frightening cattle from water holes. Many cattlemen estimate that an actual loss of several dollars per head can be attributed to thoughtless hunters.

It is a serious question as to whether the deer supply, and in fact the supply of game and fish, will continue with our present laws. The development of the automobile, the construction of roads in the out of way parts of the state has caused such a drain on the game that it will probably make it necessary to have still shorter seasons. In the east, great benefit is gained by prohibiting Sunday hunting. This Sunday law is not a blue law but a game law that is necessary in states having heavy population and where there would be so great a number of hunters out on Sunday the game would have no show. Fortunately in California such a law is not necessary at this time, but we may have to come to it in time.

Suggestion has been made that it would be well to shorten the season for the taking of deer—primarily to reduce the number of deer killed and to assist in preventing the great number of forest fires that occur every year during the latter part of the summer. It is argued that by having a shorter season it would be easier to keep watch of the hunters who set fires and kill illegal deer.

It is quite probable that a short season would have just an opposite effect and make more violations and more fires. A short season would crowd the hunting grounds and all deer hunters would be in the field at the same time. The unscrupulous hunter knowing that there were so many others around and his time limited would be even more willing to shoot and look afterwards. There would be a great increase in the number of people wounded and killed and also a great increase in the number of does and spike bucks left in the hills to decay. Also the individual who unlawfully starts a fire would be more inclined to do so in order to better his chances in getting a deer in the limited time allowed by law.

The Fish and Game Commission has been urged by many good sportsmen to have the penalty for violating the various laws increased. They believe that there is particular necessity for increasing the penalty for killing a doe even so far as to make it a felony. At the present time the range of fines that may be imposed for doe killing is from \$50 to \$500 and in addition a jail sentence of 150 days may be imposed. For other violations of the fish and game laws a fine of \$25 to \$500 may be imposed and the same jail sentence.

Unfortunately many justices of the peace do not regard violations of the game law as seriously as do sportsmen and they are inclined to consider the defendant rather than the crime and the minimum fine is most frequently imposed and sometimes they deem this even too severe and either suspend sentence or put the violator under probation. If the minimum fines were increased there would be more suspended sentences and more probations. If the sportsmen who are interested in seeing the laws enforced would take it upon themselves to back up the justices of the peace who impose severe sentences and insist that the milder justice impose fines upon wilful and deliberate violators that are somewhere nearer the maximum, they will do more to stop the illegal killing of game than could be done in any other way.

WATERFOWL.

The 1919-1920 duck season was not good anywhere in the San Francisco District. In the San Joaquin Valley there was very little loafing water and the birds continued in their migration. At the opening of the season there were a good number of birds and many limits were taken. On one ground near Gustine, out of 400 hunters, 125 secured full limits and most of the others secured parts of limits. Shooting was better on the opening day than at any other time during the season. In the Suisun marsh shooting was also poor during most of the season.

The 1921-1922 season opened much better. On the same ground mentioned above, Gustine, there were twice the number of birds killed as were killed previous by approximately the same number of hunters. Shooting continued to be good during the remainder of the season but was not up to normal.

During the past several years there has been a very great decrease in the number of geese in the San Joaquin Valley. It is apparent that the settling of the country has driven the birds to other localities. This year better conditions should prevail as the heavy run-off from the Sierras resulting from the heavy snows has filled the lower country such as Tulare Lake covering 30,000 acres, and other loafing waters, sufficiently to hold the birds.

QUAIL.

While the dry years have not been favorable for duck shooting they have been excellent for quail. Birds were reported abundant in all sections of the district. Quail seem to have learned how to take care of themselves better and as soon as the season opens they take to the higher brush where the hunter has more difficulty in securing a bag limit. Likewise the brush, on account of the scarcity of fires, has grown higher and quail find better shelter.

Mountain quail are not hunted anywhere near as extensively as are the valley quail and have increased in many parts of the district. The mountain quail is even a better bird for the table than the valley quail, but it is not regarded as highly by the hunter as it does not lay as well to the dog and is seldom in open country.

TREE SQUIRRELS.

Tree squirrels are reported abundant in the coast section but in the Sierra region they have been greatly reduced in numbers by an epidemic which, according to reports, has almost exterminated them in some sections.

OTHER GAME.

Other species of game, grouse, rabbits and doves have afforded excellent hunting and are holding their own, if not increasing.

FISHING CONDITIONS.

On account of several dry years, trout fishing in the coast streams has been poor. In many streams the water was so low that practically all the fish disappeared and it was necessary to restock in order to bring them back. There has been so great an increase in the number of fishermen that all the streams in the vicinity of San Francisco have been over-fished. If it were possible it would be well to close certain streams until they can be restocked.

Respectfully submitted.

J. S. HUNTER,
In Charge.

REPORT OF LOS ANGELES DISTRICT.

*The Honorable Board of Fish and Game Commissioners
of the State of California.*

GENTLEMEN: The biennium ending with this last fiscal year has been a peculiarly trying period of ever-increasing pressure upon your "Southern Division," and particularly its Los Angeles headquarters office.

We have fought faithfully to stay within sight of enormously swelling demands for every department of our work, despite the financial limitations inevitably imposed upon all expenditures by the dollar unit of license income.

Sportsmen constituents and the host of industries more or less directly dependent upon outdoor attractions persist in asking ever larger allotments of fish for planting, and more intensive patrol work. To our pleas that the dollar-license was established fifteen years ago when the dollar stood at par in purchasing power, these hunters and anglers reply that we have educated them to the fact that they must maintain all wild life conservation in California, and awakened them to the importance of keeping up these potent inducements to immigration as well as the

recreation of our resident citizens. It is they, rather than your humble servants, who ask increase in the license rates. They bring us demands that are to be met in no other way, and declare since the responsibility is theirs, they wish to finance the job upon a 100 per cent basis.

The biennium preceding was remarkable in its showing of sustained interest in outdoor sports which even the terrific distractions of world-wide war proved powerless to discourage. Following it, in logical sequence, the return of our young service men, hardened by military training, inured to roughest adversities of "camping-out" in climates far less charitable than their California, and further familiarized with firearms, naturally has brought quite the increase in rod and gun enthusiasm we predicted, and more; with all that entails from the intensely-interested viewpoint of those whose efforts are devoted to this great work of wild-life conservation.

After so undeniable a demonstration of the vitality of sporting enthusiasm as the last two years of war showed, surely no great stretch of foresight was needed to predict that with signing of the Armistice would start an entirely new era in the world of outdoors, requiring the redoubling of all official efforts toward maintaining our splendid sporting attractions in this great state of sportsmen.

That such predictions, however extravagant they then seemed, have fallen far short of post-war experience, scarcely calls for apology. Neither need we assume blame for a condition we could not change in our present financial inability to adequately meet such situation under the existing system of granting for one dollar, access to an aggregate tonnage of game or of fish which lawfully may be taken by the sporting licensee in quantities to be worth for food alone, a thousand times that modest sum.

Should this statement seem overdrawn, one needs only to measure mentally the mountain of game that our liberal seasons and bag limits allow the licensed hunter during the year. The appalling conclusion then is forced that were even a small percentage of our quarter-million hunting licensees fully to avail themselves of this privilege for which they have paid one paltry dollar, California's fields, marshes and mountains speedily would be depopulated of game; the ducks, geese, snipe; the deer, quail, doves, rabbits, grouse, squirrels but a memory—and a nightmare at that!

In the case of fresh-water game-fish, for which the same nominal dollar-license is collected, the annual tonnage becomes even more appalling when it is remembered that seasons are longer, without weekly limitations upon the bag. More particularly does this situation challenge the consideration of sporting conservationists when it is realized that our fresh-water game-fishing, when not actually artificially established, has been, at least for years past, virtually upon an artificially-maintained basis.

Herein, we have the anomalous and indefensible situation of a self-supporting sport with innumerable business aspects, which now threatens no longer to support itself because each additional licensee may prove a liability rather than the asset of antebellum days when his dollar paid for raising and distributing more trout than the average angler took from our streams during the year. Further complication is

added by the steadily-increasing skill of our sportsmen anglers, although this carries with it at least the crumb of comfort in a consistent growth of sentiment against the use of salmon eggs, which bait must be considered among the foremost unnatural enemies of the trout fry being planted in millions each summer by this Commission in California's streams.

Fortunately the average annual bag or creel would not show even a suggestion of these totals of legal-limit possibility; but the enormous multiplication of individual demands surely is alarming enough. It has become one of the most serious problems now facing wild-life conservationists, although but one among many. Aided by the automobile whose destructive possibilities through rapid and pleasant transportation are enormously enhanced by the ever-spreading system of cement boulevards, this increase of hunting and angling enthusiasm has suggested in itself the means to meet its demands. The sportsmen who pay for all wild-life work have embraced their responsibility with an ardor and an insistence upon raising their license contributions to an adequate figure which places us, their servants, in a peculiarly delicate position; for we do not wish to be misunderstood as attempting to evade their apparent willingness to finance further and more extensive work in their behalf.

As to the opportunity for greatly increasing expenditures, little need be said. All the present income of the Fish and Game Commission could be expended for rearing and distributing trout alone. Last year, although the Department of Fishculture broke all known records by taking 25,000,000 trout eggs and distributing over 24,000,000 fry successfully, applications were on file for considerably over twice that number. The amount of money that could be expended efficiently in patrolling this vast state, greater than many an independent nation, comprising every condition from alpine to oceanic, scarcely calls for any extended argument. Importation of promising alien species of game birds from Mexico, projected and perforce held up from lack of funds last year; sweeping antivermin campaigns and closer patrol of the game refuges; substantial improvements in behalf of the hunter, all would become possible were the revenues available to undertake them upon a wholesale basis.

Foreseeing the post-war situation was one thing; financing its anticipated demands with a depreciated dollar is another, and vastly different. By no process short of the supernatural can one dollar do the work of five; but that is substantially the situation confronting your servants in conservation since the armistice. We have met it as well as we could. Substantial cooperation from county supervisory boards, the Forest Service, the sportsmen's associations, chambers of commerce, has been enlisted wherever possible. As a result, we have now a patrolman in every southern county excepting one, and something of a localized organization in fish and game work. County supervisors are realizing that we are undertaking a big job under a financial handicap; some have contributed to the cost of planting fish, an item enormously increased throughout the state by the withdrawal of former free transportation of fish cars and messengers over the railroads. Others add to the state lion bounty and make the extermination of these vermin,

natural enemies of the stockman as well as the deer hunter, more attractive, thus encouraging men to make a business of hunting lions and maintaining packs of specially-trained dogs therefor.

Most of our southern counties cooperate with us in the most substantial and gratifying way by joint appointments, whereby the county game warden appointment is given to the state representative upon a division of expense and salary basis. The arrangement has worked out decidedly well; the counties are awake to the importance of preserving their peculiar wild life attractions. Upon most of the national forest reserves, the rangers are giving all the time they can to fish and game patrol; the forest officers mostly are ardent and well-informed conservationists, our deputies cooperating to the extent of fire prevention also. But for such assistance from these allied sources, not nearly so much could have been accomplished.

GAME CONDITIONS.

Antelope. Special attention has been paid to preserving the remaining native big-game animals which have received from many past legislatures the statutory protection of entirely closed seasons and heavy penalties.

Rapid settling-up of the typical antelope range on the "plains" of western Mojave Desert to which valley they leave their name as a monument and perpetual reminder of their one-time plenty, probably has sealed the fate of these unique and interesting creatures, whose history has been so interwoven with the pioneering of the west. The "Prong-horn" and civilization can not co-exist. Civilization now has claimed Antelope Valley for its own. Preying principally upon the "kids" when snow and shortened rations have cut down the only physical resource of these animals—their great speed—the coyotes, the chief natural enemy of the species, take a considerable toll annually, and particularly in such heavy winters as last.

Upon resolutions from local chamber of commerce representatives, asking legal permission to "round-up" and "corral" the remnant of these antelope in an enclosure to be made by fencing off a relatively small part of the desert, the Commission conferred with the various societies interested in maintenance of wild-life as such, and found its verdict affirmed that the animals should be left in a state of nature, with all possible done in their behalf. Whenever any so inherently wild a species as the "Prong-horn" is reduced to slowly perish in the protracted misery of captivity, its status as "wild-life" is admittedly at an end.

Cooperation with the "Committee for Conservation of Wild-Animal Life" of the California Academy of Sciences has been whole-souled and not without results in this southern division. Enameled steel signs have been posted along principal routes of travel, giving access to haunts of antelope and mountain-sheep, warning the public that these animals are protected and their range is at hand. Arrangements to enlist public-spirited observers as incidental protectors also have been undertaken. Winter feeding is among the most effective methods of antelope conservation, its success having been demonstrated on the Mount Dome Antelope Refuge in northern California.

Mountain Sheep. An important and interesting example of effective big-game conservation by law is shown by the material increase of mountain sheep in the southern division. Reinforced by the relative remoteness of their habitat in the desert ranges of southeastern California, human depredations against the wholly closed-season have been confined to occasional Indians, prospectors, and a few case-hardened, chronic violators whose pernicious activities have engaged the attention of our resident patrolmen in Inyo, Riverside and San Diego counties. Offenders of this type, after exhausting every subterfuge and necessitating several trips of the Commission's attorney at the expense of law-abiding sportsmen's funds, finally were fined \$500 plus large attorney's fees. There is satisfaction to big-game hunters, as well as other conservationists, in this increase of mountain sheep under "wise laws well enforced."

Deer. Deer conditions can not be considered at all satisfactory in the south, where intensive hunting has resulted in appalling increase of the all-too-charitably excused "hunting accidents," and a disproportionate upsetting of the natural sex-balance by killing-off of adult bucks. This, in light of recent practical demonstrations destroying vermin in Australia, tending to show that reduction of males is a material stimulant to fertility, is not necessarily so serious in itself as most hunters fancy; but the annual drain under a two-buck limit has been excessive. As an additional safeguard to human life, reduction of the limit to one forked-horn buck or bigger, now appears essential. Hunters, knowing they can lawfully kill but one, will be somewhat less rash in risking a shot at anything that looks like a buck. Practical conservation aspects of a limit in fact, which really can be enforced, suggest themselves. Whether the "forked-horn law" should be further reinforced by rendering it a felony to kill a man "by accident"—nine times out of ten, purely criminal carelessness and wanton disregard for a law which plainly says "look for forked-horns"—this is for the coming legislature to decide. The certainty is, that with our enormously-increasing concentration upon the remainder of deer left in our narrowing areas of deer country, further restrictions by cutting in two the limit and curtailing the total in open seasons, are necessary.

Mountain Lions. Our efforts to awaken county cooperation toward systematic reduction of lions, pests to stockraiser and sportsman alike, natural enemies of calves, colts, pigs as well as deer, continue bearing gratifying results as one county after another does what this Commission for financial and other reasons can not do—adds enough to make the state bounty attractive to professional lion hunters, enabling them to keep trained dogs and follow up the demonstration so effectively made by our state lion hunter, Jay Bruce. If current estimates are correct that every deer killed has put \$100 into circulation, common sense would indicate that a lion which may kill 50 deer a year is cheap enough at that price.

Waterfowl. The congested character of southern California's artificially created shallow artesian-overflow duck shooting along the coastal plain has brought its own peculiar problems in a patrol way, offering work enough for half a dozen active deputies throughout the shooting season and a month before and after. Similarly, Big Bear Valley

and Buena Vista Lake, centers of interest among the "unattached majority," also call for closer attention than this Commission as yet has been able to finance.

In western Orange County particularly, concentration of duck preserves within an area of some six or seven miles square, traversed by intersecting roads every mile, inevitably has brought a considerable conflict between clubmen and their "uninvited guests", with which of course this Commission has only incidental concern; but the common interest of the law-abiding sportsman must be served by seeing that the opening of shooting is enforced to the legal minute, since the sport of a thousand may be spoiled for the day by rash selfishness of a few. Stopping shooting in the dusk when guns flash, is one of the most important means to maintain ducks in any locality which for reasons of food and fresh water they wish to frequent. Like most forms of conservation, sport as well as wild-life must benefit by the same action. A large bell, tolled at the legal minute, removes from the careless, any color of excuse for "early-shooting", which drives out the ducks for everybody.

The amounts of money wealthy sportsmen are paying to preserve duck shooting within an hour's drive of business is a very interesting sidelight upon wildfowl conservation, whose practical benefits speedily would be lost upon everybody were drainage and subdivision to deprive the ducks of any inducement for stopping off and wintering in our coastwise overflows, whose value now finds oil excitement added to the previously spectacular increase in acreage adjacent to the city incidental to southern California's growth. In one favored instance, development of oil, instead of destroying a world-famous duck preserve, appears to have perpetuated the sport by turning the property into an immense dividend payer of spectacular magnitude with duck shooting an additional, self-supporting and seemingly uninjured "interest". But in most cases, the sport is costing more and more.

FISHING CONDITIONS.

Importance of keeping pace with the rapid development of power and irrigation projects incidental to the unprecedented population growth of the southern division counties early was appreciated. While at first thought the menace to natural fishing might seem prohibitive, the possibilities of "wise laws well enforced" have been invoked to make in behalf of the angling licensees, best possible use of these water-impounding projects.

Of power and irrigation projects in these days of phenomenally growing population, there can be no end. One of the problems of this sportsmen's commission must be the maintenance of all possible public access to the fishing that it is developing therein. Throughout lowland valleys, bass lakes will become more and more plentiful: the black bass is the sporting fish of the future so far as the general public is concerned; and indeed that future is very nearly upon us now. Our mountain lake trout possibilities naturally are limited; but every water impounding scheme suggests bass possibilities.

After considerable negotiation, the city of Los Angeles finally arranged to continue the excellent sport of bass fishing on the large irrigation storage reservoirs of upper San Fernando Valley, and of

course farther on, beyond the city limits up along the line of the aqueduct where municipal jurisdiction ceases, there has been no objection. Since this sport within the city limits is so inexpensive and easily accessible, it is of prime popular importance; and efforts of this Commission to continue it upon a recognized and properly regulated basis, such as has proved so successful in San Diego's municipal lakes, have resulted in a better all-around understanding and general education of the public to the necessity of carefully respecting sanitary regulations to perpetuate the privilege.

The precedent thus established already is bearing fruit in setting an example to privately-controlled water companies throughout the south, several of which have found it paid them well to enlist all possible popularity through permitting the public to enjoy this cheap and good fishing right near home. Friends always are an asset in any enterprise; fishing might help float bond-issues—stranger things have happened.

Sport in the sea has had special attention despite the manifest difficulties of reaching conditions so vast as those of the changing ocean. Efforts to protect the rights of the sporting angler from unnecessary and unavoidable encroachment by the alien professional have on the whole, been fairly successful, although maintenance of any entirely efficient patrol is beyond present financial possibility until all who enjoy fishing of any sort from ocean wharves, piers, break-waters, etc., realize that to keep net-fishermen 750 feet away from them is a most practical form of protection, for which they must expect to pay the costs in the form of purchasing angling licenses, without hair-splitting technicalities as to whether the species they are angling for is technically classified as "game fish," or not.

LICENSE SALES.

Expansion of the license-sales system developed by this office has continued until now hunting and angling licenses are obtainable in every country village and most of the crossroads hamlets. Rendering licenses easy to obtain probably has played fully as great a part in stimulating sales as patrol work, since after all, the nominal dollar is regarded by the great majority in its proper light as virtually a voluntary contribution to improvement of their sporting conditions; "chipping-in" to a state-wide association of sportsmen. In the southern division during the fiscal year ending June 30, 1921, \$54,114 was the net total of hunting license sales; the last year, a gain of 3620, or 6.6 percent; angling license showed a gain of over 10 percent, totalling \$40,496 net to December 31, 1921. Sales of commercial fishermen's licenses, however, showed a serious falling off from \$28,000 April 1, 1921, to \$19,860 last April, due in great measure to the curtailing of the fish packing industry following the armistice, and slackening of the war demand. This class of revenue supports the research and regulation of commercial fisheries, together with tonnage taxes and privilege licenses for wholesale shellfish dealers, fish packers, kelp harvesters, etc.

LAW ENFORCEMENT.

Considerable comfort is derived from the steadily stiffening disposition of southern division judges to impose fines of sufficient size to really

have some deterrent effect upon the deliberate class of fish and game law violators, either for their own selfish pleasure, or personal profit. Our newspapers, city and country, have cooperated most effectively in a continual campaign of education aiming to impress the general public with the petty larceny nature of wilful violation, which amounts virtually to stealing the sport of the law-abiding class which leaves its guns and rods encased until the law says "let's go" for everybody. The economic injury of shooting nesting birds and thereby depreciating the attractions to outdoors has been impressed quite effectively. All of this finds statistical proof in records of the Los Angeles office, showing 137 convictions during the year ending June 30, 1921, with average fines of \$28 and a conviction percentage of 92.7; which was increased during the last fiscal year to 219 cases, with average fine \$28.26, and a conviction percentage of 94.5. In 1921, \$3555 was collected in fines in the southern division; last year, this was substantially increased to \$5850. As no less than 128 of these 219 cases were made for game law violations, almost equalling prosecutions for all classes of violation the year prior, the interests of the hunters would appear to have been fairly well served; while the diversification of patrol attention is proved by 29 cases for sport or game fish violations and 50 prosecutions for commercial fisheries infractions. To these might be added some cases made by the sea patrol of which the Los Angeles office lacks record; those given mostly were prosecutions by the regular warden force incidental to their general patrol work.

However, patrol efficiency must always remain relative; the increasing totals of cases does not indicate more violation or increasing lawlessness; rather, it suggests that the intelligent cooperation we have been able to enlist from all allied authorities is "rounding up" an ever-increasing proportion of offenders. Welcome as would be the day when patrol work could be dispensed with and its high costs spread upon more directly constructive operations, none but dreamers expect it short of the millennium; so our efforts will continue correlating and cooperating with local authorities in every practical way toward rendering fish and game law violation an increasingly bad risk, with certainty of ever stiffer penalties upon conviction.

EDUCATION AND PUBLICITY.

"Backing-up" of patrol by publicity as a part of our general educational program is a policy established and persistently amplified all possible in the southern division; the most important work in behalf of wild-life conservation is inculcation of a favorable sentiment, which can not be maintained by working with the better class alone and leaving the lawless to work their will. There is a small minority which does not read, has no sentiment about fish or game, and respects only one kind of "education". For such, we have the iron fist of the law. Those who respect all regulations not from fear or force but from recognition that restrictive laws are necessary and right, are entitled to protection, and deserve to know that they have been getting it. Hence the importance of public announcements of prosecutions is not limited merely to their deterrent effect upon the careless, whom fear of fines might restrain.

Incidentals of our publicity work, are announcements of laws, seasons, changes in the natural conditions; general information service to sportsmen; cooperation with such sterling organizations as the Automobile Club of Southern California, Los Angeles Athletic Club, and sportsmen's clubs in general. It has been an extensive service. This Los Angeles office never has lost sight of the peculiar and direct relation that exists between the sportsmen and their Fish and Game Commission; our slogan has been "service"; and so far as the physical and financial limitations placed upon us have permitted, our efforts consistently have been to make of this work a helpful stimulant of that wholesome outdoor enthusiasm which has done so much to bring people to California and keep them healthy and happy here. It has meant much work and activities that in a narrower interpretation of our duties might have been evaded; but on the whole, the warm and personal regard with which our southern sportsmen as a class appear to consider this Commission has been no small reward in itself.

Internal cooperation with our several departments, as a matter of course has been continuous and complete. Activities of the southern division in regulation of commercial fisheries, necessarily have been both comprehensive and considerable. In particular, the regulation of reduction to fertilizer, fish-meal, fish-oil, etc., by the fish-packing industry, and general patrol of our commercial fisheries alongshore and in town, while primarily responsibilities of our Commercial Fisheries Department, and properly a charge upon its special revenues, have called for and received our constant cooperation.

Cooperation with the Department of Pisciculture in arranging for the distribution and planting of trout fry, protection of spawn sources from every manner of ill-advised menace, such as agitations to plant bass in trout lakes; "holding fish" to six-inch size before liberation, and similar advocations of the inexperienced or uninformed, all have been among the daily activities of your southern division headquarters. So likewise has been the protection of the plantings by enforcing the screening of ditches, canals and other diversions of trout-carrying water. In Inyo and Mono counties, even up into the wilds of Alpine, the larger ditch and canal owners are bringing their diversions of water within the law. Thus far, this has been accomplished without prosecution. Large concerns cheerfully and promptly comply with every request made. For those which do not, the demonstrated success of injunction proceedings remains as a last resort. Gradually, the idea is spreading that whosoever is served with orders to screen, must comply in the end. Public sentiment has responded encouragingly to plain presentations of the facts. While much remains yet to do, the accomplishments of the last biennial period give ground for believing that the increasing development of water for power and irrigation can be so handled as not to imperil fish and fishing, but rather to enhance sport of the future.

Respectfully submitted.

EDWIN L. HEDDERLY,
In Charge.

APPENDIX.

FISH DISTRIBUTION BY COUNTIES, SEASON 1920.

Mount Shasta Hatchery.

County	Rainbow	Loch Leven	Eastern brook	German brown	Salmon
Alpine	180,000	40,000	20,000		
Alameda	14,000		2,000		
Amador	20,000	50,000	20,000		
Butte	208,000	385,000	138,000	135,000	
Calaveras	118,000	200,000		150,000	
El Dorado	226,000	294,000	124,000	114,000	
Fresno	161,000	150,000	105,000	80,000	
Inyo		70,000			
Kern		100,000	25,000		
Lake	10,000				
Lassen	16,000		4,000		
Madera		20,000	20,000	10,000	
Marin		100,000			
Mariposa	45,000	142,000	76,000	105,000	
Modoc	122,000	22,000	20,000		
Mono		40,000			
Monterey	100,000				
Napa	60,000				
Nevada	357,500	364,000	92,000	88,500	
Placer	263,000	220,000	140,000		
Plumas	235,000	169,000	70,000	69,000	
San Benito	30,000	45,000	4,000		
San Luis Obispo	60,000	50,000			1,000
San Mateo	11,000	1,000			
Santa Barbara		20,000	10,000		25,000
Santa Clara	16,000				
Shasta	264,000	395,000	58,000	50,000	
Sierra	30,000	185,000	92,000	5,000	
Siskiyou	133,000	718,000	121,000	50,000	5,250,000
Sonoma	40,000	15,000	6,000		
Tehama	80,000	130,000	12,000	50,000	
Trinity	40,000	55,800	34,000	18,000	
Tulare	20,000	40,000	5,000		
Tuolumne	220,000	180,000	10,000	150,000	
Yuba	47,500	90,000	20,000	42,500	
Totals	3,127,000	4,290,500	1,228,000	1,117,000	5,276,000

FISH DISTRIBUTION BY COUNTIES, SEASON 1920.—Continued.

Fall Creek Hatchery.

County	Rainbow	Salmon
Siskiyou County.....	587,500	2,351,000

Mount Whitney Hatchery.

County	Rainbow	Steelhead	Golden
Fresno.....		14,000	
Inyo.....	116,000		
Kern.....	200,000		
Los Angeles.....	100,000		
Madera.....	72,000		125,000
Mariposa.....	18,000		25,000
Mono.....	140,000	4,000	169,000
Riverside.....	46,000		
San Diego.....	26,000	110,000	
Santa Barbara.....	3,000	53,000	
Tulare.....	220,000	26,000	
Ventura.....	169,000	117,000	
Totals.....	1,110,000	324,000	319,000

Fort Seward Hatchery.

County	Rainbow	Steelhead	Salmon
Humboldt.....	69,000	450,000	514,000
Marin.....		35,000	
Mendocino.....		140,000	
Sonoma.....		60,000	
Trinity.....	10,000		
Totals.....	79,000	685,000	514,000

Tahoe Hatchery.

County	Rainbow	Steelhead	Black-spotted
El Dorado.....	26,000	5,000	19,000
Nevada.....	10,000		62,000
Placer.....	95,000	32,000	190,000
Sierra.....	20,000		20,000
Totals.....	151,000	37,000	291,000

Mount Tallac Hatchery.

County	Black-spotted	Steelhead
Alpine.....	50,000	
El Dorado.....	417,000	36,000
Totals.....	467,000	36,000

FISH DISTRIBUTION BY COUNTIES, SEASON 1920.—Concluded.

Domingo Springs Hatchery.

County	Rainbow	Steelhead
Plumas	270,000	27,000
Shasta	20,000	
Tehama	125,000	
Totals	415,000	27,000

Clear Creek Hatchery.

County	Rainbow
Lassen	180,000
Plumas	71,000
Total	251,000

Bear Lake Hatchery.

County	Rainbow
San Bernardino.....	1,014,000

North Creek Hatchery.

County	Rainbow
San Bernardino.....	154,000

Brookdale Hatchery.

County	Steelhead
San Mateo.....	20,000
Santa Clara.....	200,000
Santa Cruz.....	530,000
Total	750,000

Wawona Hatchery.

County	Rainbow
Madera	10,000
Mariposa	283,000
Total	293,000

Kaweah Hatchery.

County	Rainbow
Tulare	295,000

FISH DISTRIBUTION BY COUNTIES, SEASON 1921.

Mount Shasta Hatchery.

County	Rainbow	Loch Leven	Steelhead	Eastern brook	German brown	Salmon
Alameda	18,000	17,000	66,000	6,000		
Alpine	26,000		40,000	30,000	54,000	
Amador	105,000	166,000	16,000	95,000	50,000	
Butte	269,000	350,000	20,000	119,000	114,000	
Calaveras	124,000	180,000		15,000	96,000	
Colusa	130,000	16,000	30,000	12,000		
El Dorado	166,000	317,000	100,000	179,000	220,000	
Fresno	275,000	296,000		117,000	50,000	
Glenn	40,000	44,000				
Kern		100,000		50,000		
Lake	10,000	8,000	30,000		6,000	
Lassen		26,000		6,000		
Madera	102,000	8,000	16,000	30,000	10,000	
Mariposa	66,000	159,000	54,000	62,000	102,000	
Marin		75,000	115,000			
Modoc	155,000	30,000		62,000		
Mono	28,000			30,000	2,000	
Monterey	180,000	170,000			10,000	
Napa	44,000	8,000	140,000		4,000	
Nevada	443,000	592,500		158,000	140,000	
Placer	180,000	212,000		197,000	10,000	
Plumas	140,000	208,000		94,000	20,000	
San Benito	30,000	30,000	12,000	12,000		
San Mateo	30,000		115,000	15,000		
Santa Barbara		20,000		10,000		25,000
San Luis Obispo	82,000	34,000	16,000	6,000		2,000
Shasta	365,000	400,000		60,000	60,000	
Sierra	37,000	85,500		55,000	16,000	
Siskiyou	247,500	273,000	20,000	125,500	84,000	5,663,000
Sonoma	26,000	8,000	50,000			
Tehama	102,000	90,000		12,000		
Trinity	82,500	40,000		62,500		
Tulare	30,000	150,000	25,000	25,000	20,000	
Tuolumne	155,000	225,000	50,000	50,000	150,000	
Ventura				8,000		
Yuba		49,000				
Totals	3,691,000	4,427,000	875,000	1,703,000	1,218,000	5,690,000

Fall Creek Hatchery

County	Rainbow	Salmon
Butte	30,000	
Plumas	95,000	
Siskiyou	472,000	3,132,000
Totals	597,000	3,132,000

Mount Whitney Hatchery.

County	Rainbow	Loch Leven	Steelhead	Eastern brook	Large lake
Fresno	4,000		4,000		20,000
Inyo	136,000	60,000	80,000		10,000
Kern	178,000				50,000
Los Angeles	120,000		20,000		
Madera	20,000	20,000	10,000		
Mono	173,000	160,000	52,000		53,000
Riverside	36,000	4,000	10,000		
San Bernardino	8,000			6,000	
San Diego	35,000		125,000		
Santa Barbara			80,000		
Tulare	181,000	42,000	186,000		32,000
Ventura	201,000	4,000	195,000		
Totals	1,092,000	290,000	762,000	6,000	165,000

FISH DISTRIBUTION BY COUNTIES, SEASON 1921.—Continued.

Fort Seward Hatchery.

County	Rainbow	Steelhead	Large lake	Salmon
Humboldt	214,000	728,000	46,000	476,000
Mendocino	30,000	67,000	2,000	-----
Totals.....	244,000	795,000	48,000	476,000

Tahoe Hatchery.

County	Rainbow	Steelhead	Black-spotted	Large lake
El Dorado.....	36,000	150,000	-----	20,000
Nevada	-----	-----	-----	90,000
Placer	94,000	180,000	240,000	80,000
Sierra	30,000	20,000	-----	50,000
Totals.....	160,000	350,000	240,000	240,000

Mount Tallac Hatchery.

County	Black-spotted	Large lake
Alpine	-----	50,000
El Dorado.....	280,000	485,000
Totals.....	280,000	535,000

Domingo Springs Hatchery.

County	Rainbow
Plumas	293,000
Tehama	200,000
Total.....	493,000

Clear Creek Hatchery.

County	Rainbow
Lassen	275,000
Plumas	80,000
Total.....	355,000

Bear Lake Hatchery.

County	Rainbow
San Bernardino.....	1,214,000

North Creek Hatchery.

County	Rainbow
San Bernardino.....	1,005,000

FISH DISTRIBUTION BY COUNTIES, SEASON 1921.—Concluded.

Brookdale Hatchery.

County	Steelhead
San Mateo	100,000
Santa Cruz	573,000
Santa Clara	210,000
Total.....	883,000

Wawona Hatchery.

County	Rainbow	Steelhead
Madera	30,000	31,000
Mariposa	269,000	67,000
Totals.....	299,000	98,000

Kaweah Hatchery.

County	Rainbow	Steelhead
Tulare	293,000	94,000

Ukiah Hatchery.

County	Rainbow	Steelhead
Mendocino	30,000	342,000
Sonoma	20,000	120,000
Totals.....	50,000	462,000

Snow Mountain Hatchery.

County	Steelhead
Mendocino	162,000

Feather River Hatchery.

County	Rainbow	Steelhead
Nevada	15,000	-----
Plumas	398,000	66,000
Sierra	131,000	45,000
Yuba	145,000	-----
Totals.....	689,000	111,000

San Joaquin Experimental Station.

County	Salmon
Fresno	95,000

SUMMARY OF FISH DISTRIBUTION, SEASON 1920-21.

Hatcheries	Rainbow	Loch Leven	Steel-head	Eastern brook	Black-spotted	German brown	Golden trout	Salmon	Large lake
Bear Lake	2,228,000								
Brookdale			1,633,000						
Clear Creek	606,000								
Domingo Springs	908,000		27,000						
Fall Creek	1,184,500							5,986,000	
Fort Seward	323,000		1,480,000					990,000	48,000
Feather River	689,000		111,000						
Kaweah	588,000		94,000						
Mount Shasta	6,818,000	8,717,800	875,000	2,931,000		2,335,000		10,966,000	
Mount Tallac			36,000		747,000				535,000
Mount Whitney	2,202,000	290,000	1,086,000	6,000			319,000		165,000
North Creek	1,159,000								
San Joaquin								95,000	
Snow Mountain			162,000						
Tahoe	311,000		387,000		531,000				240,600
Ukiah	50,000		462,000						
Wawona	592,000		98,000						
Totals	17,658,500	9,007,800	6,451,000	2,937,000	1,278,000	2,335,000	319,000	18,037,000	988,000

RECAPITULATION, SEASON 1920-1921.

Trout	40,974,300
*Salmon	18,037,000
Grand total	59,011,300

*There has been hatched and distributed 19,000,000 salmon fry from eggs collected from the Klamathon station during the last winter and spring that will not appear in the statistical report until the next biennial report of the Commission.

FISH AND GAME COMMISSION.

ANGLER'S LICENSE SALES, 1920-1921.

Counties	Actual sales, 1920	Actual sales, 1921
Alameda	\$6,438 00	\$7,842 00
Alpine	269 00	223 00
Amador	675 00	733 00
Butte	4,137 00	4,057 00
Calaveras	842 00	1,007 00
Colusa	641 00	491 00
Contra Costa	339 00	447 00
Del Norte	208 00	446 00
El Dorado	568 00	708 00
Fresno	8,599 00	10,076 00
Glenn	352 00	324 00
Humboldt	5,054 00	4,952 00
Imperial	206 00	217 00
Inyo	1,995 00	2,327 00
Kern	702 00	988 00
Kings	894 00	1,118 00
Lake	336 00	331 00
Lassen	1,532 00	1,430 00
Madera	736 00	916 00
Mariposa	105 00	84 00
Mendocino	2,055 00	1,931 00
Merced	1,185 00	1,328 00
Mono	651 00	796 00
Modoc		385 00
Monterey	623 00	776 00
Napa	1,362 00	1,749 00
Nevada	1,005 00	1,134 00
Orange	1,034 00	1,243 00
Placer	1,796 00	2,086 00
Plumas	2,429 00	2,440 00
Riverside	564 00	749 00
Sacramento	520 00	623 00
San Benito	247 00	337 00
San Bernardino	362 00	331 00
San Diego	1,532 00	1,540 00
San Joaquin	528 00	531 00
San Luis Obispo	893 00	788 00
San Mateo	100 00	76 00
Santa Clara	4,175 00	4,950 00
Santa Cruz	438 00	375 00
Shasta	2,195 00	2,750 00
Sierra	487 00	546 00
Siskiyou	4,578 00	4,862 00
Solano	2,595 00	2,756 00
Sonoma	3,833 00	4,543 00
Stanislaus	2,476 00	3,532 00
Sutter	367 00	277 00
Tehama	293 00	149 00
Trinity	485 00	530 00
Tulare	4,811 00	5,434 00
Tuolumne	1,403 00	1,897 00
Ventura	2,103 00	2,048 00
Yolo	609 00	512 00
Yuba	1,151 00	1,281 00
San Francisco office	\$83,519 00	\$93,999 00
Sacramento office	33,878 00	39,387 00
Los Angeles office	9,058 00	9,430 00
	36,728 00	40,497 00
Totals	\$163,183 00	\$183,313 00

HUNTING LICENSE SALES.

County	Fiscal year 1921	Fiscal year 1922
Alameda	\$11,205 00	\$10,433 00
Alpine	122 00	86 00
Amador	1,042 00	1,082 00
Butte	4,728 00	4,471 00
Calaveras	1,250 00	1,242 00
Colusa	1,979 00	1,761 00
Contra Costa	1,188 00	1,279 00
Del Norte	449 00	735 00
El Dorado	555 00	638 00
Fresno	11,235 00	10,697 00
Glenn	1,169 00	1,061 00
Humboldt	5,654 00	5,275 00
Imperial	526 00	402 00
Inyo	1,288 00	1,332 00
Kern	3,512 00	3,576 00
Kings	1,950 00	1,615 00
Lake	818 00	704 00
Lassen	1,899 00	1,854 00
Madera	1,219 00	1,420 00
Mariposa	259 00	248 00
*Mendocino	3,613 00	2,950 00
Merced	2,704 00	2,574 00
Modoc		251 00
Mono	341 00	1,332 00
Monterey	1,432 00	2,649 00
Napa	2,956 00	1,097 00
Nevada	1,087 00	2,805 00
Orange	2,300 00	2,781 00
Placer	2,411 00	1,354 00
Plumas	1,507 00	1,328 00
Riverside	1,368 00	524 00
Sacramento	752 00	1,248 00
San Benito	1,190 00	285 00
San Bernardino	387 00	2,523 00
San Diego	3,335 00	629 00
San Joaquin	709 00	1,672 00
San Luis Obispo	1,504 00	246 00
San Mateo	225 00	6,799 00
Santa Clara	7,098 00	522 00
Santa Cruz	699 00	2,649 00
Shasta	2,454 00	245 00
Sierra	268 00	5,493 00
Siskiyou	6,234 00	3,493 00
Solano	3,631 00	7,729 00
Sonoma	7,838 00	4,043 00
Stanislaus	3,958 00	518 00
Sutter	613 00	176 00
Tehama	368 00	960 00
Trinity	1,081 00	5,393 00
Tulare	5,900 00	1,910 00
Tuolumne	1,745 00	2,807 00
Ventura	2,636 00	1,764 00
Yolo	1,982 00	1,935 00
Yuba	2,112 00	2,596 00
	\$128,922 00	\$125,304 00
†San Francisco office Fish and Game Commission	49,368 00	46,807 00
†Sacramento office	7,949 00	8,083 00
Los Angeles office	54,114 00	57,734 00
Totals	\$240,353 00	\$237,928 00

Fiscal year ends June 30. Residents, \$1; nonresidents, \$10; aliens, \$25.

*Account not settled.

†Account not closed, refunds still to be paid.

COMMERCIAL FISHERIES LICENSE SALES BY DISTRICTS.

District	1920-1921		1921-1922	
	No.	Amount	No.	Amount
Del Norte, Humboldt.....	203	\$2,030 00	130	\$1,300 00
Mendocino, Sonoma, Lake.....	200	2,000 00	252	2,520 00
Marin.....	62	620 00	73	730 00
Solano, Yolo.....	264	2,640 00	220	2,200 00
Sacramento, San Joaquin.....	199	1,990 00	117	1,170 00
Glenn, Colusa, Tehama.....	62	620 00	90	900 00
Contra Costa, Alameda.....	350	3,500 00	367	3,670 00
San Francisco, San Mateo.....	405	4,050 00	472	4,720 00
Santa Cruz.....	91	910 00	74	740 00
Monterey.....	683	6,830 00	429	4,290 00
San Luis Obispo, Santa Barbara, Ventura.....	109	1,090 00	130	1,300 00
Los Angeles.....	1,704	17,040 00	1,235	12,350 00
Orange.....	32	320 00	46	460 00
San Diego.....	746	7,460 00	571	5,710 00
Miscellaneous.....	159	1,590 00	256	2,560 00
Totals.....	5,269	\$52,690 00	4,462	\$44,620 00

Fiscal year ends March 31. Residents, \$1; nonresidents and aliens, \$10.

TRAPPERS' LICENSE SALES.

Total sales for fiscal year 1921.....	\$3,392 00
Total sales for fiscal year 1922.....	3,103 00

Fiscal year ends June 30. License fee: citizen, \$1; alien, \$2.

GAME BREEDERS' LICENSE SALES.

Total sales for year 1920.....	\$85 00
Total sales for year 1921.....	82 50

License year ends December 31. License fee: \$2.50.

SUMMARY OF PROSECUTIONS FOR VIOLATIONS OF STATE GAME LAWS.
July 1, 1920 to June 30, 1922.

Offense	Number of arrests	Convictions	Acquitted and dismissed	Pending	Sentence suspended and probation	Number of days imprisonment	Fines imposed	Fines collected
Violations—hunting license law	183	169	14	-----	8	27	\$3,147 50	\$2,995 50
Deer—killing, pursuing, possession; closed season; excess bag limit. Hides—female; evidence of sex removed; not properly tagged; failure to retain portion or head bearing horns	205	179	26	-----	12	646	6,960 00	6,720 00
Female deer and fawns—killing and possession	84	69	15	-----	4	68	5,550 00	5,021 60
Spike bucks—killing and possession	59	58	1	-----	-----	35	2,775 00	2,726 80
Ducks—killing and possession; closed season	72	64	8	-----	7	235	1,855 00	1,825 60
Ducks—excess bag limit	21	20	1	-----	-----	35	816 00	816 00
Ducks—night shooting; shooting from power boat in motion	109	99	10	-----	8	-----	2,165 00	2,080 00
Quail—killing and possession; closed season; excess bag limit	118	110	8	-----	5	102	3,687 50	3,610 50
Quail—Trapping or holding in captivity without permit	1	1	-----	-----	-----	-----	25 00	25 00
Doves—killing or possession; closed season; excess bag limit	47	45	2	-----	1	2	1,275 00	1,273 00
Snipe, curlew, rail, plover and other shore birds—killing and possession	45	39	6	-----	3	24	1,000 00	975 60
Pheasants—killing and possession	18	17	1	-----	3	90	950 00	950 00
Grouse, sage-hen—killing and possession; closed season; excess bag limit	8	8	-----	-----	-----	-----	200 00	200 60
Wild pigeons—killing and possession; closed season	5	5	-----	-----	2	-----	75 00	75 00
Non-game birds—killing and possession	103	94	9	-----	2	-----	1,936 00	1,936 00
Cottontail and brush rabbits—killing and possession; closed season; excess bag limit	55	49	6	-----	1	-----	1,235 00	1,235 00
Tree squirrels—killing and possession; closed season; excess bag limit	10	8	2	-----	-----	25	175 00	160 60
Wild geese—killing and possession; closed season; excess bag limit	10	9	1	-----	2	-----	175 00	175 00
Mountain sheep—killing and possession	2	2	-----	-----	-----	-----	100 00	100 00
Swan—killing and possession	3	3	-----	-----	1	-----	100 00	50 00
Beaver—killing and possession	1	1	-----	-----	-----	-----	25 00	25 00
Bear	15	13	2	-----	-----	-----	220 00	220 00
Trapping license law violations	10	10	-----	-----	-----	-----	125 00	125 60
Trespassing in game refuge	37	36	1	-----	2	-----	955 00	680 60
Total game cases	1221	1108	113	-----	61	1289	\$35,527 00	\$33,998 80

SUMMARY OF PROSECUTIONS FOR VIOLATIONS OF STATE FISH LAWS.
July 1, 1920 to June 30, 1922.

Offense	Number of arrests	Convictions	Acquitted and dismissed	Pending	Sentence suspended and probation	Number of days imprisonment	Fines imposed	Fines collected
Fishing (market) without license	92	89	3		9		\$1,120 00	\$1,110 00
Fishing (angling) without license	104	104			13	25	1,882 00	1,852 00
Illegal fishing apparatus (nets, lines, spears, etc.)	29	28	1		12		2,050 00	1,865 00
Salmon—taking and possession; closed season; excess limit; Sat. Sun. fishing	21	19	2		1		1,725 00	1,355 00
Striped bass—closed season; buying and selling; underweight; excess limit	116	111	4	1	20		2,525 00	2,443 00
Black bass—taking and possession; closed season; undersized; excess limit	24	22	2		2		550 00	550 00
Trout—closed season; excess limit; taking other than by hook and line; offering for sale; shipping parcel post	80	77	3		8		1,990 00	1,905 00
Catfish—undersized; offering for sale; closed season	3	3					60 00	60 00
Sturgeon—taking or possession	6	6			1		105 00	105 00
Sunfish—taking or possession; closed season	5	4	1				95 00	95 00
Perch—Sacramento and salt water: possession; sale; shipment; closed season; excess limit	2	2			1		20 00	20 00
Smelt—taking or possession; closed season	8	4	4				85 00	85 00
Halibut—underweight; possession and sale	7	7			2		325 00	250 00
Barracuda—underweight; possession and sale	23	23			2		1,500 00	1,400 00
Salt water eels—taking undersized	1	1					20 00	20 00
Taking fish from pond	14	14			1		310 00	310 00
Using explosives to take fish	4	3	1		1	100		
Polluting waters—oil, sawdust, etc.	6	4		2			625 00	475 60
Fishing with nets in restricted districts	97	85	12		39	647	4,765 00	4,093 00
Selling young fish for bait	2	1	1				25 00	25 00
Crabs—closed season: undersized female	63	57	6		16		1,290 00	1,245 00
Lobsters—closed season; undersized	37	33	4		2		1,065 00	1,050 00
Clams—excess limit; undersized	129	129	1	2	5	185	3,420 00	3,375 00
Abalones—closed season; undersized; excess limit; drying	141	136	5		6		4,767 50	4,757 50
Crawfish—closed season; under or oversize	2	2			1		20 00	20 00
California dried shrimp and shells	5	5					165 00	165 00
Night fishing	16	16				37	400 00	398 00
Total fish cases	1037	983	49	5	142	994	\$30,894 50	\$29,028 50

TOTAL ARRESTS FOR A PERIOD OF TWENTY YEARS

1902-1904.....	550
1904-1906.....	774
1906-1908.....	1,192
1908-1910.....	1,771
1910-1912.....	2,063
1912-1914.....	1,993
1914-1916.....	2,087
1916-1918.....	1,737
1918-1920.....	1,891
1920-1922.....	2,258
Total.....	16,376

Recapitulation.

Arrests:	
Fish cases	1,037
Game cases	1,221
Total	2,258
Convictions:	
Fish cases	983
Game cases	1,108
	2,091
Acquittals and dismissals:	
Fish cases	49
Game cases	113
	162
Pending cases:	
Fish cases	5
Game cases	0
	5
Total	2,258
Fines imposed:	
Fish cases	\$30,894 50
Game cases	35,527 00
Total	\$66,421 50
Fines collected:	
Fish cases	\$29,028 50
Game cases	33,998 50
Total	\$63,027 30
Number of days imprisonment:	
Fish cases	994
Game cases	1,280
Total	2,283

SEIZURES OF FISH, GAME AND ILLEGALLY USED FISHING APPARATUS.
July 1, 1920 to June 30, 1922.

Rabbits (cottontail and brush).....	99
Quail	557
Doves	84
Wild pigeon	13
Ducks	4,538
Geese	184
Sage hens	40
Pheasants	15
Shore birds	53
Non-game birds	153.
Miscellaneous game	9
Miscellaneous game	70 pounds
Deer meat	5,752 pounds
Deer hides and heads.....	15
Beaver skins	16
Marten skins	5
Aigrettes	25
Illegally used fishing apparatus, nets, lines, etc.....	11
Salmon	3,907 pounds
Trout	777 pounds
Striped bass	6,860 pounds
Black bass	42 pounds
Halibut	9,749 pounds
Barracuda	25,448 pounds
Catfish	35 pounds
Yellow fin croaker.....	3,500 pounds
Sturgeon	404 pounds
Smelt	969 pounds
Perch	151 pounds
Shad	143 pounds
Miscellaneous fish	72 pounds
Abalones	2,214
Abalones (dried)	21
Abalones (canned)	6,094 pounds
Abalones (prepared)	3,276 pounds
Crabs	12,364
Crabs (canned)	193 pounds
Lobsters	14,875 pounds
Clams (Pismo)	6,499
Clams (cockle)	1,537 pounds
Dried shrimps and shells.....	6,300 pounds

Illegally used fishing apparatus, after condemnation in superior courts, is destroyed or sold by the board in accordance with law. All wholesome fish and game is donated to public and charitable institutions, from whom many grateful letters of acknowledgement have been received.

LION BOUNTIES.

Statement of Lion Bounties Paid by the Fish and Game Commission from January 1, 1920, to December 31, 1921.

	1920	1921	Total from October, 1907
Alameda			1
Alpine			1
Amador			9
Butte			33
Calaveras		3	16
Colusa		1	18
Del Norte	1	3	101
El Dorado	6	14	68
Fresno	2	6	30
Glenn	3	3	49
Humboldt	19	16	599
Imperial	1		2
Inyo		1	8
Kern	12	8	154
King			1
Lake	11	10	127
Lassen		2	9
Los Angeles	12	7	68
Madera	1		40
Mariposa	4	6	87
Mendocino	13	15	247
Mered	1	1	3
Modoc			4
Monterey	12	7	124
Mono	1	2	10
Napa			3
Nevada			7
Orange			9
Placer	9	13	59
Plumas			9
Riverside	6	8	43
Sacramento			1
San Benito	2	2	37
San Bernardino	6	2	31
San Diego	4	2	47
San Joaquin			2
San Luis Obispo	9	12	97
San Mateo			1
Santa Barbara	5	15	119
Santa Clara	2	4	25
Santa Cruz			2
Shasta	8	8	277
Sierra			6
Siskiyou	2	9	252
Sonoma	2		24
Stanislaus		1	10
Sutter			2
Tehama	17	18	94
Trinity	13	21	294
Tulare	23	17	135
Tuolumne	4	15	94
Ventura	8	4	52
Yuba			4
Totals	219	256	3,645

CANNED, CURED AND MANUFACTURED FISHERY PRODUCTS OF
CALIFORNIA FOR THE YEAR 1920.

Canned (shown in cases).

Species of fish	San Diego district	San Pedro district	Monterey Bay district	Northern California district	Total
Abalone—					
1-pound -----	1,800		250	961	3,011
½-pound -----			328	120	448
Albacore—					
1-pound -----	6,809	36,503			43,312
½-pound -----	36,825	256,304			293,129
¾-pound -----	4,599	34,524			39,123
Barraeuda—					
1-pound -----		676			676
Bonito—					
1-pound -----		100			100
½-pound -----	579	4,366			4,945
¾-pound -----	2,561	2,681			5,242
Chienic, smoked bonito—					
5-ounce glass -----		1,078			1,078
Mackerel—					
1-pound -----		3,244	67		3,311
½-pound -----	6	75			81
¾-pound -----	13				13
Salmon—					
1-pound (flat) -----				8,938	8,938
½-pound (flat) -----				22,081	22,081
Sardines—					
1-pound (oval) -----	50,302	213,714	682,165	5,612	951,793
1-pound (round) -----	103	12,355			12,458
½-pound (oval) -----	1,395	7,054	4,154	135	12,738
½-pound (round) -----	2,660	8,746			11,406
¾-pound (square) -----	7,287	516	13,675		21,478
¾-pound (round) -----	1,260	464			1,724
¾-pound (square) -----	48,363	2,015	658		51,036
10-pound -----		36	327		363
Shad—					
1-pound -----				1,448	1,448
Shad roe—					
½-pound -----				311	311
Squid -----			196		196
Striped tuna—					
1-pound -----	2,630	2,488			5,118
½-pound -----	32,634	48,687			81,271
¾-pound -----	16,009	24,511			40,520
Tuna—					
1-pound -----	7,401	27,498			34,899
½-pound -----	36,304	184,600			220,904
¾-pound -----	20,952	41,903			62,855
5-pound -----	330	3,807			4,137
Yellowtail—					
1-pound -----	200	218			418
½-pound -----	1,433	238			1,671
Total -----	282,455	918,441	701,820	39,606	1,942,322

FISHERY PRODUCTS OF CALIFORNIA FOR THE YEAR 1920—Concluded.

Salted and Dried.

Species of fish	San Diego district	San Pedro district	Moterey Bay district	Northern California district	Total
Albacore—					
Smoked, pounds -----		58,589			58,589
Anchovy (salted)—					
1-pound cans, 48 to case -----			120		120
5-pound cans, 24 to case -----			184		184
24-pound cans, 6 to case -----			112		112
10-pound kits -----			553		553
25-pound kits -----			23		23
200-pound barrels -----			21		21
620-pound casks -----			5		5
Barraeuda (dried)—					
Pounds -----	70,402				70,402
Herring (salted)—					
Pounds -----				337,200	337,200
Mackerel (salted)—					
160-pound barrels -----		50			50
200-pound barrels -----			50		50
25-pound kits -----			560		560
Smoked, pounds -----		39,341			39,341
Sablefish (salted)—					
200-pound barrels -----				130	130
Salachini—					
30-pound tubs -----			800		800
50-pound tubs -----			1,250		1,250
60-pound tubs -----			50		50
65-pound tubs -----			2,309		2,309
100-pound tubs -----			500		500
Salmon (hardsalted)—					
200-pound barrels -----				167	167
Mild cured, 825-pound casks -----			326	2,849	3,169
Sardines—					
4-pound cans, 24 to case -----			750		750
5-pound cans, 24 to case -----			680		680
10-pound boxes -----			4,000		4,000
100-pound barrels -----			1,625		1,625
700-pound casks -----			25		25
Sea bass, black—					
Dried, pounds -----	40,675				40,675
Yellowtail (salted)—					
Pounds -----	4,000				4,000
Kegs -----		323			323
Bonita (smoked) -----		35,311			35,311
<i>Miscellaneous data</i>					
Fish meal, tons -----	1,559	3,328	3,382	587	8,856
Fish oil, gallons -----	39,174	152,937	383,648	35,826	611,585
Estimated value of pack -----	\$3,299,594	\$9,401,283	\$5,897,777	\$1,103,714	\$19,202,318
Number of employees -----	1,148	3,405	1,823	721	7,097
Value of plants -----	\$1,296,721	\$3,677,617	\$1,713,990	\$1,234,259	\$7,922,587

CANNED, CURED AND MANUFACTURED FISHERY PRODUCTS OF
CALIFORNIA FOR THE YEAR 1921.

Compiled by the Department of Commercial Fisheries, Fish and Game Commission
of California.

Canned.

Species of fish	Size of cans	Northern California district. cases	Monterey district. cases	San Pedro district. cases	San Diego district. cases	Total cases
Abalone -----	1-lb.		2,061	125		2,186
Albacore -----	1-lb.			36,357	15,066	51,423
	$\frac{1}{2}$ -lb.			172,286	59,185	231,471
	$\frac{3}{4}$ -lb.			16,551	7,906	24,457
Barracuda -----	1-lb.			1,390		1,390
	$\frac{1}{2}$ -lb.			10,107		10,107
Kamaboko -----	$\frac{3}{4}$ -lb.			400		400
Mackerel -----	1-lb.			255		255
Mussels -----	$\frac{3}{4}$ -lb.	110				110
Salmon -----	1-lb. flat	3,334				3,334
	$\frac{1}{2}$ -lb. flat	14,076				14,076
Sardines -----	1-lb. oval		287,954	77,048	1,189	366,191
	$\frac{1}{2}$ -lb. oval		10,554	3,765		14,319
	$\frac{1}{2}$ -lb. square		375		148	523
	$\frac{3}{4}$ -lb. square		46		8,033	8,079
	10-lb. round		2,028			2,028
Squid -----	$\frac{1}{2}$ -lb.				556	556
Striped tuna -----	1-lb.			190	37	227
	$\frac{1}{2}$ -lb.			4,470	3,930	8,400
	$\frac{3}{4}$ -lb.			2,429	2,662	5,091
Tuna, bluefin -----	1-lb.			2,704	266	2,970
	$\frac{1}{2}$ -lb.			21,462	1,856	23,318
	$\frac{3}{4}$ -lb.			4,648		4,648
Tuna, yellowfin -----	1-lb.			1,147	101	1,248
	$\frac{1}{2}$ -lb.			14,913	1,221	16,134
	$\frac{3}{4}$ -lb.			37		37
Tuna, unclassified -----	1-lb.			88	327	415
	$\frac{1}{2}$ -lb.			15,730	11,462	27,192
	$\frac{3}{4}$ -lb.			2,069	6,007	8,076
	4-lb.			2,523		2,523
Yellowtail -----	1-lb.				48	48
Total cases -----		17,520	303,018	390,694	120,000	831,232

CANNED, CURED AND MANUFACTURED FISHERY PRODUCTS OF CALIFORNIA FOR THE YEAR 1921.—Concluded.

Salted, Smoked and Miscellaneous—1921.

Species of fish	Size or quantity	Northern California district	Monterey Bay district	San Pedro district	San Diego district	Total
Ancovies—						
Salted	200-lb. barrels		8			8
	1-lb. cans, cases		48			48
	Casks	25				25
Barracuda—						
Salted	Pounds				5,000	5,000
Fish cakes—						
	Pounds			18,000		18,000
Herring—						
Salted	Casks	12				12
Smoked	Pounds	8,375				8,375
Mackerel—						
Salted	200-lb. barrels		6	321		327
	Pounds				20,000	20,000
Sablefish—						
Salted	200-lb. barrels	200				200
	100-lb. barrels	15				15
Mild cured	Casks	2				2
Smoked	Pounds	72,563				72,563
Salachini—						
	50-lb. tubs		900			900
	50-lb. boxes		1,000			1,000
	65-lb. tubs	296				296
Salmon—						
Mild cured	Casks	1,843	215			2,058
Salted	200-lb. barrels	65				65
Smoked	Pounds	28,964				28,964
Sardines—						
Dried	Pounds			120		120
Marinated	1-lb. glass, cases			2,500		2,500
Salted	200-lb. barrels		60	282		342
	Casks		36			36
	80-lb. boxes		700			700
Sea bass, black—						
Salted					15,320	15,320
Shad—						
Mild cured	Casks	6				6
Striped tuna—						
Dried	Pounds			200		200
Tuna—						
Smoked	Pounds			35,277		35,277
Yellowtail—						
Dried	Pounds				22,166	22,166
Salted	100-lb. barrels			107		107
	Pounds				40,000	40,000
<i>Miscellaneous data</i>						
Fish meal—						
	Tons	538	1,577	3,566	636	6,317
Fish oil—						
	Gallons	21,677	205,149	93,305	16,607	336,738
Estimated value of pack		\$627,900	\$1,879,596	\$3,099,903	\$1,055,227	\$6,662,626
Number of employees		491	1,140	1,862	1,195	4,688
Capital invested in plants		\$798,214	\$1,465,180	\$3,683,619	\$1,536,179	\$7,483,192

Note.—Casks contain 825 pounds net.

FISH AND GAME COMMISSION.

CALIFORNIA FRESH FISHERY PRODUCTS FOR YEAR 1920.
Compiled by Department of Commercial Fisheries, Fish and Game Commission.

Species of fish	Del Norte, Humboldt	Mendocino, Sonoma, Lake	Marin	Solano, Yolo	Sacramento, San Joaquin	Tehama, Colusa, Glenn	Contra Costa, Alameda	San Francisco, San Mateo	Santa Cruz	Monterey	San Luis Obispo, Santa Barbara, Ventura	Los Angeles	Orange	San Diego	Imperial	Totals	Mexican, Imported into California
Albacore											500	16,718,941	3,697	2,153,500		18,876,647	
Anchovies								218,080	150	313,580	181,158	4,572		30,230		569,774	
Barracouta	25		3,153					8,500	29,353	67,365		3,118,681	39,100	1,140,600		4,585,388	3,615,947
Breelfish								154,987	197	32,032						32,229	
Bocaccio	334	20						346,844	346,844	964,978						1,467,163	
Bonito								35,665	365	51	24,602	546,801	2,711	97,713		672,243	201,255
Carp	97	29,144		9,877	80,000			2,748	192,441	155,159			5,230			134,420	
Catfish				22,243	38,981			91,400	192,441	155,159						439,000	
Chilipepper								365,789	79,572	154,088						657,954	
Cultus cod	2,970	54,260	83			864		4,821	34,825	1,658	3,005	3,654	180			481,587	
Eels	4,367	16	299	10,666		1,234		126,970	1,375	1,000	300	412				798,721	12,628
Flounders								140,801	1,125	55						141,981	
Grayfish								38,669	11,755	6,906	234,857	1,181,964	129,137	1,036,557		2,767,351	1,677,569
Grake																13,323	
Halibut	29,174	98,204	3,128		12,998			143,130	325							274,364	
Hardhead									40,140							461,411	48
Herring	7,575		83,519					8,682	89,351	107,043	843	258,181	1,049	4,754		2,997,308	50,782
Kingfish			8						12,695	379,447	28,611	2,305,054	226	236,191		17,513	90
Maackerel																181,131	5,240
Mullet										16,984	1,741	28,726	3,475	2,755		8,138	
Perch	25,218		40,055	40		278		56,520	5,309							205	281
Pike				750	2,253		5,135		1,836	1,600		25,242				907,075	3,805
Pompano								1,722			2,095	198,071	11,774	65,182		3,597,024	97,661
Rock bass									330,868	536,556	83,255	996,618	14,724	994,188		781,032	
Rockfish	15,894	4,206	133			7,985		789,982	7,985	36,065						11,133,819	
Sablefish								1,451,270	199,139	1,291,738						721,810	
Salmon	1,307,568	3,015,130	8,682	1,738,577	422,061	139,206	1,560,408	571,377	135,069	7,887	25	6,382		470		118,517,729	3,155
Sardines						200		1,104,776	7,342,669	69,719,517						35,674	
Sardines																3,849	
Sculpin																89,869	58,168
Sea bass (black)											1,883	31,502				2,358,531	246,900
Sea bass (white)											122,066	1,893,167	9,081	205,591		17,762	5,562
Sea trout	54							9,413	110,417	6,613		10,469	270	6,346		58,445	
Shad			100	7,172	520		20,252	30,155	142	104							

shad (huck).....	180,006	25,357	230,065	1,075	10,937	140	779	3,245	14	10,364	446,303
shad (roe).....	300,675	40,698	562,254	1,398				2,424	65	14,402	905,020
Sheepshead.....								4,949,618	2,621	2,080,940	88,081
Skipjack.....					147	3	69,861	183,376	115,381	20,719	7,942,338
Smelt.....					628,126	15,714	10,807	54,555	522	3,238	730,475
Sole.....										14,084	3,821,023
spittail.....	90	52,027	546								14,084
striped bass.....	23				40	17					671,747
stingaree.....	3,380										365,666
stingaree.....	134,300										2,712
suckers.....	273										10
surf fish.....											10
surf fish.....											10
Swordfish.....											12,240
Tomcod.....	111										37,237
Trout (steelhead).....											6,999
Tuna.....											5,245,412
Tuna (bluefin).....											10,530,272
Tuna (yellowfin).....											1,477,965
Turbot.....	821										865
Whitebait.....	650										678
Whitefish.....											8,859
Whitefish.....											2,486,537
Yellowtail.....											218,400
Miscellaneous.....	1,154										258,408
Total fish.....	1,454,113	3,201,229	352,547	2,451,138	673,252	139,266	2,814,509	9,986,716	73,964,652	883,724	4,496
Crustaceans:											6,981,503
Crabs (doz.).....	2,769										50,857
Shrimps.....											818,042
Spiry lobsters.....											247,156
Mollusks:											942,720
Abalones.....	405										896,716
Clams (cockle).....	4,745										18,054
Clams (mixed).....	16,576										54,318
Clams (Pismo).....											299,015
Clams (soft-shell).....	440										233,124
Cuttlefish.....											70,740
Limpets.....											18,835
Mussels.....	510										36,323
Oysters, East-ern (No.).....											5,096,182
Oysters (native).....											59,741
Snails.....											340
Squid.....											508,219
Miscellaneous:	90										
Turtles.....											
Scallops.....											743

All amounts shown in pounds unless otherwise specified.

CALIFORNIA FRESH FISHERY PRODUCTS FOR YEAR 1921.
Compiled by Department of Commercial Fisheries, Fish and Game Commission.

Species of fish	Del Norte, Humboldt	Mendocino, Sonoma, Lake	Main	Solano, Yolo	Glenn, Tehama, Colusa	Sacramento, San Joaquin	Contra Costa, Alameda	San Francisco, San Mateo	Santa Cruz	Monterey	San Luis Obispo, Santa Barbara, Ventura	Los Angeles	Orange	San Diego	Imperial	Totals	Mexican, imported into California
Albacore								175,255		1,482,869		11,499,658	6,753	3,767,817		15,274,528	2,199
Anchovies								71	11,526	62,252		10,438		278,319		1,916,881	
Barracuda									176,418	812,690	204,940	3,180,179	16,669	1,178,995		4,588,000	3,036,262
Bluefish		125						71,316	287		13,488					73,779	
Boaceteo																1,065,186	82,878
Bonito																237,859	
Carp			67			42,871	34,370	5,944						50,291		102,126	
Catfish		85,277		18,274		36,076	17,178									148,116	
Chilipepper								25,288	110,402	82,928						218,618	
Cuttus cod	7,293	14,524	785			249,809	27,469	249,793	123,723	123,723						425,543	
Flounders	12,150		581	2,065		218,108	9,148	83,331	39,331	2,071	2,051	5,048		640		292,883	773
Grayfish							1,743	83,807	774	585				498,283		589,333	
Hake								81,143	9,075		800	18,106	5,285			90,218	
Halibut	30,740	48,667	2,041					67,164	2,745	11,115	265,828	1,222,114	118,241	713,669		2,482,624	1,313,433
Herring				356		40,760	34,695			1,300	270					73,811	
Herring	7,186		12,789			26,657		494,513		44,690	2,052	260,228	534	4,101		342,124	1,695
Kingfish								10,813	61,562							389,390	
Mackerel									1,394	280,198	73,627	2,231,006	32,686	295,702		2,914,613	60,646
Mullet														301	288	17,140	11,815
Perch	22,401	62	26,489							28,227	45	90,654	1,547	5,672		242,774	10,125
Pike				1,357				53,682	3,657							9,120	
Pompano								2,307	55	354	144	13,291	52	130		16,333	370
Rock bass								685,564	295,824	686,661	306	221,415	31,088	102,863		355,702	8,154
Rockfish	21,304	9,243						388,141	624,623	9,878	71,318	1,053,753	42,323	500,172		3,357,352	46,793
Sablefish								937,452	383,558	800,402						1,022,642	
Salmon	1,212,879	2,684,080	1,434	718,017	174,732	537,076	1,081,312	683,828	82,128	5,824						7,690,932	
Sanddabs								153,742	3,985,116	28,941,654	6,590	23,291,376	829,382	18		784,011	
Sardines			236													50,323,365	
Sculpin																98,068	312
Sea bass (black)											3,495	45,433				56,635	58,068
Sea bass (white)											54,406	1,659,218	5,569			2,069,619	40,235
Sea trout											1,300					285,320	490,107
Shad				6,456		8,650		30								8,225	9,968
Shad (huck)				37,845		156,807		17,870	10							218,897	
Shad (roc)				7,396		26,849	450,484									550,398	

NATIVITY OF COMMERCIAL FISHERMAN LICENSED APRIL 1, 1920, TO MARCH 31, 1921, SHOWN BY COUNTIES.

Native of	Del Norte, Humboldt	Mendocino, Sonoma, Lake	Marin	Solano, Yolo	Sacramento, San Joaquin	Tehama, Glenn Colusa	Contra Costa, Alameda	San Francisco, San Mateo	Santa Cruz	Monterey	San Luis Obispo, Santa Barbara, Ventura	Los Angeles	Orange	San Diego	Miscellaneous districts	Total
Austria																505
Canada	1		1	1	1		5			1	2	423	4	69		11
Chile				2								3		2	1	2
China							2	10		6				1	1	20
Cuba					2					1		63		37		1
Dalmatia	4	7	3		2		2	6		1	1	12	1	4		47
Denmark	1		2		5				1	5	1	7	1	4		20
England		1			2							2				11
France					1			1	1	1	1					11
Finland	13	49			1	1	6	1	1	1	3	3	1	6	1	73
Germany	3	8	7	4	15	1	2	2	3	1	3	3	1	7	1	60
Greece			5	82	13	2	2	2		3	4	4				118
Holland																1
Hungary																1
Ireland			1	1		1				1						5
Italy	10	1	4	49		1	249	333	36	375	13	102		174		1,346
Japan					15		1			100	5	814		293		1,138
Mexico														9		10
Montenegro										1						1
Norway							1	3	3		1	30		7		67
Poland	4	10	2	2	4											1
Portugal								3	1	24	8			36		134
Russia	1	4	2	28	2	2	2	3	1	1	2	17		2	2	30
Scotland			1	1						1	1					4
Scotland																4
Slav										4	1			3		29
Spain							2			53		21				55
Sweden	1	5	4	4	4		2	7	1	4	2	13		12		59
Switzerland							2		1	4			1	2		6
Turkey	1									1						1
United States	161	113	30	90	105	56	73	36	43	101	70	186	24	167	39	1,394
Wales	2															2
Miscellaneous															114	114
Total	203	200	62	264	199	62	350	405	91	683	109	1,704	32	746	159	5,269

NATIVITY OF COMMERCIAL FISHERMEN LICENSED APRIL 1, 1921 TO MARCH 31, 1922, SHOWN BY DISTRICTS.

Native of	Districts											Total				
	Del Norte, Humboldt	Mendocino, Sonoma, Lake	Marin	Solano, Yolo	Sacramento, San Joaquin	Tehama, Glenn Colusa	Contra Costa, Alameda	San Francisco, San Mateo	Santa Cruz	Monte Rey	San Luis Obispo, Santa Barbara, Ventura		Los Angeles	Orange	San Diego	Miscellaneous districts
Austria																164
Canada	4															12
Chile																2
China			1													24
Cuba																64
Dalmatia																47
Denmark	1	6	5	1												23
England	3	4														6
France	1															2
Finland	14	58														78
Germany	4	7	5	3	9	1	2	4	2	3	1	2	1	6	1	56
Greece			7	58	13	2	5	2	1	1	2	4	1	4	1	94
Holland		1														1
Hungary																1
Ireland																2
Italy	11	1	1	61		1	268	367	39		12	124		174		1,250
Japan					14	1					88	188		188	1	975
Mexico								1								15
Montenegro																10
Norway																1
Norway	5	13		1	1	6	1	2	2	1	3	31		2		67
Poland																1
Portugal	1	10		25	11	5	1	1		23	1	1		32	1	117
Russia			1		1	1	4			3	7	22		1		34
Scotland																
Slovak																
Spain		3														23
Sweden	1	6	8	2	1	2	4	4	2	34				2		43
Switzerland										1						5
Turkey									1					1		3
Turkey																
United States	85	140	45	67	61	86	67	38	25	54	80	129	34	122	30	1,063
Wales																
Miscellaneous		1						22							220	243
Total	130	252	73	220	117	90	387	472	74	429	130	1,235	46	571	256	4,402

STATEMENT OF EXPENDITURES FOR THE FISCAL YEARS 1920 - 1921
AND 1921 - 1922.

	--Fiscal year--	
	1920-1921	1921-1922
ADMINISTRATION:		
Commissioners	\$1,115 49	\$740 32
Executive offices	26,443 43	23,646 26
Printing	8,073 62	8,899 68
Research and publicity	6,073 62	5,293 23
Accident and death claims	1,754 69	462 76
Totals	\$43,460 85	\$39,042 25
COMMERCIAL FISHCULTURE AND CONSERVATION:		
Superintendence	\$15,731 18	\$15,515 96
Inspection and patrol	31,488 15	28,677 50
Research	30,491 98	27,318 98
Statistics	10,269 64	9,207 29
State Laboratory construction	765 95	23,218 11
Market fishing license commissions	535 50	534 50
Propagation and distribution of salmon	26,154 92	27,146 32
Totals	\$115,447 27	\$131,617 96
SPORTING FISHCULTURE AND CONSERVATION:		
Superintendence	\$15,058 43	\$15,038 17
Printing	299 54	315 05
Prosecutions and allowances	496 15	2,210 87
Angling license commissions	16,879 50	16,692 60
Fish exhibits	4,323 19	4,593 04
General patrol (pro rata share):		
San Francisco District (40 per cent)	\$39,296 85	\$40,672 45
Los Angeles District (40 per cent)	16,981 60	14,902 07
Sacramento District (40 per cent)	28,774 32	25,909 49
Propagation and distribution of trout	150,405 57	130,103 85
Totals	\$272,515 15	\$253,437 59
GAME CONSERVATION:		
Printing	\$461 13	\$1,228 65
Prosecutions and allowances	1,057 45	832 27
Hunting license commissions	24,605 60	23,532 90
Mountain lion hunting (and bounties)	8,489 98	10,021 71
General patrol (pro rata share):		
San Francisco District (60 per cent)	\$58,713 22	\$61,008 67
Los Angeles District (60 per cent)	25,370 37	22,353 10
Sacramento District (60 per cent)	43,158 88	43,354 24
Totals	\$161,856 63	\$162,341 54
TAHOE CAMPING GROUND	\$634 04	\$701 62
Total expenditures	\$593,963 94	\$587,140 66

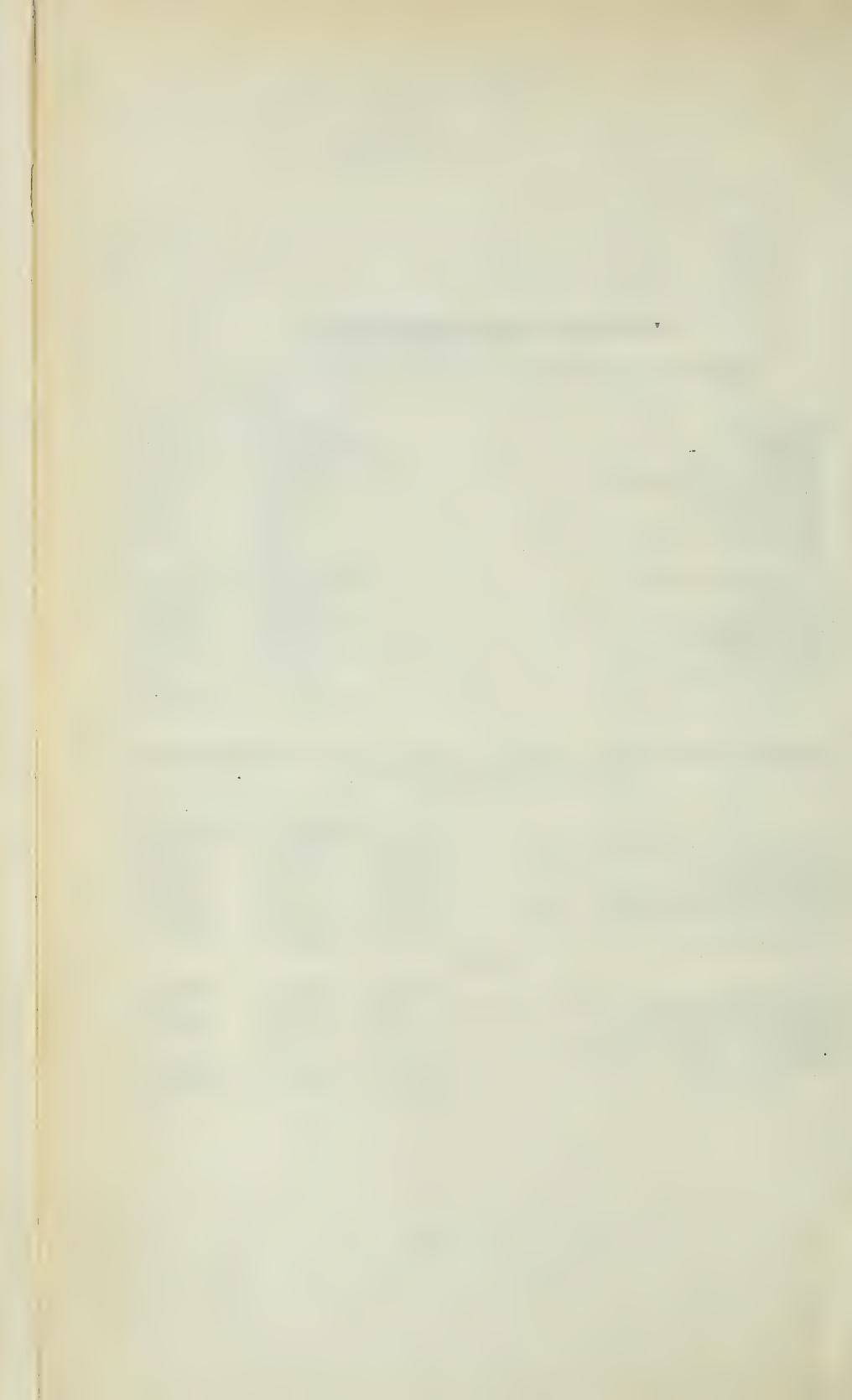
FISH AND GAME COMMISSION.

Statement of Income for the Fiscal Years 1920-1921 and 1921-1922.

	Fiscal Year.	
	1920-1921	1921-1922
License sales:		
Hunting -----	\$234,936 00	\$243,640 00
Angling -----	133,414 00	203,697 00
Market fishermen -----	49,790 00	41,200 00
Wholesale fish packers -----	1,720 00	1,100 00
Fish breeders -----	40 00	50 00
Fish importers -----	5 00	5 00
Trapping -----	3,465 00	3,101 00
Game breeders -----	87 50	77 50
Kelp -----	20 00	-----
Total license sales -----	\$423,477 50	\$492,870 50
Court fines -----	30,651 50	31,260 75
Fish tags -----	3,468 55	3,560 87
Fish packers' tax -----	31,878 00	26,346 66
Crawfish inspection -----	882 62	365 72
Game breeders' tags -----	34 97	22 50
Sale of nets -----	190 00	436 85
Miscellaneous, sales, etc. -----	1,214 78	132 00
Total income -----	\$491,797 92	\$554,995 85

Comparative Balance Sheets at Beginning and End of each of the Seventy-second and Seventy-third Fiscal Years.

	July 1, 1920	June 30, 1921	June 30, 1922
<i>Debits.</i>			
Fish and Game Preservation Fund -----	\$169,155 35	\$31,266 93	\$35,000 85
Cash, State -----	151 60	36,187 83	137 00
Warrants receivable -----	21,169 98	31,849 36	28,936 62
Revolving Fund -----	500 00	500 00	500 00
Unissued licenses available -----	691,921 55	701,306 00	686,800 00
Bond deposits (licenses sold to agents) -----	-----	13,316 00	41,591 00
Total debits -----	\$882,898 48	\$814,426 12	\$792,965 47
<i>Credits.</i>			
Claims filed -----	\$21,169 98	\$31,849 36	\$28,936 62
Revolving Fund liability to Board of Control -----	500 00	500 00	500 00
Accountability for licenses -----	691,921 55	701,306 00	686,800 00
Liability for bond deposits -----	-----	13,316 00	41,591 00
Abatement of expense (special) -----	-----	313 83	-----
Accumulated excess income -----	169,306 95	67,140 93	35,137 85
Total credits -----	\$882,898 48	\$814,426 12	\$792,965 47



NINTH BIENNIAL REPORT

OF THE

State Board of Charities and Corrections

OF THE

State of California

From July 1, 1918, to June 30, 1920



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1922

**LIST OF PUBLICATIONS OF THE STATE BOARD OF CHARITIES
AND CORRECTIONS OF CALIFORNIA.**

1. A Standard Dietary for an Orphanage. 1914.
Written for the State Board of Charities and Corrections by Dr. Adele S. Jaffa. "A standard dietary is one which provides for every fundamental need of the body, which makes for good health, full development and best efficiency, and does this at the least possible cost."
2. Index to Social Legislation. 1915.
Laws enacted by the forty-first legislature of the State of California. Prepared by the State Board of Charities and Corrections and published by the San Francisco Social Workers' Alliance.
3. Institutional Reports: What they are and what they should be. 1916.
By Dr. Samuel Langer, superintendent of Pacific Hebrew Orphan Asylum, San Francisco.
4. A Guide to California Laws Pertaining to Charities and Corrections. 1916.
An index to these laws with brief statement concerning the content of each.
5. County Outdoor Relief in California. 1916.
By E. P. Von Allmen. First bulletin by the State Board of Charities and Corrections on county out-relief. (Out of print.)
Revised edition by Esther DeTurbeville. 1918.
This bulletin presents the salient facts concerning the administration of public relief to the poor in their own homes in California. The outline shows the distribution of responsibility for the care of public dependents between the state and county governments on the one hand and between institutional and outdoor care on the other.
6. A Study in County Jails in California. 1916.
Prepared by Stuart A. Queen, when secretary of the State Board of Charities and Corrections. Shows the uses and cost of the jails and recommends various changes; primarily the establishment, by the state, of a colony for misdemeanants.
7. A Standard Plan for Small Jails. 1917.
Plans prepared by Earl H. Markwart, architect, with brief explanation.
8. Surveys in Mental Deviation, in Prisons, Public Schools, and Orphanages. 1918.
By Dr. Lewis M. Terman, Dr. J. Harold Williams, and Dr. Grace M. Fernald.
9. A Dietary for the Aged and Infirm. 1918.
By Alice M. Heinz, A.B., M.A.

LETTER OF TRANSMITTAL.

SAN FRANCISCO, January 1, 1921.

To His Excellency, WILLIAM D. STEPHENS, *Governor*,
State Capitol, Sacramento, California.

SIR: In accordance with section eight of the act creating the State Board of Charities and Corrections (Statutes 1903), we have the honor of transmitting herewith our Ninth Biennial Report for the period commencing July 1, 1918, and ending June 30, 1920.

Respectfully submitted.

CHARLES A. RAMM, *President*.

CARRIE P. BRYANT, *Vice President*.

JOHN R. HAYNES.

JESSICA B. PEIXOTTO.

B. H. PENDLETON.

HATTIE HECHT SLOSS.

State Board of Charities and Corrections.

CORNELIA MCKINNE STANWOOD, *Secretary*.

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NOTE.—This biennial does not present the usual statistical tables which we have included in all our former issues; they have been omitted for the reason that our budget did not permit us to incur the additional expense of printing them.

ROSTER OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

EX OFFICIO.

	From	To
GOVERNOR GEORGE C. PARDEE.....	1903	1907
GOVERNOR JAMES N. GILLET.....	1907	1911
GOVERNOR HIRAM W. JOHNSON.....	1911	1917
GOVERNOR WILLIAM D. STEPHENS.....	1917	---

MEMBERS.

	From	To
O. K. CUSHING, San Francisco.....	June, 1903	Feb., 1908
ANDREW M. DAVIS, San Francisco.....	June, 1903	Feb., 1908
W. C. PATTERSON, Los Angeles.....	June, 1903	Feb., 1908
E. C. MOORE, Los Angeles.....	June, 1903	Aug., 1910
J. K. McLEAN, Berkeley.....	June, 1903	Sept., 1911
CHARLES A. RAMM, San Francisco.....	June, 1903	-----
R. S. TAYLOR, Yreka.....	Feb., 1908	Feb., 1910
LOUIS ROSENTHAL, San Francisco.....	Feb., 1908	May, 1912
W. S. TINNING, Martinez.....	Feb., 1908	Aug., 1915
CLARA SHORTRIDGE FOLTZ, Los Angeles.....	Feb., 1910	April, 1912
MARTIN A. MEYER, San Francisco.....	Sept., 1911	Feb., 1920
CARRIE PARSONS BRYANT, Los Angeles.....	Nov., 1911	-----
JOHN R. HAYNES, Los Angeles.....	April, 1912	-----
JESSICA B. PEIXOTTO, Berkeley.....	May, 1912	-----
B. H. PENDLETON, Oakland.....	Aug., 1915	-----
HATTIE HECHT SLOSS, San Francisco.....	Feb., 1920	-----

SECRETARY.

W. ALMONT GATES.....	Sept., 1903	Dec., 1913
STUART A. QUEEN.....	Jan., 1914	Aug., 1917
ANITA ELDRIDGE (Acting Secretary).....	Sept., 1917	Jan., 1918
JOEL D. HUNTER.....	Jan., 1918	Feb., 1918
ANITA ELDRIDGE (Acting Secretary).....	Feb., 1918	Sept., 1918
CORNELIA McKINNE STANWOOD.....	Oct., 1918	-----

STATE BOARD OF CHARITIES AND CORRECTIONS.

November, 1920.

GOVERNOR WILLIAM D. STEPHENS, <i>ex officio</i> -----	SACRAMENTO
CHARLES A. RAMM-----	SAN FRANCISCO
CARRIE PARSONS BRYANT-----	LOS ANGELES
JOHN R. HAYNES-----	LOS ANGELES
JESSICA B. PEIXOTTO-----	BERKELEY
B. H. PENDLETON-----	OAKLAND
HATTIE HECHT SLOSS-----	SAN FRANCISCO

ORGANIZATION OF THE BOARD.

CHARLES A. RAMM-----	President
CARRIE PARSONS BRYANT-----	Vice President

Standing Committees for the Current Year.

1. INSTITUTIONS: Mrs. Bryant, Messrs. Haynes and Pendleton.
2. CHILDREN: Mrs. Sloss, Dr. Peixotto and Mrs. Bryant.
3. COUNTY ORGANIZATION: Messrs. Pendleton, Ramm and Haynes.
4. RESEARCH: Dr. Peixotto, Messrs. Ramm and Haynes.

STAFF.

CORNELIA MCKINNE STANWOOD-----	Secretary
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Institutions.

MARGARET F. SIRCH-----	Head of Southern Office and Agent for Institutions
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Children.

ANITA ELDRIDGE-----	Chief Agent
ALIX G. SMITH-----	Agent
PHILETA FITZGERALD-----	Agent
DOROTHY BOTSFORD-----	Agent
EVA L. WITTER, R.N.-----	Agent
ALEXINA D. BRUNE-----	Stenographer

Juvenile Courts.

MABEL WEED-----	Agent
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County Welfare.

ESTHER DE TURBEVILLE-----	Agent
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Research and Clerical Service.

LOUISE M. PLOEGER-----	Chief Clerk
EMILY E. KING-----	Stenographer
VERONA MACK-----	Stenographer

BY-LAWS.

OFFICERS.

The board shall elect a president, whose duty it shall be to preside at all meetings and perform such other duties as usually pertain to the office of president, and who shall hold office for one year, from and after the fourth Thursday in April of each year.

The board shall elect a vice president, who shall hold office for the same time, and who shall perform the duties of the president in case of the absence of the latter or his inability to act.

The board shall elect a secretary, who shall hold office during the pleasure of the board, and who shall receive such salary as the board may determine, and whose duty it shall be to keep a record of the proceedings of the board, to have charge of its office as executive officer, and to perform such other duties as are contemplated by the law creating the board, and as the board may from time to time direct.

MEETINGS.

The board shall hold regular meetings on the fourth Tuesday of each month, except July and December, in its offices in San Francisco.

Special meetings may be held at the call of the president or of three members at such times and places as may be fixed. Notices of special meetings shall be mailed to the address of each member at least five days before the date of meeting.

The board may meet at any time and place without notice, if six of the members are present or give their written consent thereto.

The nature of the business to be transacted shall be stated in the notice of special meetings, and no other business shall be transacted at such meeting without the consent of five members of the board.

The president, vice president and secretary shall be elected or appointed only at a regular meeting or an adjourned regular meeting.

EXPENDITURES.

The secretary shall keep an itemized account of the expenditures of the board, and of each member or officer thereof.

An auditing committee of two shall be appointed, whose duty it shall be to audit all expenditures of the board, or any of its members or officers.

QUORUM.

Four members shall constitute a quorum, and a less number can not transact any business except to adjourn from day to day.

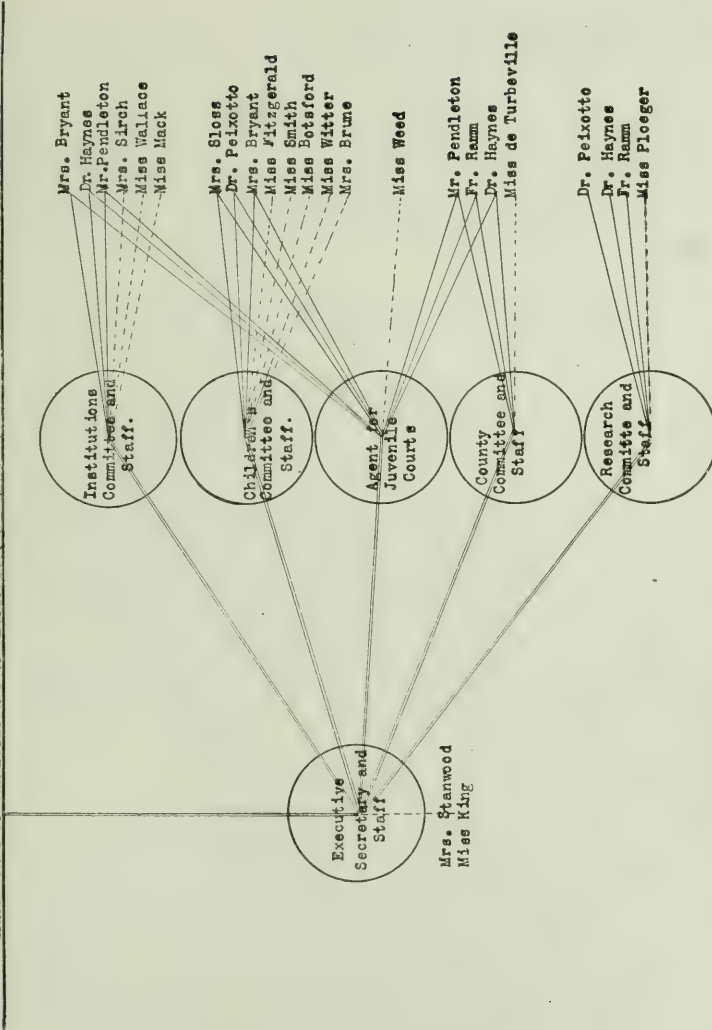
AMENDMENTS.

These by-laws may be amended by the vote of four members at any regular meeting without notice, or at a special meeting, provided notice in writing of the proposed amendment is mailed to each member five days before the date of meeting. The by-laws may be amended or suspended at any time by the unanimous vote of six members.

ORGANIZATION CHART.

ORGANIZATION CHART OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

(An unpaid board of six members.)



Solid lines indicate board members committee; dotted lines indicate staff members and double lines indicate executive.

THE PLACE OF THE BOARD OF CHARITIES AND CORRECTIONS IN THE SOCIAL WORK OF THE STATE.

Governor Stephens, in his message to the legislature (January 18, 1921), discussing bills for the reorganization of the state departments, said:

“The bill preserves the State Board of Charities and Corrections uncontrolled by any department or chief of departments, and retaining all of its present powers of visitation, inspection and correction. In my judgment there should exist some independent body possessing these powers that may at all times act as a mediary agent between the wards of the state and official control of such wards.”

It seems worth while to point out here briefly the reasons, as we see them, which underlie the statements so clearly expressed in this paragraph.

As long as the individuals of a community or state, whether children or adults, are in a normal status, that is, able to care for themselves, or being cared for by their families, relatives or friends, they receive from the state certain services designed for this normal status. Such services are provided, for example, by school and health authorities. People have, moreover, private hospitals, and many forms of private charity to meet the needs of temporary conditions. In all these circumstances, which we may designate as normal, the state takes over no special responsibilities, inasmuch as it does not assume the custody of the individuals concerned.

The individuals, however, may fall out of what we have called their normal status. This may happen for various causes, physical, mental or moral. As a consequence, we have dependents, defectives, delinquents, and the aged. Many of these may still be cared for by private persons or groups, without inviting or requiring any special concern from the state. This is particularly true of children.

Most of these cases, however, will ultimately fall into the hands of the state. Whenever this happens, the individual has passed out of the normal status into what we may call the unnormal status. This broad distinction is fundamental and should always be clearly borne in mind.

For the custody, care and general treatment of individuals in the latter class the state has provided special machinery. And in assuming charge of them the state is assuming (in a reasonable measure) the responsibilities that were formerly carried somewhere in the communities with which such individuals were in normal relations.

Now, inasmuch as nearly all of the state charges are placed in institutions, the first and immediate element in the machinery for the care of them is administrative; there must be the superintendents. They have the actual custody and care of the cases; and each superintendent should obviously be qualified and should endeavor to give the specific kind of service for which his institution was designed.

The state has appointed him and delegated to him the immediate charge over certain of its less favored, often helpless, citizens. The state, therefore the public, has a right and duty to require two things of him: proper social service and regard for expense. People should be assured that the 20,000 souls in our institutions are receiving humane as well as technical treatment, and that this is being done with reasonable economy. This means that the superintendent should be specially responsible to the State Board of Charities and to the State Board of Control, the former representing the social interests of the people and the latter their financial interests.

Three agencies are, therefore, jointly involved in the proper care of the state's charges: (1) administrative, (2) social, and (3) financial—the superintendent, the Board of Charities and Corrections and the Board of Control. These three agencies, while they have their separate work to do and should not interfere with one another in their several spheres, should, nevertheless, function in closest cooperation and most perfect harmony. They should interact as coordinate agencies, each free in its own field. It would seem desirable, therefore, that they should meet in regular conferences—say every two or three months. Their problem, regarded as the care of human beings, is *one*. It is multiple only in the practical method of handling it.

It is clear that while these three agencies must work in conjunction, no one of them should be legally subordinated to the other. This fact is recognized by the reorganization bills passed by the recent legislature: and it is expressly recognized with reference to the State Board of Charities and Corrections in the passage quoted above from the Governor's message: "the board is an independent body uncontrolled by any department or chief of departments, and retaining all its present powers of visitation, inspection and correction."

The scope of the work of the board is set forth in the following chart and summaries:

THE GOVERNOR OF CALIFORNIA APPOINTS THE STATE BOARD OF CHARITIES AND CORRECTIONS WHICH SUPERVISES—

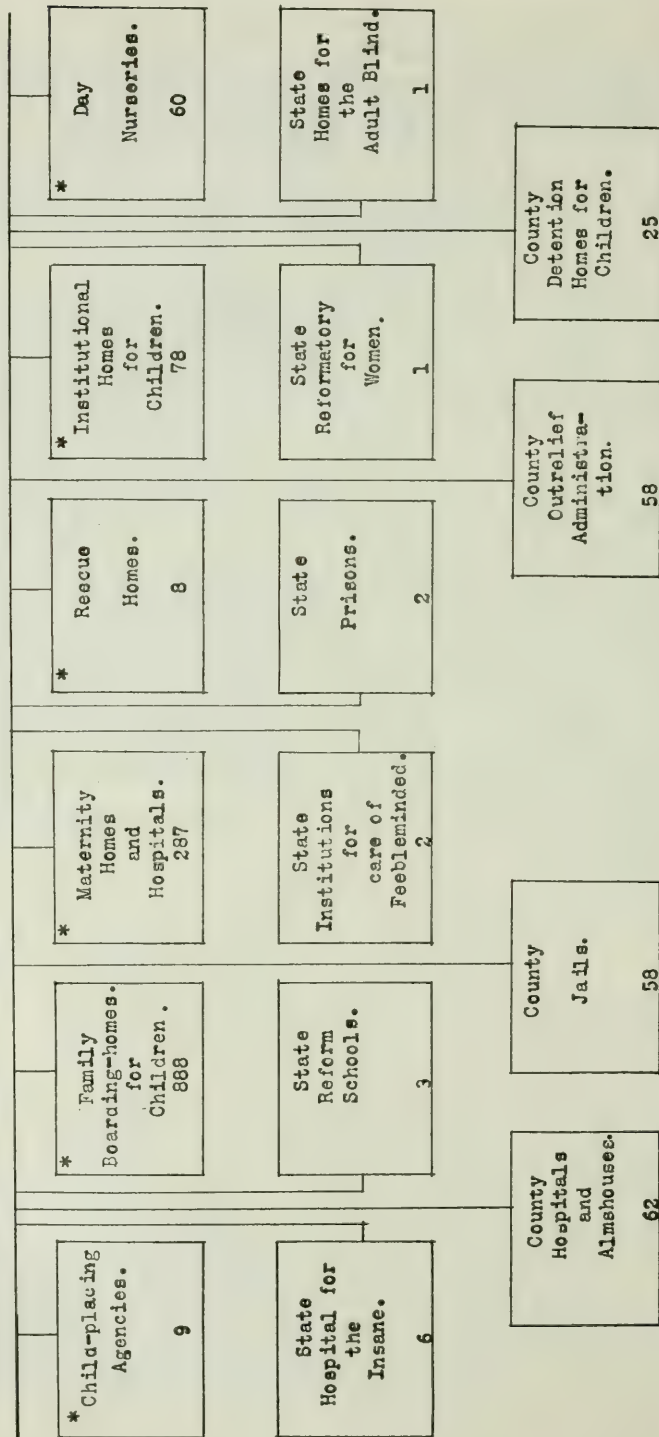


Chart showing divisions of state welfare work which are under the supervision of the State Board of Charities and Corrections. Institutions marked * must secure a license from this State Board, without which they can not operate.

STATE BOARD OF CHARITIES AND CORRECTIONS.

It is an unpaid board.

Its members do voluntary work, giving time and personal service.

This board is responsible for the welfare of—

- 10,446 insane patients in six state hospitals;
- 2,850 prisoners in two state prisons;
- 1,437 feeble-minded persons in two state institutions;
- 779 boys and girls in three reform schools;
- 141 adult blind persons in one institution;

15,653 state wards.

- 6,961 sick and aged persons in 62 county hospitals;
- 1,031 prisoners in 58 county jails;
- 18,299 persons receiving county aid in 58 counties;
- 347 boys and girls in 24 detention homes (average daily population);

26,638 county wards.

This board organizes, through county boards of supervisors, county welfare departments, for proper expenditure and supervision of relief.

This board, through license, directs the care of—

- 5,712 children in 74 children's institutions;
- 1,770 children in 888 family boarding homes;
- 1,777 children in 60 day nurseries (average daily attendance);
- 3,555 children placed in homes by 9 child-placing agencies;
- 112 girls)
- 56 babies) in 7 rescue homes;

12,982 children.

287 homes and hospitals for care of maternity patients.

DUTIES AND POWERS OF STATE BOARD OF CHARITIES AND CORRECTIONS.

Duties and powers	Statutes	Institutions under supervision	Number
<p><i>Inspection.</i> Supervision of all state, county, city, charitable, correctional and penal institutions</p>	<p>Statutes 1903, page 482, as amended by Statutes 1911, page 1334, and by Statutes 1915, page 847</p>	<p>State prisons Reformatory for women Hospitals for the insane Homes for the feeble-minded State schools for juvenile delinquents Homes for the adult blind County hospitals and county almshouses County outrelief systems County detention homes County jails City prisons</p>	<p>2 1 6 2 3 1 In 38 counties</p>
<p><i>Licence.</i> Agencies which place children in homes either to board or for adoption must be licensed by this board. Maternity hospitals and homes and hospitals having maternity departments must be licensed by this board. All institutions and homes where children are received and cared for must be licensed by this board.</p>	<p>Statutes 1911, page 1087 Statutes 1912, page 73 Statutes 1913, page 73</p>	<p>Child-placing agencies Maternity hospitals Rescue homes Family boarding homes for children Children's institutions Day nurseries</p>	<p>9 287 8 888 74 60</p>
<p><i>Prescribing of Records.</i> This board prescribes records for county hospitals, almshouses, county jails and city prisons Board prescribes records for county outrelief systems.</p>	<p>Statutes 1913, page 682 Statutes 1917, page 444 Statutes 1915, page 839 Statutes 1915, page 1225 Statutes 1915, page 1225</p>		
<p><i>Miscellaneous.</i> County boards of public welfare must file copies of all reports with this board. Probation committees must file copies of all annual reports to the judge with this board prior to December 1. Juvenile probation officers must file copies of all annual reports to the judge with this board prior to January 15. Adult probation officers must file copies of all semiannual reports to the judge with this board.</p>	<p>Penal Code, Section 1203, subdivision (j) Civil Code, Section 224 Statutes 1911, page 1334 Statutes 1903, page 482</p>		
<p>Where a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with this board before plans for new buildings or parts of buildings for any county or city institution under its supervision must be submitted to this board for approval. This board has the power to hold hearings in connection with the public institutions under its supervision, issue compulsory process, require the production of books and papers, and administer oaths.</p>			

*In many counties there is no separate almshouse; the county hospital combines custodial with medical care.

STATE INSTITUTIONS UNDER SUPERVISION OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

I. STATE HOSPITALS.

Agnew.

AGNEWS STATE HOSPITAL. Dr. Leonard Stocking, Superintendent.

Board of Directors.

T. S. Montgomery	Frank H. Benson
W. L. Biebrach	Dr. W. S. Van Dalsen

Talmage.

MENDOCINO STATE HOSPITAL. Dr. Donald R. Smith, Superintendent.

Board of Directors.

Alfred Greenbaum	R. R. Lancaster
Thomas P. Boyd	E. J. Patocchi
Ralph A. Grover	

Imola.

NAPA STATE HOSPITAL. Dr. A. C. Matthews, Superintendent.

Board of Directors.

G. M. Francis	C. G. McDaniel
W. L. Lane	W. D. Pennycook
H. J. McCurry	

Norwalk.

NORWALK STATE HOSPITAL. Dr. C. F. Applegate, Superintendent.

Board of Directors.

John N. Anderson	Dr. G. D. Jennings
O. H. Barr	W. S. James
Dr. H. G. Brainerd	

Patton.

SOUTHERN CALIFORNIA STATE HOSPITAL. Dr. John A. Reily, Superintendent.

Board of Directors.

H. McPhee	W. C. Barth
Austin Park	E. C. Merryfield
James A. Guthrie	

Stockton.

STOCKTON STATE HOSPITAL. Dr. Fred P. Clark, Superintendent.

Board of Directors.

W. B. Nutter	F. J. Dietrich
J. H. McLeod	P. F. Pache
Dr. Ellis Harbert	

Eldridge.

SONOMA STATE HOME. Dr. F. O. Butler, Superintendent.

Board of Directors.

Robert A. Poppe	C. E. Haven
E. M. Norton	C. A. Wright
C. O. Dunbar	

Spadra.

PACIFIC COLONY. W. A. Smith, Executive Secretary.

Board of Directors.

N. W. Thompson	Mrs. Herbert A. Cable
Mrs. Caroline Rice Dyer	

II. STATE REFORMATORIES.

Waterman.

PRESTON SCHOOL OF INDUSTRY. O. H. Close, Superintendent.

*Board of Directors.*Lawrence Edwards
Clarence E. Jarvis
W. H. Chestnutwood**Whittier.**

WHITTIER STATE SCHOOL. Fred C. Nelles, Superintendent.

*Board of Directors.*Prescott F. Cogswell
Benj. F. Pearson
*Wm. E. McVay**Ventura.**

CALIFORNIA SCHOOL FOR GIRLS. Dr. Olive P. Walton, Superintendent.

*Board of Directors.*Mrs. D. W. Mott
Mrs. Paul Downing
Mrs. F. A. Conant
Mrs. Chas. H. Toll
Miss Beryl Beatrice Bard**Sonoma.**

STATE INDUSTRIAL FARM FOR WOMEN. Miss Blanche Morse, Superintendent.

*Board of Directors.*Dr. Emma K. Willits
Mrs. Jas. B. Hume
Mrs. Maude B. Sibley
Captain Duncan Matheson
Dr. E. P. Ryland

III. INDUSTRIAL HOME FOR THE ADULT BLIND.

Oakland.

INDUSTRIAL HOME FOR THE ADULT BLIND. Douglas Keith, Superintendent.

*Board of Directors.*Col. John P. Irish
Dr. C. D. Gilman
W. B. Bakewell
Geo. E. Randolph
Geo. S. Meredith
W. W. Spaulding

IV. STATE PRISONS.

Represa.

FOLSOM STATE PRISON. J. J. Smith, Warden.

San Quentin.

SAN QUENTIN STATE PRISON. James A. Johnston, Warden.

*State Board of Prison Directors.*A. E. Boynton
C. E. McLaughlin
John C. Mattos
B. B. Meek
Chas. L. Neumiller

*Deceased.

RECOMMENDATIONS AND SUGGESTIONS.

I. INSTITUTIONS COMMITTEE.

A. RECOMMENDATIONS.

1. *State Hospitals.*

a. Changes in the State Lunacy Law providing for transfer of insane patients by trained nurses or attendants instead of by deputy sheriffs.

b. An appropriation for the completion of buildings for the housing and caring of the criminal insane to be known as Central California State Hospital.

c. An act to establish state psychopathic hospitals, laboratories and out-patient departments.

d. An appropriation for additional buildings at the Pacific Colony for the feeble-minded.

B. SUGGESTIONS.

1. *State Hospitals.*

a. That a director of occupational therapy be provided for the state institutions.

b. That a director of recreation be provided for the state institutions.

c. The standardization of libraries and library service for patients throughout the state institutions by the State Library.

d. The standardization of surgical and medical equipment in the state hospitals.

e. Affiliation of hospital training schools for nurses with state hospitals.

f. Psychiatric social service for the state hospitals.

g. More general establishment of psychiatric clinics.

h. Provision by counties for observation and temporary custody of suspected mental cases and for better care of psychopathic patients pending a hearing as to their sanity.

i. Enforcement of law permitting sterilization.

j. Additional cottages for care of patients; that these cottages be erected in such state hospitals as have smaller populations and have not yet reached the maximum already attained by other state hospitals.

k. Increased provision for housing and recreation of employees.

2. *State Home for Adult Blind.*

a. The greater use of the equipment as a training school, with the development of outside boarding homes for the workers who are self-supporting.

3. *State Homes for Feeble-minded.*

- a. Increased provision for recreation.
- b. Increased provision for outside care of the feeble-minded having had industrial training.
- c. Increased facilities for institutional care of feeble-minded.
- d. Increased social service for paroled wards.
- e. Establishment of psychological clinics in courts and schools.
- f. Continued enforcement of law permitting sterilization.

4. *State Schools.*

We again urge a continuous and earnest attempt to utilize to the fullest extent the medical, educational and recreational agencies and standards as advocated by this board set forth under Program on page 26. We can not too much emphasize the fact that results must depend on the personality, character and training of officer.

II. CHILDREN'S COMMITTEE.

A. SUGGESTIONS.

1. Additional supervision and follow-up for children dismissed from orphanages.
2. Specialization in the work of children's institutions.
3. Establishment of clearing houses for the distribution of dependent children to appropriate places for care.
4. Codification of laws relating to children.

III. COUNTY COMMITTEE.

A. SUGGESTIONS.

1. *County Welfare.*

a. Organization of the county social work by appointment in each county of an unpaid county welfare department or commission under whom shall be employed trained paid workers to handle all public relief and welfare problems.

b. Standardized, uniform records of relief and welfare in each county. This should include a uniform system of reports made by the welfare organization.

c. Closer working relations between counties and between the state and county social workers.

2. *County Hospitals and Farms.*

a. Improved organization of the administration and community service, of county hospitals and homes for old people.

b. Occupational therapy for handicapped and aged patients.

c. Extension of library service to the sick and aged.

d. Establishment of medical and social service in county hospitals.

e. Equipment for temporary care of insane and senile in county hospitals.

3. *County Jails.*

a. Employment of prisoners in educative, healthful and useful occupations in preference to enforced idleness.

b. Arrangement for medical care and segregation of prisoners.

c. Better attention to sanitation and cleanliness in jail buildings.

TRANSACTIONS OF THE BOARD.

SUMMARY OF THE WORK.

This biennial period has brought changes in the personnel of the board. In February, 1920, the board accepted with regret the resignation of Dr. Martin A. Meyer. For eight years he served as president of the board. His broad contacts and his intimate experience with social problems gave force and value to his leadership.

Right Reverend Charles A. Ramm was elected president in Doctor Meyer's place. Appointed in 1903 when the board was formed, Monsignor Ramm has a breadth of experience and an understanding of social progress that are invaluable in the service of a board charged by the state with responsibility for the care of all needy and wayward children; of all dependent old people; of all its mentally diseased, and all delinquent groups.

In February, 1920, Governor Stephens appointed Mrs. Hattie Hecht Sloss as Doctor Meyer's successor. She brings to the task an experience and a living interest that justify the Governor's choice.

Meetings of the Board.

During 1919 the board held eighteen meetings, two of which were formal hearings:

- Six were of one day's duration.
- Six were of two days' duration.
- Three were of three days' duration.
- One was of seven days' duration.
- One was of eight days' duration.
- One was of fifteen days' duration.

In 1920 the board held eleven meetings:

- Two were of one day's duration.
- Three were of two days' duration.
- Five were of three days' duration.
- One was of four days' duration.

Organization of the Board.

In October, 1918, the board reorganized its committees to conform with the Board of Public Welfare plan presented in its 1916-1918 biennial.

The committees are as follows:

1. *Institutions*—Mrs. Bryant (chairman), Mr. Pendleton, Doctor Haynes.
2. *Children*—Mrs. Sloss (chairman), Doctor Peixotto, Mrs. Bryant.
3. *County Welfare*—Mr. Pendleton (chairman), Father Ramm, Doctor Haynes.
4. *Research*—Doctor Peixotto (chairman), Father Ramm, Doctor Haynes.

The work of the board is done through these committees. They meet regularly, the Children and County Welfare committees every week, the others at greater intervals.

The order of business of committee meetings is to plan for future work; to act on licenses; to hear and approve reports of agents; to approve plans for buildings; to confer with those directors and officials in institutions and agencies whose work is being studied by the board.

Staff.

The staff has suffered through changes. Other states and agencies have offered our trained agents better salaries than our budget would allow. Fortunately, the heads of departments remain with us.

Recommendations Enacted Into Laws.

The following recommendations for legislative action made by the board in its last biennial report have been enacted into law:

1. Increase in the amount of state and county aid to children.
2. A woman's reformatory.

Cooperation with Other Boards.

1. With the Board of Control.

a. In work for children. There has been formed a joint committee of the Board of Control and the Children's Committee of the State Board of Charities and Corrections. This committee meets regularly to plan constructive supervision of the state-aided children's institutions and to prevent overlapping.

b. Revision of accounting. The Board of Control adjusted in a most satisfactory way the accounting system of this board so as to conform to the divisions of our work.

2. With the State Commission in Lunacy and superintendents of state hospitals.

The State Commission in Lunacy and the superintendents of state hospitals cooperated with us in the standardization of records in state hospitals. The Board of Control gave the assistance of members of its accounting department (see report of Institutions Committee).

3. With the Civil Service Commission.

This board is cooperating with the Civil Service Commission in the preparation of a budget to determine living expenses of state employees. Doctor Peixotto is working on the committee, and we paid the salary of a special agent for the compilation.

4. With the State Architect.

This board considers plans for all state buildings conjointly with the State Architect and the trustees of the institutions. This plan is working satisfactorily. Many changes have been made for the benefit of the institution without added expense to the institution.

5. With the State Board of Health.

Bureau of Child Hygiene. In response to our request, Doctor Ethel Watters, the chief of the Child Hygiene Bureau, examined the children in the Ellen Stark Ford home. We have also had cooperation from the bureau in the preparation of a medical form.

6. With the State Probation Officers' Association and the superintendents of state schools.

The State Board of Charities and Corrections called a conference to standardize forms and records sent by probation officers to state schools.

7. Conference of Social Work.

The board and staff have worked actively for the conference.

Conclusions.

The Institutions Committee and the institutional agent are moving quietly, steadily and purposefully in the state institutions, studying conditions and suggesting improvements.

We are in a position to report that every effort is being made to see that the wards of the State of California institutions have humane and considerate treatment. The population of our institutions, however, has increased beyond their capacity. Consequently superintendents are forced to put more inmates in dormitories than the air space warrants and to have patients sleep on the floor. There have been serious and difficult problems arising in the state schools. In our recommendations we urge appropriate measures to meet this emergency.

During this period four of the institutions have elected new superintendents: Norwalk State Hospital, The California School for Girls, Preston School of Industry and the California Industrial Farm for Women.

In all possible cases, in appointments other than that of superintendent, civil service rulings are insisted upon and followed.

County by county relief work is being standardized under county welfare departments; the counties are coming more and more to us for help and leadership; week by week, throughout the year, the Children's Committee and the children's agents are gaining more definite knowledge of problems arising in this state with regard to the care of children and carrying on effective work in the treatment of these problems.

Every year sees a genuine increase in cooperation between the State Board and the trustees, superintendents and officers of the institutions. Studies, investigations, reports and conferences are the machinery through which these work with one aim in view—to provide better care for the patient, to cure the mentally diseased, to reeducate the wayward.

The work of this board is best presented through the reports of its committees, which follow:

1. Institutions Committee.
2. Children's Committee.
3. County Welfare Committee.
4. Research Committee.

REPORT OF THE INSTITUTIONS COMMITTEE.

Chairman—MRS. CARRIE P. BRYANT.

Agent—MRS. MARGARET F. SIRCH, R.N.

1. GENERAL SUMMARY OF STATE INSTITUTIONS.

2. STATE HOSPITALS FOR THE INSANE.

Agnews State Hospital	-----	Agnew
Mendocino State Hospital	-----	Talmage
Napa State Hospital	-----	Imola
Norwalk State Hospital	-----	Norwalk
Stockton State Hospital	-----	Stockton
Southern California State Hospital	-----	Patton

3. STATE HOMES FOR FEEBLE-MINDED.

Sonoma State Home	-----	Eldridge
Pacific Colony	-----	Spadra

4. STATE SCHOOLS.

Preston School of Industry	-----	Waterman
Whittier State School	-----	Whittier
California School for Girls	-----	Ventura

5. BUREAU OF JUVENILE RESEARCH

-----	Whittier
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6. STATE PRISONS.

Folsom State Prison	-----	Represa
San Quentin State Prison	-----	San Quentin

7. REFORMATORY INSTITUTIONS FOR ADULTS.

California Industrial Farm for Delinquent Women	-----	Sonoma
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8. STATE INDUSTRIAL HOME FOR ADULT BLIND.

Industrial Home for the Adult Blind	-----	Oakland
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A list of state institutions with trustees and superintendents will be found on pages 15 and 16.

1. GENERAL SUMMARY OF STATE INSTITUTIONS.

During this period the work of the board in the state institutions has been under the direction of the chairman of the Institutions Committee.

Repeated inspections by board and staff have been made to all state institutions.

Follow-up visits by board members and the staff in all cases have been made to see that the recommendations of the report are put in force.

Out of the twenty-five complaints against these institutions during this period the board held four major investigations, two of which resulted in open hearings—one at Ventura in January, 1919, and one at

Norwalk, July 18 to 26, 1919. The public hearings are to be regretted from every point of view. They are distressing to relatives of residents in the institutions and most disturbing to the morale of the entire group in the institution itself. It is a matter of regret that policies suggested in conference with boards of trustees could not always be put into execution. This state board is not administrative, but has the duty of recommendation. It is only when this board fails to meet full cooperation that conditions arise which culminate in a public hearing.

On the other hand, it happens sometimes that unwarranted newspaper publicity is given a situation in an institution before there has been opportunity for adjustment. This is a mistake. This board stands ready at all times to give of its time and effort in conference with a view to adjustment.

In its investigations of complaints which come to the offices frequently the board has been able to make adjustments that forestalled difficulties and friction. It has worked with the trustees and superintendents for the good of the institutions. It has made its adjustments without publicity.

We can report on the whole that despite the difficulties of the after-war period the state hospitals have forged ahead. Distinct progress has been made by all in the development of occupational therapy. Additional use of hydrotherapy in the institutions has been evidenced.

Approval of plans by the board.

During this biennial period this board has passed on all plans for new state buildings (Stats. 1903, p. 482, section 3).

In considering plans the board has considered the following standards as essential before approval:

An insistence on the maximum of air in sleeping quarters and living rooms.

It has urged the maximum of sleeping porches, porches for sitting rooms for convalescent patients and outside compounds for exercise.

It has opposed low ceilings and dormer windows in sleeping quarters, and has recommended transoms and cross-ventilation.

It has urged that inclines be substituted for stairs wherever possible. Theatres, office buildings and schools for normal people are now making this a part of their building plans. If it is possible in buildings of this type, it seems a necessity in institutions for the dependent blind and the insane.

The following plans for state buildings have been considered, studied and finally approved by the board during this biennial period:

1. School building at California School for Girls.
2. Employees' cottage at Napa.
3. Employees' cottage at Stockton.
4. Return from parole cottage at California School for Girls.
5. Farm cottage, Pacific Colony.
6. The convalescent cottages, Norwalk.
7. Reconstruction of Central State Hospital at Folsom.
8. The Women's Industrial Farm (remodeling).
9. Cottage, Number 6, California School for Girls.
10. Employees' dining room, Norwalk.

The employees' cottage at Napa and Stockton the board approved, although they have dormer windows. Financial stringency, the unexpected increase in population in all state hospitals, with the consequent lack of quarters for employees, forced a reluctant acceptance from this board of these plans.

For the convenience of the state departments, institutions and officers and for public information, the State Board of Charities and Corrections issues monthly a census bulletin showing population of each and all the state institutions. This bulletin gives not only the present population, but also figures for the corresponding month of preceding year showing increase or decrease. This form has been altered from time to time to meet public demand. As at present issued, it shows segregation of population—insane, drug addicts, alcoholics, voluntary commitments, and paroles.

A copy of Census Bulletin No. 202, October 31, 1920, follows:

GENERAL SUMMARY OF STATE INSTITUTIONS.

STATE BOARD OF CHARITIES AND CORRECTIONS MONTHLY CENSUS BULLETIN NO. 202, OCTOBER 31, 1920.

Institutions	Insane		Alcoholic		Drug addicts		Voluntary		Cross totals		In institutions		Increase or decrease		On parole	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Oct. 31, 1920	Oct. 31, 1919	Oct. 31, 1920	Oct. 31, 1919	Oct. 31, 1920	Oct. 31, 1919
	Total		Total		Total		Total		Total		Total		Total		Total	
Industrial Home for Adult Blind									104	37	141	141	137	4 inc.		
State reform schools:																
California School for Girls									356	149	149	149	149		51	68
Preston School of Industry									274		274				843	317
Whittier State School															111	98
Total state schools																
State hospitals:																
Agnews	840	716	1	1	1	1	31	30	872	748	1,620	1,620	1,620		117	141
Mendocino	902	318	1	4	12	9	4	1	919	332	1,251	1,251	1,251		86	94
Napa	1,282	1,070	6	2	12	9	15	19	1,315	1,100	2,415	2,415	2,415		224	284
Norwalk	281	197			4		6	1	292	198	490	490	490		94	123
Southern California	1,221	1,026	6	1	8	1	22	19	1,257	1,047	2,304	2,304	2,304		128	110
Stockton	1,354	950			11	4	13	34	1,378	988	2,366	2,366	2,366		144	180
Total state hospitals												10,446	10,103	343 inc.		
Sonoma State Home for Feeble-minded									739	698	1,437	1,437	1,304	133 inc.	143	104
State prisons:																
Folsom									647		947	947			329	265
San Quentin									1,876	27	1,903	1,903			639	510
Total state prisons															2,850	2,850
Grand totals	5,896	4,277	14	8	48	24	91	104	10,829	5,324	15,653	15,113	540 inc.		2,379	2,294
	10,157		22		72		105		10,829		15,653		540 inc.		2,379	

2. STATE HOSPITALS FOR THE INSANE.

The following recommendations and suggestions have been made to superintendents of state institutions and have formed the past Biennial Program of the State Board of Charities and Corrections.

A. PROGRAM FOR 1918-1920.

1. The standardization of state hospital records.
2. The increased use of occupational therapy in all state hospitals. A special building to be devoted to this department.
3. The minimum use of restraint.
4. Increased provision for recreation, library privilege and outdoor exercise for patients.
5. Better physical care of patients.
6. Affiliation of state hospitals with accredited training schools for nurses.
7. Adequate provision for the care of the criminal insane.
8. Changes in the State Lunacy Law pertaining to the transfer of patients to state hospitals.
9. Psychiatric social service with increased supervision of paroled-patients.
10. (a) Establishment of psychiatric clinics; (b) better provision for general care of psychopathic patients pending hearing as to their sanity.
11. State psychopathic hospitals.
12. Enforcement of law permitting sterilization.
13. Additional cottages for the care of patients.

These recommendations were brought to trustees and superintendents in written reports, letters and conferences. Where special appropriations were necessary this board took the matter up with the Board of Control.

The superintendents are actively in accord with this program and are pushing it as fast and far as their budgets will permit.

We are glad to report definite accomplishment in this program.

1. The standardization of state hospital records.

Perhaps the most important accomplishment of the board during this period has been the unification and standardization of records in all state hospitals.

The need of standardization was apparent. Each hospital used forms peculiar to itself; a few were in common use. A study was made of all these forms, together with those of other state hospitals, with five viewpoints in mind.

- a. To meet the legal requirements of California.
- b. To provide adequate and complete histories for the benefit of patients.
- c. To provide adequate histories for the protection of the hospital and staff.
- d. To provide material for scientific research.
- e. To form a basis for the standardization of hospital work.
- f. To eliminate all duplication.
- g. To provide means by which national statistics may be collected.

What was considered the best from each hospital was chosen and used intact. Some forms were modified or rearranged so as to serve a double purpose; others were created, always with the thought of efficiency and the minimizing of clerical work.

A conference was called by the State Board of Charities and Corrections. The State Commission in Lunacy and the superintendents of the state hospitals were present. The conference considered thirty-five

record forms, together with a uniform case history filing system carefully prepared by the agent for institutions. At this time a set of revised cards for use in keeping data for report to the Bureau of Statistics of the National Committee for Mental Hygiene was presented.

Another meeting with the superintendents followed, when the forms, with some minor changes, were finally agreed upon and a standard record system was established and is now installed.

Four forms are reproduced, each having some special feature.

A. *Report of Admissions.* This form is in triplicate. One writing furnishes the legal receipt to the sheriff, the legal notice to the Lunacy Commission and a copy for the hospital files.

B. *Patients' Ward Card.* The reverse of this 3x8 card is ruled, for use as a weight graph with monthly notations covering a period of six years. The general trend of the patient may be seen at a glance.

C. *Restraint Order,* and D. *Report.* This form in duplicate safeguards the use of restraint. If restraint is continued it makes necessary the daily renewal of the signature of the physician ordering it. On the reverse of the second sheet (retained in the ward) is printed the definition of restraint as agreed upon by the superintendents. This definition is—

1. Camisole.
2. Muff.
3. Mittens.
4. Anchoring belts to chair or bench.
5. Wristlets.
6. Anklets.
7. Restraining sheet.

E. *Special Incident Report.* This form furnishes a history of the occurrence and investigation of any untoward event pertaining to a patient and is a valuable aid in establishing responsibility, and also provides a history for the patient's file.

The State Board of Charities and Corrections is indebted to the Board of Control for the able assistance rendered by Mr. Heron in the compilation of these forms.

The following complete set was agreed upon and is now in use. A distinguishing color scheme for male and female patients was adopted:

1. Uniform case history filing system—folder—correspondence card index.
2. Record of admission in triplicate (see Form A).
3. Abstract of commitment papers in duplicate.
4. Patients' ward card weight chart on reverse (see Form B).
5. Ward transfer order.
6. Card index to location of patient.
7. Nurses' admission report.
8. Nurses' daily report (individual).
9. Nurses' ward notes.
10. Physical examination form.
11. Form letter of inquiry to relatives.
12. Hydrotherapy records (a. Department daily record; b. Individual continuous record).
13. Clinical record sheet.
14. Charge attendants' daily report.
15. Supervisors and matrons' daily report.
16. Special incident report (see Form E).
17. Restraint report in duplicate with definition of restraint (see Forms C and D).

18. Epileptic seizures (individual record).
19. Catamenial record (individual record).
20. Leave of absence (duplicate to Lunacy Commission).
21. Report of patient returned from parole (duplicate to Lunacy Commission).
22. Report of elopement (duplicate to Lunacy Commission).
23. Report of patient returning from escape (duplicate to Lunacy Commission).
24. Discharge record—triplicate (copy to county clerk and to Lunacy Commission).
25. Transfer record duplicate to Lunacy Commission.
26. Patients' employment index.
27. Patients' employment record.
28. Laboratory records, urine, blood, sputum, etc.
29. Statistical record cards to conform with the requirements of the National Committee for Mental Hygiene.
 - a. Admission and readmission.
 - b. Transfers.
 - c. Discharge.
 - d. Death.
 A duplicate of Form A supplies social history record for patients' history file.
30. Population report.

2. Occupational therapy in all of the state hospitals.

The board has urged the development of occupational therapy in suggestions to trustees and superintendents. It is glad to report a marked advance in occupational therapy in the treatment of the insane during this period. Studies of individual patients show improvement in the mental and physical condition after a period of diversional therapy. The pioneer work has been done with marked social and financial success at the Southern California State Hospital.

The manner of employment of the patient is taken up at the regular clinical conferences of the hospital staff. Neither the previous training of the patient nor the needs of the hospital are the dominating factors. Occupation is prescribed as part of the treatment and its effect is carefully regarded and subject to change, as no work is made compulsory. When the right occupation is found, the patients are, as a rule, keen for it.

Most remarkable results have been obtained in the chronic wards for men and women. What has been achieved in teaching demented, destructive patients to create instead of to destroy, is most noteworthy.

Many of the workers in the toy factory at Southern California Hospital are patients who had heretofore been thought incapable of concentrated effort of any sort. Stockton and Norwalk State Hospitals show records of improvement in individual patients after work assignment.

Industrial departments for men have been created in several hospitals during this biennial period. In the farm departments many patients have been furnished congenial occupation.

A wide variety of hand-loom work is done in all of the hospital work rooms. All sorts of textiles for weaving are in use, from coarse jute raveling to finest silk.

Salvaged materials are used in many departments; one hospital uses waste wood in its toy factory; another utilizes all of the old stockings, which are raveled and woven into toweling.

Jute ravelings are dyed in art colors and woven into floor runners and rugs. Beautiful rugs are made from cotton rags dyed in oriental shades. Baskets are made of cuttings from the palm trees.

Besides all manner of woven fabrics, which includes the shirtings and towelings used in the institutions, the occupations include the making of shoes, brushes of all sorts, brooms, cocoa mats, mattresses. Tailor shops and sewing rooms, printing and basketry for both men and women, have been provided.

The women workers assist in the manufacture of all garments and linen supplies used in the hospitals; others are constantly at work in the mending rooms.

Other large groups are engaged under instructors in arts and crafts work, which furnishes an outlet for creative talent, often dormant in the patient. There is an unlimited demand for the products of these departments.

The manufacture of children's garments is a valuable addition. The women are especially happy in working on these clothes for little ones.

The financial returns from the industrial departments, after subtracting the cost of maintenance, are used for an amusement fund for the patients.

The work being done in two of the state hospitals merits careful study by all the hospitals. Without doubt, occupational therapy has illimitable possibilities of advantage to the patient.

3. The minimum use of restraint.

The board has received cooperation from superintendents in minimizing restraint in the hospitals.

A comparative study in the state hospitals shows a decrease in the use of mechanical restraint. Congenial occupation has made its use unnecessary for many patients heretofore given to periodic outbursts or constantly in a disturbed condition.

The increased use of hydrotherapy in all of the state hospitals has had a marked effect in decreasing the use of restraint.

A great deal of work remains to be done in the regulation of restraint of patients confined in county institutions pending a hearing as to their sanity. The treatment is usually that accorded dangerous criminals rather than sick persons requiring medical care.

4. Increased provision for recreation and exercise for patients.

All the state hospitals have provided additional features of recreation. Cinema entertainments are markedly popular. In some of the hospitals there is provision for music in almost all the wards. California's climate admits of out-of-door band concerts the greater part of the year.

Observations of national and state holidays and many others not on the calendar furnish happy occasions for diversion and break institutional monotony.

Many patients with their occupational work need outdoor exercise. There is a still greater need of it for those incapable of employment of any sort.

There has been a marked effort on the part of the superintendent to increase the hours out-of-doors, especially for the inert, low-grade patients and to stimulate them to some form of physical exercise.

Increased provision in the way of compounds, benches and summer houses has been made in the hospitals to provide a greater time in the open air.

There is constant need of stimulating the attendants in charge of the outdoor groups in order to create activities for the patients. They as well as the patients become apathetic.

In several of the hospitals progress has been made in supplying active diversional amusements, baseball, basket ball, volley ball, calisthenic exercises, folk dancing for the women and setting-up exercises for the men.

We believe that a plan for the establishment of a library day would be well received by patients capable of reading. The books should be brought into the wards in a portable rack and there exchanged.

5. Better physical care of patients.

Agents of the board during their residence in hospitals have given special attention to the physical care of patients.

There has been a noticeable improvement in this care of patients; better condition of beds, cleaner clothing and more frequent baths, and an effort to get helpless patients out of bed into wheel chairs. This is due in part to the release of nurses at the end of the war, and to the repeated insistence by this board for a standardized service in nursing and attendants.

There is an improved service of food, and a better tray service with greater care in the feeding of helpless patients.

The care of bed patients in our state hospitals is remarkably good. A close inspection of all of the bedridden, untidy patients in our largest hospitals failed to discover one patient with pressure sores. This means unrelaxed watchfulness by day and night, with constant changing of the patients.

It also means that all able to be moved are put in wheel chairs daily. This class of patients receives daily baths and many stimulating rubbings of back and shoulders and other points of contact where pressure sores occur if uncared for.

During the war period the supplies and equipment for the care of patients became noticeably depleted, especially the linen supply. This lack is rapidly being remedied.

6. Affiliation of state hospitals with accredited training schools for nurses.

Class after class of nurses are graduated from the training schools of our general hospitals, knowing little or nothing of psychopathic nursing. The usual thought is that little more than institutional care is required for the mentally ill, when in truth the very highest type of nursing is demanded. The training schools have been slow in affiliating with the state hospitals.

Several of our state hospitals meet the requirements of specially trained registered graduates in charge of the nursing. One of the causes of retardation has been lack of adequate living quarters for pupil

nurses. However, the beginning of affiliation with hospital training schools for nurses has been established at Stockton and Napa.

The director of the State Bureau of Registration of Nurses is keenly alive to the need of the addition of psychiatric nursing to the curriculum of California training schools for nurses, and we have every reason to believe that during the coming biennial period this need will be met by an affiliation of the large training schools with the state hospitals.

7. Adequate provision for the care of the criminal insane.

The present system of caring for the criminal insane in our state hospitals is very unsatisfactory, for the reason that the buildings are not constructed so as to provide segregation, safe custody, and proper facilities for the exercise and outside life so necessary for the patient's health and mental welfare. Specially constructed buildings and grounds are necessary. To furnish these facilities there is before the legislature an act to provide for the completion of the unfinished building at Represa, to be known as the Central California State Hospital, for the housing and care of the criminal insane, not to exceed a cost of \$100,000. When completed this building will accommodate 200 insane, those now cared for in wards of the state hospitals, and those found to be criminally insane in the future.

This will greatly simplify the problem of caring for these patients, by segregating them in a group of themselves, and by reducing the problem of caring for them in the state hospitals, where they are a menace to other patients and to the public by their frequent escapes from custody.

Inasmuch as the necessity of segregation of this type of patient has become apparent, the completion of this building will be the most practical means of meeting the need and will provide for the care of a large group of patients at a comparatively small cost.

8. Changes in the State Lunacy Law pertaining to the transfer of patients to the state hospitals.

Changes in the present law which prescribes that insane persons shall be conveyed to state hospitals by a sheriff, or his deputy, were advocated in the board's recommendation in the biennial report of 1914-1916, also 1916-1918.

California's law reads: "It is further ordered and directed that -----, sheriff of the-----county of-----, take, convey and deliver said-----to the proper authorities of said hospital, to be held and confined therein as an insane person." Nothing is said of treatment. This very method of arrival at the hospital, conveyed by the sheriff as a prisoner, restrained and excited, often because of the restraint, in itself creates the fear so often experienced by caretakers. The patient should be conveyed by nurses or trained attendants to the hospital to which he is assigned.

In order to bring about humane, modern methods of caring for these patients, a corrective measure prepared by the California Psychopathic Association and heartily endorsed by this board has been presented to

the legislature. If these nurses or attendants can be furnished by the hospital to which the patient is committed, the measure will prove economical as well as humane.

9. Psychiatric social service with increased supervision of paroled patients.

The number of patients on parole from the state hospitals on November 1, 1920, was 804, as compared with 970 in November, 1919, a decrease of 166. Statistics show an increase in institution population of 375.

It is imperative that paroles be paralleled by the establishment of mental clinics and by psychiatric social service workers. To adequately meet the need, authorities find one worker necessary to every hundred paroled patients.

The lack of workers trained in psychiatric social service limits the number of patients who can be paroled safely from the state hospitals. Dr. George H. Kirby, director of New York Psychopathic Institute, says:

“The length of the hospital treatment will often depend directly upon what the social worker is able to do toward changing unfavorable home conditions, smoothing out cause for friction and educating the family regarding the management of the patient on his or her return home. The social worker should attend staff conferences and get acquainted with each new case as soon as possible.

The work should be under the direction of the hospital physician.

Mental clinics distributed throughout the state form a concomitant part of the plan.

Six patients at home on parole represent a saving to the state equivalent to the salary of one social worker.”

Higher efficiency and greater value to the patients and to the community can be attained by developing further cooperation with public health and district nurses and various social agencies. This means the utilization of all existing public health field nurses in psychiatric social service until such time as there is a body of specially trained persons for this purpose. This service has been established between all of the state hospitals and the public health nurses throughout the state. The preliminary work was done by the State Board of Charities and Corrections. The ideal plan would imply trained workers connected with each hospital.

The New York legislature has just made provision for additional social workers so that each hospital will have one worker for each hundred patients on parole. This proportion is the recognized standard for such work. During the coming biennium it is hoped that California will make a start in this important field.

10. (a) Establishment of psychiatric clinics; (b) Better provision for psychopathic patients pending a hearing as to their sanity.

The board advocated (a) the establishment of county group clinics within the purlieus of the state hospitals where local physicians may refer their cases for expert examination by the psychiatrists of the state hospitals. San Bernardino County welfare commission has so arranged

a mental hygiene clinic in charge of Dr. Emil W. Meyer, of the staff of Southern California State Hospital. Juvenile court children are examined as well as adults. This clinic is held on alternate Thursdays in the clinic rooms of the welfare commission in San Bernardino. The visiting nurse of the commission is in attendance. A record system has been installed. It is hoped that this may be the first of a chain of such community psychiatric clinics.

(b) Provision for care of psychopathic patients pending a hearing as to their sanity. California counties, with few exceptions, are furnishing indifferent care to patients held on insanity charges and to the indigent senile patients in their charge. In Los Angeles County, special attention is given to the care and treatment of persons under observation as to their sanity or awaiting hearing on a lunacy charge. The psychopathic hospital provides court rooms, separate rooms for patients, sitting rooms, outdoor courts, medical service and hydrotherapy treatment for all patients either under observation or awaiting transfer to state hospitals. We urge other counties to make similar provision for psychopathic patients. A recent county hospital questionnaire brought in the following returns:

INSANE.

Counties using the jail for detention of the insane.....	27
Counties which have no settled policies, detaining sometimes at the jail and sometimes in hospital.....	2
Counties which detail insane in the state hospital (San Joaquin).....	1
Counties using the county hospital as a place of detention for insane.....	25
Counties using emergency or detention hospitals.....	2
Counties which maintain special psychopathic hospital.....	1
Total.....	58

Temporary detention in jail cells should not be countenanced. Section 2167, Lunacy Law, reads:

The board of supervisors of each county, and city and county, must maintain in the county, or city and county, or in a receiving hospital situate therein, a suitable room or rooms for the detention, board, care, and treatment of the alleged insane, for a period of not less than one or more than twenty days. These rooms and their furnishings must be subject to the approval of the commission, and each person having charge and control of any such hospital or rooms and their furnishings, must allow the commission to make such investigations thereof, as it may at any time deem necessary.

In many counties there is urgent need of psychopathic wards or buildings for the detention and treatment of persons held pending hearing on insanity charges and for the care of the indigent senile of the county.

11. State psychopathic hospitals.

As the results of several conferences under the auspices of the State Board of Charities and Corrections, attended by representatives from the State Board of Health, State University Hospital, State Hospitals for the Insane, State Homes for Feeble-minded, Stanford Medical School, the California Psychopathic Association, Mental Hygiene Society, and social agencies and prominent alienists, physicians, psychologists and social workers, a committee was formed to prepare a bill for the establishment of a state psychopathic hospital or hospitals.

Such a bill has been presented to the legislature, the title of which is as follows:

An act to establish two psychopathic hospitals, laboratories and out-patient departments for the study of the nature, causes, treatment and modes of prevention of mental diseases and abnormalities, and the dissemination of knowledge derived from such study; and making an appropriation to carry out the purposes hereof.

The functions of a state psychopathic hospital include the temporary care and observation of the acute, curable and incipient cases of mental disease; as a prophylactic measure, establishment of mental hygiene clinics throughout the state; as an educational center for research, training of psychiatrists of the future.

This study and educational work aims particularly at the border line and early evidences of mental derangement and looks toward securing information which will assist in the early recognition and treatment of such disorders at a stage in which treatment and preventive measures promise success.

It is the experience in psychopathic hospitals that many persons come for advice and treatment of relatively unimportant symptoms, in the course of which and closely related to which is found some organic disease. The early recognition of such diseases at a stage in which possibly much can be done and the recognition of which arises from casual and mild mental symptoms is a service rendered by psychopathic hospitals which is but little recognized. The number of organic diseases with these superimposed functional symptoms which are treated in a psychopathic hospital is surprisingly large.

12. Enforcement of law permitting sterilization.

The board recommends the wider use of this law.

Two imperative obligations are laid upon society: first, that the lives of defectives should be made as comfortable and happy as possible; and, second, that these defectives should leave behind them no progeny to carry on the tainted and unhappy stream of heredity.

13. Increased provision for the housing and recreation of employees.

There is a general need of employees' buildings, with provision for additional recreation.

In several of the state hospitals the attendants are obliged to live night and day in closest proximity to the patients, as their bedrooms open off the general wards and in some instances attendants share the patients' bath and toilet rooms.

At Mendocino and Napa the state is obliged to rent houses outside of the grounds for many of the employees, at considerable expense.

The bungalow type of detached buildings featured at Southern California and Norwalk are extremely popular with employees. It is hoped this method of housing may meet with wider use.

Two congregate buildings for employees were completed during this biennial period.

The club rooms for employees, which provide reading, music, dancing and games, established in some of the hospitals, furnish a needed opportunity for amusement. The character of the work performed by attendants demands recreation, if efficiency, health and good temper are to be kept at par.

14. Additional cottages for the care of patients.

All of the state hospitals are more or less overcrowded, and have been for several years. In many instances the state law regarding per capita air space fails of observance; these patients must be housed.

Day rooms, corridors, halls and dining rooms are being utilized for bed space. Many patients are obliged to sleep on mattresses on the floors.

The new buildings during the past biennial period provide for 343 additional beds. Even with this additional equipment, the hospitals are still seriously overcrowded.

There are 10,514 insane in the six state hospitals, which range in population from 513 to 2,440. Without question, the hospital problem increases with the population. We urge that hospitals below the maximum population increase their capacity for patients to the maximum reached by Napa, Southern California and Stockton, rather than add to these hospitals.

New housing is desired on the cottage plan. This unit system permits inexpensive and indefinite expansion.

3. STATE HOMES FOR THE FEEBLE-MINDED.

A. PROGRAM FOR 1918-1920.

1. Increased facilities for the care of the feeble-minded.
2. Increased social service for parole wards.
3. The establishment of psychological clinics in courts and educational centers.
4. A more universal use by state institutions of the law permitting sterilization of feeble-minded persons.
5. Increased facilities for recreation: Special attention to children as to corrective postural exercises and play by means of rhythmical games and story action.

B. PROGRESS.

1. Increased facilities for the care of the feeble-minded.

This need was stressed in the last biennial report of this board.

The situation has not been materially improved. The Sonoma State Home has a waiting list of over 800 and the Pacific Colony is available for only forty boys having institutional training.

The situation in California is serious. The counties have no adequate outlet for institutional care for the defectives.

We recommended in the last biennial report, as a temporary expedient, the establishment of more private boarding homes for the feeble-minded. At that time there were from 50 to 60 children cared for in such homes. During the biennium this group has increased, around Los Angeles as a center, to 132 children in eight homes. This group of children is largely an institutional group and should be provided for in an institution.

The situation could be materially benefited by placing these children in these homes under the immediate supervision of a trained and sym-

pathetic group, which would include psychologists and physicians, in order to properly segregate and bring about the needed provision for instruction, recreation and nutrition.

2. Increased social service for paroled wards.

It is thought that the situation could be relieved by an adequate parole system. It is possible that many placed in the state school during childhood may, under supervision, be safely returned to their homes or into other homes as trained, useful people after adolescence has been reached and sterilization performed.

Carefully placed and properly supervised, many of the feeble-minded now in the state school could become self-supporting and so make way for other children for whom care and training is so urgently needed.

The superintendent of Sonoma State Home has placed many such within the purlieus of the home. There are many requests for helpers in private homes throughout the state.

Statewide social service would make it possible to place others. One social service worker is now employed.

The situation could be further relieved by outside maintenance, with close supervision of working groups, in homes provided in industrial centers.

3. The establishment of psychological clinics.

Two valuable additions are noted. The community clinic in Santa Rosa, conducted mainly by the staff of Sonoma State Home, and the psychiatric clinic, maintained by the San Bernardino Welfare Commission in cooperation with the state hospital at Patton.

Juvenile court psychological clinics are held regularly in Los Angeles, San Francisco and Alameda. Other counties are increasing the practice of mental examination of juvenile court wards.

Clinical psychologists are employed by school departments in many of our large cities. The backward and defective children are segregated into classes under teachers specially trained.

4. A more universal use by state institutions of the law permitting sterilization of feeble-minded persons.

The operation for sterilization is limited to inmates whose parents or guardians give consent, or those without relatives. The superintendent of Sonoma State Home reports 220 sterilizations during the past biennial period.

5. Recreation with special emphasis on corrective postural exercises by means of rhythmic games and story action.

During this period the board has stressed the importance of increased facilities and opportunities for play for feeble-minded children. There has been progress.

The administration has instituted dancing classes for girls and boys. Twice each month a social evening is planned; the boys and girls dance together; there are acrobatic feats, community singing. The girls play a spirited game of basket ball and baseball.

The school is equipped with baseball, football and basket ball courts. Around North Cottage a large playground is being constructed for children who are of low mental grade. The plan is to equip this ground with swings and slides. A similar plan is under way for the nurseries.

Marching exercises have been instituted for children in Poppe and North cottages. The results in habits of cleanliness are unmistakable. Children who before were thought incapable have shown marked improvement under this regime.

4. STATE REFORM SCHOOLS.

A. PROGRAM FOR 1918-1920.

1. *Medical.*
 - a. Resident physicians and graduate nurses in residence.
 - b. Equipment for medical treatments.
 - c. Early medical examination and treatment with segregation of communicable diseases.
 - d. Adequate record of medical and social histories.
2. *Educational.*
Teachers with special training; increased hours of academic instruction, with added vocational training.
3. *Increased provision for recreation.*
4. *Segregation of moral delinquents and those needing reformatory measures.*

B. PROGRESS.

1. *Medical.*

- a. Resident physician and graduate nurse in residence.

Much of the difficulty that has arisen in the past in state schools has been due to lack of proper medical care. The board has tried, during this biennial period, to specialize on the equipment and service of the medical departments of the state schools. It is glad to report that Preston School of Industry and the California School for Girls now have resident physicians and graduate nurses, Whittier has a resident graduate nurse and a physician in close attendance.

- b. Equipment for medical treatment.

Examination and treatment rooms have been provided in these state schools, with additional laboratory facilities and modern equipment for surgical treatments. California School for Girls has installed a hydrotherapy equipment which is of distinct value in treatment for the prevention of hysteria and in quieting girls with psychopathic tendencies.

- c. Early medical examination and treatment, with segregation of communicable diseases.

All entrants are isolated until after thorough medical examination and clinical tests.

There has been progress in the correction of remedial physical defects. There is segregation and treatment of inmates with communicable diseases.

- d. Adequate record of medical and social histories.

There has been a marked improvement in records, especially medical. Preston School of Industry and California School for Girls have installed new systems of medical records.

The marked improvement in all lines pertaining to medical care and treatment in Preston School of Industry and the California School for Girls have been made on the recommendations and insistent requests of the State Board of Charities and Corrections.

During this period this board planned for a study by the educational and psychological departments of the University of California and Stanford University of the educational systems and discipline of the state schools. The hope of a constructive program for future development was not realized. Unfortunately, the study was not completed or printed.

2. Educational: Teachers with special training; increased hours of academic instruction, with added vocational training.

A beginning has been made, with steady upgrowth, of a better educational system in the state schools.

The number of teachers at better salaries has been increased, the hours of instruction have been extended and much greater stress has been laid on vocational training. It is the aim to send every ward out suitably trained for self-support.

During this period new superintendents have been called to the Preston School of Industry and to the California School for Girls. These superintendents have in turn strengthened the schools with equipment and a trained teaching service.

The increase in teaching service has meant a marked increase in pay roll in all institutions. The state is showing itself as fair in an educational sense to the groups in its state schools as it is to similar vocational groups in its public schools for normal children.

At the close of the last biennial, two of the schools had no separate building for their school work. This condition is now changed. Whittier has completed a fine new trades building and the California School for Girls has a beautiful new school building. Equipment is gradually being added to make possible the educational training.

3. Increased provision for recreation.

The play spirit has been fostered and developed; gymnasium work under trained instructors, athletic contests, games and "big muscle" activities have greatly improved the health and physical appearance of the state wards.

4. Segregation of moral delinquents and those needing reformatory measures.

The addition of the Woman's Reformatory to the group of state institutions to which women and girls may be committed offers opportunity for further segregation in the care of its delinquents.

A bill is before the legislature providing for a reformatory equipment within the Preston School of Industry and under its management. This will provide complete segregation of unruly boys with criminal tendencies from first offenders and should materially aid in the maintenance of discipline in the schools.

5. BUREAU OF JUVENILE RESEARCH.

During this period the Department of Research at Whittier has become the Bureau of Juvenile Research. This bureau is now housed in the buildings formerly occupied by the Girls' Department of Whittier. The bureau does all psychological work for Whittier and the California School for Girls. It is generous in its cooperation with schools and juvenile courts.

6. PRISONS.

1. Improved care of inmates in state prisons.

During this period, board members and agents have made several visits to the state prisons. One agent remained in residence in San Quentin for one week. Reports show that the prison directors and wardens are stressing the following important welfare policies: Thorough physical examination by a resident physician upon admission, with segregation of prisoners with communicable diseases and treatment for all with remedial defects and illnesses; Wasserman tests with compulsory treatment of all positive cases of syphilis; the outdoor segregation and treatment of tuberculosis patients; the early recognition of incipient tuberculosis with preventive treatment.

The provision of a modern surgical operating room, laboratories and hospital.

The use of plastic surgery to remedy flat noses, cauliflower ears and other criminal stigmata.

A resident dentist for corrective dental work.

The provision of an educational director, teachers, night schools and university extension courses as a part of the educational system.

Vocational training for many and the provision of work for all.

Honor camps for workers on state highway.

2. Care of women prisoners.

The women's quarters in San Quentin are seriously overcrowded. This results in a lack of proper ventilation and opportunity for recreation and employment. The women prisoners, which number from 30 to 35, work on basketry and needlework, besides doing some sewing for the men prisoners. To offset the lack of space for recreation, walks into the open country are taken in charge of the prison matron. The whole problem of prison care, however, would be simplified by removing the women prisoners from San Quentin.

If these prisoners are to remain in San Quentin, adequate provision must be made to house them properly. We recommend an extension of the outer prison yard wall to give the women added courtyard space.

7. REFORMATORY INSTITUTIONS FOR ADULTS.**A. PROGRAM FOR 1918-1920.****B. PROGRESS.****State Industrial Farm for Women.**

A strong plea for a woman's reformatory was made in the board's biennial report of 1918. A bill was presented, furthered by the Woman's Legislative Council of California and enacted by the legislature of 1919, entitled:

An act to establish an institution for the confinement, care and reformation of delinquent women, to provide for its maintenance, conduct and government, to provide for commitment and admission thereto, and to make an appropriation therefor.

No time was lost by the trustees. A piece of property of 645 acres of improved land, with valuable water rights and a 40-room residence, in Sonoma County, was found and purchased in September, 1919. Blue prints of minor alterations of main buildings were passed on by this board in January, 1921. The buildings will be ready for occupancy about January, 1922.

8. STATE INDUSTRIAL HOME FOR ADULT BLIND.

The home accommodates 110 men and 35 women and is filled to capacity. Vacancies rarely occur.

A great many of the residents are aged people for whom custodial care only is required. Sixty-one of the residents were over 45 years of age when admitted.

The chief industry is the manufacturing of brooms of all grades. Loom work, cane seats for chairs, basketry and mattress making have been added. There is a good market for the products. Recently has come the work of making grommets of candle wicking for use in the shipyards. This is remunerative, enjoyable employment, one requiring neither special training nor equipment.

All of the workers in the home are paid for their labor.

There is great need of another dormitory so that younger blind men, seeking to learn a trade, may be taken into training with the purpose of later becoming self-supporting and to live outside of the institution instead of becoming permanent residents. This additional building would permit the segregation of the aged and physically unfit from the industrial group.

This board heartily endorses the requests of the Board of Directors and superintendent for funds for this additional dormitory building, another industrial building, and for the provision of adequate refrigerating facilities for perishable foodstuffs, for which an acute need exists.

FORMS USED BY STATE HOSPITALS.

Form A.

STATE OF CALIFORNIA

----- STATE HOSPITAL

REPORT OF ADMISSION OF PATIENT.

Hospital Case No.-----

Date-----192-- Hour received---(A.M.) (P.M.)

Received this day from (name of person delivering patient—if voluntary commitment, write "Voluntary")-----

(Official capacity) -----

the (insane) (intemperate) (feeble-minded) person of-----

Name of assistant-----

Use this space if received on commitment:

Committed on the-----day of-----192--, from the county of

-----by Hon.-----

Judge of the Superior Court of said county.

Use this space if received on transfer:

Transferred from-----State Hospital, to which --he was

committed on the-----day of-----192--, from-----County.

Form of restraint used on patient at time of arrival-----

Signed-----

Medical Superintendent.

By-----

NOTE.—This form is used in triplicate, original delivered to person conveying patient, duplicate sent to State Commission in Lunacy, and triplicate filed by institution receiving patient.

Form B.

WARD CARD.

Patient-----Hospital Case No.-----Nativity-----

County-----Date admitted-----To ward-----

Date of birth-----Civil condition-----Occupation-----Religion-----

Tendencies: Violent?-----Destructive?-----Homicidal?-----

Suicidal?-----Incendiary?-----Habits-----

MOVEMENT RECORD.

From ward-----To ward-----Date-----Hour-----

Transfer Order No.-----Attendant making transfer-----

Attendant receiving transfer-----

Eloped -----192--, at---(A.M.) (P.M.) Discharged-----192--, at---(A.M.) (P.M.)

On leave-----192--, at---(A.M.) (P.M.) Died-----192--, at---(A.M.) (P.M.)

CALIFORNIA STATE HOSPITALS.

ORIGINAL

Form C.

STATE OF CALIFORNIA

STATE HOSPITAL

RESTRAINT ORDER AND REPORT.

Original report must be delivered to Superintendent as soon as possible after application of restraint. Duplicate will be retained in ward and used to report continuation and removal of restraint.

Ward _____

Patient _____

Hospital Case No. _____

Form of restraint _____

Date and hour restrained _____

By whose order was patient restrained? _____

Why restrained? (A mere statement of violence or quarrelsome tendencies will not be sufficient; detailed reasons must be given.)

What was done to avoid use of restraint? _____

Signed _____

Charge Attendant.

Physician's approval or comment: _____

Date _____ Signed _____

Physician.

(When ward physician has ordered continuous restraint at night until further orders, report is to be sent in at once and repeated weekly until removal.)

(Form used in duplicate.)

Form E.

STATE OF CALIFORNIA

STATE HOSPITAL

SPECIAL INCIDENT REPORT.

Whenever a patient escapes or attempts to escape, engages in an assault, receives injuries, or is liable to show evidence of injury due to his own or another's actions, a report shall be made by the attendant in charge of the patient at the time. This report shall be signed by the other attendants present at the incident and immediately forwarded to the ward physician by the matron or supervisor.

Ward _____ Date _____ Hour _____

PATIENTS INVOLVED.

Name _____ Hospital Case No. _____

Name _____ Hospital Case No. _____

Name _____ Hospital Case No. _____

Name _____ Hospital Case No. _____

DESCRIPTION OF INCIDENT IN DETAIL.

(Use reverse side of sheet if necessary.)

Witnesses or Assistants:

Attendant in charge

Supervisor or Matron.

PHYSICIAN'S REPORT.

Date _____ Signed _____ M. D.

REPORT OF THE CHILDREN'S COMMITTEE.

Chairman—DR. JESSICA PEIXOTTO.*

Chief Agent—MISS ANITA ELDRIDGE.

A. NEEDY CHILDREN.

PROGRAM AND PROGRESS.

1. Cooperation with State Board of Control, looking toward elimination of duplication and overlapping of work.
2. Extension of licensing power over all institutions and homes for children, including institutions for wayward children.
3. Revision of standards adopted for the various types of child-caring institutions and organizations under the supervision of this board.
4. A study of the day nurseries conducted by the canning industries in certain districts in California.
5. Extension of cooperation with county agencies in the supervision of family boarding homes.
6. Licensees.
 - a. Institutional homes for children.
 - b. Child-placing agencies.
 - c. Family boarding homes.
 - d. Day nurseries.
 - e. Rescue homes.
 - f. Maternity hospitals.
7. Child Welfare News Letter.

B. REPORT OF AGENT FOR JUVENILE COURTS.

1. Special study of nine detention homes.
2. Standards for detention homes.
3. Types of buildings used for detention home with list of counties using each type.
 - a. Buildings specially designed for this purpose.
 - b. Remodeled buildings used for juvenile detention homes.
 - c. Family boarding homes subsidized and used as county detention homes.
 - d. Buildings or wards at the county hospitals used as detention homes.
4. Juvenile court and probation office records.
5. Probation committees.
6. Probation letter to the counties.

*For the ensuing biennial Mrs. Hattie Hecht Sloss will be chairman.

NEEDY CHILDREN.

The past biennial period has brought a steady increase in the volume of work to be done. No new duties have been laid upon us by legislative enactment, but an opinion of the Attorney General has placed under our supervision a group of nine institutions which previously had been considered exempt from state license. In addition to routine work of inspection and license, an attempt has been made to add to our knowledge of the care of dependent children in California and to give to those charged with this responsibility something of what has been gained from our experience and varied contacts.

In its children's work the board has functioned largely through its Children's Committee. Three members of the board meet weekly with the executive of the Children's Department. At these meetings policies are considered, reports of agents are presented and approved, problem cases are discussed, and plans for future work outlined. Upon the completion of a study of an institution, the board of directors of that institution is invited to meet with the Children's Committee, the report is presented, the findings and recommendations discussed, and an understanding reached. This policy of meeting with the directors of the licensed institutions and agencies has resulted in a closer relationship and more sympathetic understanding between the child-caring groups and the state supervisory body. In order that the licensure work of the board may be expedited, the Children's Committee has been authorized to issue license at its weekly meetings. The committee reports its activities to the board at the regular monthly meeting, where one session is devoted to children's work.

The program of the Children's Department for the biennium included—

1. Cooperation with the State Board of Control, looking toward elimination of duplication and overlapping of work.
2. Extension of licensing power over all institutions and homes for children, including institutions for wayward children.
3. Revision of standards adopted for the various types of child-caring institutions and organizations under the supervision of the board.
4. A study of the day nurseries conducted by the canning industries in certain districts in California.
5. Extension of cooperation with county agencies in the supervision of family boarding homes.

Progress in carrying out this program is indicated as follows:

1. Cooperation with children's agents of Board of Control.

The State Board of Charities and Corrections has long been anxious to bring about a more satisfactory cooperation with the children's agents

of the Board of Control. There has existed a situation which allowed overlapping and duplication in the supervision of orphanages receiving state aid. The State Board of Charities and Corrections is held responsible by law for licensing all child-caring institutions. The State Board of Control gives state aid to certain children in various institutions, known as state-aid orphanages. The latter board feels that it must have first-hand knowledge of the institutions receiving state money. In order that the two groups of agents should not harass the institutions with a double inspection, some years ago the State Board of Charities and Corrections agreed to leave the routine visitation of state-aid orphanages to the agents of the State Board of Control. This did not prove satisfactory, as the State Board of Charities and Corrections felt it had very little real knowledge of a group of institutions holding its license. Another attempt at a more satisfactory working arrangement was made, and on June 1, 1920, the following agreement was entered into between the two boards:

1. This agreement between the Board of Control and the State Board of Charities and Corrections concerns only their common relations with the state-aid children's institutions.

2. When there is a question of granting or withdrawing a license from a state-aid children's institution, the Board of Charities and Corrections (which has the sole legal duty and right of licensing) will make its own independent investigation to determine what action that board shall take.

3. When the question of granting or continuing aid for an institution is under consideration, the State Board of Control (which has the legal responsibility in such matters) has full power to make independent investigation and determination.

4. A children's committee is formed, to consist of two members of each board and the children's agents of these boards, which shall meet regularly in pursuance of their common interests in the maintenance, supervision and investigation of children's institutions.

Five joint committee meetings have been held, at which concrete cases have been discussed, policies and standards determined and future work outlined. At these meetings it is decided which of the two boards shall handle a given case. Reports of inspection of institutions in which the two boards have a common interest are exchanged. In this manner duplication and overlapping are avoided. At the same time each institution receives the necessary attention and both boards have the complete knowledge necessary to the fulfillment of their obligations.

2. Extension of licensing power to include institutions and homes caring for children over twelve years.

The law which gives to the State Board of Charities and Corrections the right to license all institutions and homes caring for children (Statutes 1913, chapter 69) has been interpreted as referring to children under the age of twelve years. This interpretation has exempted from state license a group of institutions caring for wayward boys and girls

and all boarding homes caring for children over twelve. There was thus a link missing in the chain of state supervision of needy and wayward children. The dangers of this situation were discussed in the 1918 biennial report of this board, when recommendation was made that the law be amended to include children up to the age of 15 years. It has been discovered that no legislation is necessary. The Attorney General, in an opinion dated November 6, 1919, holds that chapter 69, Statutes 1913, gives the State Board of Charities and Corrections "Ample authority to license and regulate institutions caring for children, that is, females under the age of 18 years and males under the age of 21 years."

This opinion brings under state supervision for the first time the following existent institutions:

- George Junior Republic, Chino, Los Angeles County, for wayward boys;
- Saint Catherine's Training School, San Francisco, for wayward girls;
- California Girls' Training Home, Alameda, for wayward girls;
- Convent of the Good Shepherd, Los Angeles, for wayward girls;
- Vallejo School for Boys, for needy boys.

Another group of institutions covered by the inclusive terms of this opinion is that established for the care of anemic and convalescent children. Within this group come the Bothin Home for Convalescent Children, Stanford Convalescent Home for Children, Santa Clara County; Saint Dorothy's Rest, Camp Meeker, Sonoma County.

It is possible there may be included in this group the preventoria for the care of pretubercular children which are being established throughout the state.

3. Revision of standards adopted for the various types of child-caring institutions and organizations under the supervision of the board.

In line with the policy of the board, the standards adopted for its children's work are revised from time to time as experience dictates. During the past biennial period a new set of standards for day nurseries has been adopted: the standards for children's institutions, family boarding homes, child-placing agencies and maternity hospitals have been revised. No fundamental change of principle or policy has been made, experience having demonstrated the soundness of those previously formulated. A complete set of the revised standards will be found on page 63.

4. A study of the day nurseries conducted by the canning industries in certain districts in California.

During and immediately following the war, the question was frequently raised: "Is there any great increase in the number of day nurseries in California? Is this due to war conditions?" The State Board of Charities and Corrections undertook to answer this question and at the same time to make a survey of the seasonal day nursery. So

far as could be learned, there had been no abnormal growth of the day nursery. The fruit drying and packing corporations in the San Joaquin and Sacramento valleys especially find it necessary to make use of woman labor in caring for their products. A survey of all fruit canning, packing and drying companies maintaining nurseries or playgrounds in connection with their plants was made, together with an investigation into the causes leading the mothers of young children to enter industry. It will be noted that economic necessity is not the only motivating force. The work is seasonal and many women welcome the opportunity to add to the family income, to escape the monotony of housework and to mingle with their fellows. At the same time they are made to feel that they are meeting a community need. The product must be prepared for the market and the fruit industry can not do it without the help of the women.

It was found that the provision made by the fruit industry for the children of employees varied from an unequipped enclosure, where the children were "herded" by an unskilled and untrained attendant, to an up-to-date, fully equipped nursery, with playground and kindergarten, in charge of a graduate nurse. The majority of managements had given little thought to the problem, and there was found great need of improvement in the cannery nursery. Cooperation was established with the Canners' League of California through its secretary, who sent to each of the fifty-four plants having membership in the league a letter enclosing the nursery standards of the board. The cannery workers were asked to meet the standards so far as possible and to cooperate with the board. Each of the cannery nurseries were inspected by an agent of the State Board of Charities and Corrections and the management interviewed with a view to establishing a sympathetic understanding. The response was cordial for the most part and as a result of this pioneer effort several of the canneries made immediate improvement and others have promised better things for next season.

The problem of the cannery day nurseries presents many intricate ramifications and an effort will be made during the next biennium to meet this problem in the most helpful way.

5. Extension of cooperation with county agencies in the supervision of family boarding homes.

By the provisions of Statutes of 1913, chapter 69, every family home in which children are boarded must be licensed by the State Board of Charities and Corrections. It has been the policy of the board to delegate the routine inspection and supervision of the homes to responsible county groups wherever there is existing machinery. This prevents overlapping, reduces the cost to the state, makes possible a more uniform and frequent supervision, and at the same time builds up cooperation with the county unit of administration. The state accepts and holds the responsibility of establishing uniform standards, of issuing, revoking and denying license, and of settling all problem cases. In addition to the state license, the three large population centers of the state, San Francisco, Los Angeles and Oakland, have local ordinances compelling

family boarding homes to secure the permit of the health officer or department. A close cooperation with these health departments is maintained by the State Board of Charities and Corrections and the recommendations for license accepted. The work of the cooperating agencies is checked from time to time and a certain proportion of the homes visited by agents of the state board. In this way it is possible to know that the state standard is being maintained.

Working agreements have been entered into with the following agencies:

San Francisco Board of Health.
 Sacramento Board of Health.
 Oakland Board of Health.
 Los Angeles Board of Health.
 Fresno County Department of Public Welfare.
 Humboldt County Department of Public Welfare.
 Merced County Welfare Department.
 San Bernardino County Welfare Commission.
 San Mateo County Social Service Commission.
 Sonoma County Social Service Commission.
 Santa Barbara Associated Charities.
 Los Angeles County Public Welfare Department.

We have, then, in eleven counties of the state cooperating agencies to which the State Board of Charities and Corrections has delegated a certain measure of responsibility for the supervision of family boarding homes for children.

LICENSES.

The State Board of Charities and Corrections has a very definite responsibility toward the child-caring institutions and societies in California. It sets the standard and licenses all types of work for dependent or semidependent children. This includes:

Children's institutions.
 Child-placing or boarding-out agencies.
 Day nurseries.
 Family boarding homes.
 Rescue homes.
 Maternity hospitals and homes.

All of this work is handled through the Children's Department of the board. The procedure followed, with some variations dependent upon the type of child-care, is—

1. A notice is sent to the organization calling attention to the state law requiring license.
2. A blank form on which to make application is furnished the organization. This blank asks certain detailed information,

must be signed by the applicant and the local health officer or other agency designated by this board. Responsible references are also required.

3. Upon receipt of application in proper form, a visit of inspection is made and the reference interviewed by personal visit or letter. Frequently several visits to a home are necessary before a decision is reached regarding the recommendation for board action.
4. Complete written report is made, which, after approval by the chief agent, is presented to the Children's Committee, with recommendation for action.
5. Routine license work is handled by the Children's Committee. Action regarding institutions or problem cases is taken by the board at its regular monthly meetings.
6. Upon committee or board action, license signed by the president and secretary is sent the applicant, together with standards or requirements adopted by the board, and sample copies of the records to be kept by the licensee. In case of denial of license, a letter is sent, stating the reasons for denial.

In case of revocation of license already granted, a careful investigation is made by the agents of the board, checked by the chief agent. The report is presented to the Children's Committee and then to the full board, and only after careful consideration and discussion of the case is action to revoke taken. Any licensee has the right to ask for a board hearing if not satisfied with the decision. The infrequency of a request for a hearing is evidence of the painstaking and careful work by the Children's Department preliminary to the board action.

In addition to the usual folder file, a card index is kept of every institution nursery, agency, hospital and family boarding home under the supervision of the board. This system serves as a record of licensure and supervision.

On November 1, 1920, there were under the supervision of the Children's Department—

Children's institutions	78
Child-placing agencies	9
Day nurseries	60
Family boarding homes	888
Rescue homes	8
Hospitals and homes caring for maternity patients.....	287
Total	1330

This is an increase of 264 in the two-year period. The big increase has been in the family boarding home group.

Report of licensure work for biennial period.

During the two years from November 1, 1918, to November 1, 1920, licenses were granted, denied and revoked as follows:

	License granted	Denied	Revoked
Children's institutions -----	5	0	0
Child-placing agencies -----	0	0	0*
Day nurseries -----	19	1	0
Family boarding homes -----	542	17	14
Rescue homes -----	0	0	0
Maternity hospitals and homes -----	67	5	1
	633	23	15

*One boarding-out agency was induced to give up its license and discontinue the very small amount of work it was doing.

The small number of denials and revocations gives an imperfect idea of the efforts of the board to prevent the establishment and growth of irresponsible and unsatisfactory child-caring agencies. Denial or revocation is a last resort always. Wherever possible, the applicant, who fails to measure up to standard is induced to give up the idea or to discontinue voluntarily, without the necessity of board action.

Records and Reports. All licensees of this board are required to keep records and to render reports on forms prescribed by the board. Family boarding homes keep a register, all licensed maternities and rescue homes use a register, children's institutions keep individual social history cards, medical examination cards, and an accounting system of the form prescribed by the State Board of Charities and Corrections (see pages 74-97). Day nurseries are urged to use the record forms adopted by the National Federation of Day Nurseries, as these seem adequate and can be procured at a minimum cost.

All licensed institutions are required to file annual financial and social reports. Reprints of the forms prescribed for these reports will be found on pages 80-87. Statistical tables, compiled from the financial and social reports for the year ending June 30, 1920, appear on page 150.

Reports of Inspection. The form of inspection report used by the Children's Department in the various types of licensed institutions and agencies are reproduced on pages 91-97. The forms are subject to change from time to time.

INSTITUTIONAL HOMES FOR CHILDREN.

The institutional homes for children in California at present number 78. Of this number, 61 care for needy children, 6 for wayward children, 7 for children of defective mentality, and 4 for convalescent or anemic children. These figures do not include the state institutions for incorrigible or feeble-minded children, but organizations under private auspices, subject to license by the State Board of Charities and Corrections.

Needy Children. The institutional homes for needy children are known generally as orphanages. The name "orphan asylum" or "orphanage" is now very much of a misnomer, as there are very few

orphans in any institution. This is due to the growth of the "home-finding" system in California. The institutions have been cleared of the majority of children eligible for adoption. Such as remain are not "placeable" children. On June 30, 1920, out of a total of 4877 children in the licensed institutions 468 were orphans. In future the number of orphans in institutions will still further decrease. Children eligible for adoption will no longer find their way into institutions as in the past. The well developed system of child-placing will care for all such children in family homes.

There still remains the need of institutions as places of temporary shelter during family crises of various sorts, for "unplaceable" children, for wayward, feeble-minded or physically handicapped children. California has a large group of institutions for purely needy or dependent children, too large in the opinion of some critics. In some of the more populous centers of the state there are groups of institutions doing an identical work which might well be handled by one or two. If certain of these institutions would amalgamate, and others reorganize to meet the needs of special types of children, the directors and supporters would realize their greatest opportunity to do something worth while for the unfortunate children of the state.

Mentally Defective Children. The private institutions for mentally subnormal children are in reality large boarding homes. They are a natural outgrowth of the family boarding home system of child care. So acute has been the need of additional provision for custodial care of feeble-minded children that county department and boarding-out agencies have been forced to place out their defective children in family boarding homes. Some foster mothers have shown a marked aptitude for the work, a sympathy with and understanding of the problems involved. They have been encouraged to enlarge the scope of their work until now there is a small group of boarding homes caring for from 20 to 40 children. In a few instances these homes are in charge of professional women who have had special training in this type of child care. Others have had experience as attendants or nurses in institutions for the feeble-minded. The development of this method of caring for feeble-minded children is confined to southern California almost entirely. State provision for the feeble-minded is inadequate to meet the needs. Social workers and communities throughout the state are helpless before this problem. The institutional boarding home which has developed within the past few years is not a solution. It offers little more than custodial care in most instances, but it does afford a temporary relief until such time as the state can meet its responsibilities in this regard.

Anemic and Convalescent Children. A group of institutions asking for state license for the first time includes homes for physically defective children. Homes for anemic, delicate and convalescent children have been added to the list of licensed institutions. Hill Farm in Marin County, Saint Dorothy's Rest at Guerneville, Sonoma County, and the Stanford Home for Convalescent Children are splendid examples of this

type of child care. A country home for anemic children and those predisposed to tuberculosis has been opened at Burbank, Los Angeles County, by the Missionary Sisters of the Sacred Heart of Jesus. It is known as the Mother Cabrini Preventorium. All children receive a medical examination prior to admission and are under the care of tuberculosis experts while in the home.

Progress and Change. Several of the pioneers among our child-caring institutions are building or planning new homes. The Protestant Orphan Asylum of San Francisco, the Maria Kip Orphanage, San Francisco, the Pacific Hebrew Orphan Asylum, Saint Vincent's Institution at Santa Barbara, the Boys' and Girls' Industrial Home and Farm at Lytton, and the Odd Fellows' Home at Gilroy are among the progressive institutions to plan for better things. The Japanese Children's Home of Los Angeles has moved to Redcliff street, where a modern building has been erected. The Boys' and Girls' Aid Society of San Diego (formerly the Maud Booth Home) has added a new cottage, and the Saint Vincent de Paul "Infants'" Home in Los Angeles has made improvements in its building.

During the biennium the Good Templars' Home for Orphans has closed its doors for all time. The property has been rented for other purposes and the funds of the institution are now in the hands of the directors.

It is gratifying to report the reorganization and rehabilitation of the Lark Ellen Home for Boys in Los Angeles. This institution went through a period of vicissitudes during which the work suffered so acutely that the State Board of Charities and Corrections found it necessary to revoke the license. The directorate has been reorganized and the home brought up to a satisfactory standard. On February 21, 1920, license was reissued to this institution.

Prevention of Unnecessary Increase in Children's Institutions. There have been several attempts to establish new institutions for needy children during the past biennium. As indicated in a preceding paragraph, the need for this type of home is met adequately in most sections of California. In some communities there is a multiplicity of institutions for the normal, semidependent child. There are sections of the state, however, where there is no organization for the group care of children. When a new project of this sort comes to the attention of the State Board of Charities and Corrections the first question it asks is "Will this organization meet a real community need?" If a study of the situation answers this question in the affirmative and if the applicants are responsible persons with adequate financial backing, every encouragement is given. If the project seems ill-advised or unnecessary every effort is made to induce the group to turn its endeavors into other channels. The board has been successful in thus diverting three enthusiastic but uninformed groups. On the other hand, it has encouraged two new homes for children which appear to be doing a necessary work at high standard.

Institution Studies. During this biennial period the Children's Department has completed the survey of nonstate-aid children's institutions. In addition to routine inspection of institutions the following group has been studied intensively:

California Girls' Training Home, Alameda.
Imperial Children's Home, San Diego.
Convent of the Good Shepherd, Los Angeles.
Ellen Stark Ford Home, San Francisco.
Maria Kip Orphanage, San Francisco.
Oriental M. E. Home, San Francisco.
Presbyterian Mission Home for Chinese Girls, San Francisco.
Saint Catherine's Training School, San Francisco.
Saint Francis School for Boys, Watsonville.
Smith Cottages, Oakland.
Tooker School for Chinese Girls, Oakland.
Kiddie Koop, Los Angeles.
St. Andrew's Inn, San Francisco.
Youths' Directory, San Francisco.

The following state-aid institutions have also been studied:

Boys' and Girls' Industrial Home and Farm, Lytton.
Albertinum, Ukiah.
McKinley Orphanage, San Francisco.
Protestant Orphan Asylum, San Francisco.

Copy of the report of study has been furnished the institution in each instance and a meeting held with the directors to discuss the findings and recommendations contained in the report. This policy is productive of much in the way of progress and accomplishment.

Complaints. Complaints have been filed with the State Board of Charities and Corrections against five state-aid institutions and one nonstate-aid. These have been carefully investigated and steps taken necessary to correct such unsatisfactory conditions as were found. Some of these problems have not been completely worked out yet, and much hard, patient work is necessary to bring a certain small group of institutions up to a point where they are doing what should be done for the children in their care.

SUGGESTIONS.

1. Additional provision for children dismissed from orphanages.

What becomes of the child of 14 or 15 years who must leave the orphanage and who has no home of his own or whose home is unfit? He is at an age when he most needs protection. He is too young to take his place in the economic world. He needs wise guidance and that training which will fit him for self-support and good citizenship. If these necessary factors for his development are not provided, all too often he drifts into blind-alley employment and bad companionship. Undoubtedly the majority of children's institutions try to safeguard their children against these dangers so far as lies within their powers,

but few of them are equipped to give the special care and training which these older children require. A few orphanages keep their older boys and girls and send them out of the institution to high school and special schools. On the whole, however, there is great need of provision for children who have received all the orphanage has to give but who must still look to the public for protection and support.

It is recommended that there be established a number of small boarding homes to care for children dismissed from institutions, where they may be protected and receive opportunities for educational and vocational training.

The establishment of scholarships for needy children, especially for those dismissed from orphanages, would aid materially in solving the problem of the future of these children. Organizations such as the American Association of University Women would find in this field a splendid opportunity to make a real contribution to the needy children.

2. Specialization in the work of children's institutions.

This is a reiteration of a recommendation which has appeared in the last two biennial reports of this board and which has been discussed previously in this report. Preventoria for children of tuberculous tendencies, colonies for the actively tuberculous, hospital schools for crippled children, homes for mentally defective, and homes affording group care for limited numbers of adolescents presenting special problems—all are greatly needed in California. There is adequate institutional provision for the needy normal child. On June 30, 1920, there were one thousand empty beds in the northern and central California orphanages. It is urged that new groups entering the field of child care, and institutions now caring for needy normal children who are maintaining large plants for a greatly reduced population, consider seriously this opportunity for a greater usefulness.

3. Establishment of clearing houses for the placement of children.

Few children's institutions have the staff or organization to make careful investigations of the applications for admissions. The verbal statement of the parent or relative of the reasons for asking for institutional care for the child is in many instances the sole basis for accepting him. No check is made to see whether the story is true or false, no case study to determine whether institutional care is what the child needs. The same laxness of method which characterizes the intake of orphanages is true very frequently of the outgo. Many institutions feel that their work should be restricted to the care of the children while within their walls, that their responsibility ends when the person who placed the child comes to the institution and removes him. They feel that they are in no sense responsible for the conditions to which the child may return.

Thus we have a system of child care, which makes very little study of the causes and results of its work.

The suggestion is made that there be established central clearing houses or bureaus to which every person wishing to place a child into a home or institution should apply. These clearing houses would not take the place of, nor conflict with, the work of the established child-placing agencies. They would meet the needs of parents who wish to secure care for their children, but who are not asking public assistance. They would act as investigating agencies for the orphanages and could do so for the child-placing agencies if desired. It would be their function to make a case study of each child to determine whether an attempt should be made to keep the family group intact, whether a family boarding home would suit his needs or whether institutional care is indicated, and what type. Applicants could be referred then to the agency or institution best suited to the needs of the case.

These bureaus could act also as investigators of dismissals from orphanages. Another development might be the after-care or follow-up of children dismissed from institutions. There is a wide field of usefulness here. One clearing house in each of the population centers would add much to the value of the work for dependent and semidependent children in California.

4. Codification of the laws relating to children.

At the present time no codification of the California laws relating to minors has been completed, although it is generally conceded by individuals and agencies who are working with dependent children that such codification is needed. To meet this need the Children's Committee of the State Board of Charities and Corrections suggests that a California Children's Code be prepared.

CHILD-PLACING AGENCIES.

Nine agencies in California hold the license of the State Board of Charities and Corrections to place children into selected family homes. The work of seven of the licensed organizations is more particularly that of finding temporary boarding or free homes for children. The other two societies place children into permanent free or adoptive homes.

Each of the licensed agencies files a complete list of its placements monthly with the State Board of Charities and Corrections. A card file of the homes is kept in the office of the board and from time to time the work is checked up through visitation by the board's agents. During the biennium an intensive study of office methods, policies, supervision and field work of six of the licensed agencies has been made. Five hundred and thirty-nine foster homes in which children have been placed by the child-placing agencies were visited. The results of these surveys have been made known to the groups studied and a close contact maintained for the strengthening and development of the work.

Problems of Boarding-Out Work. All of the boarding-out agencies have been through a period of difficulty and uncertainty during the past two years. The high costs have made it increasingly difficult to secure good family boarding homes for the prices formerly paid.

Originally \$11.00 and \$12.50 a month secured a satisfactory home. The price advanced to \$15.00, then \$17.50, and now the agencies are paying \$20.00 to \$25.00. In addition to the cash paid the foster mother, there are extras in the way of milk, special diet, clothing and medical care which the society must supply. When the cost of supervision is added, the total cost per child to the society runs as high as \$30.00 a month in some instances. The boarding-out agencies have not a uniform policy regarding extras. Some societies pay nothing more than the cash board; others supply all of the child's needs over and above board and lodging. The Children's Agency of the San Francisco Associated Charities goes so far as to make provision for the child's recreation. A recreation center has been established in a fine old residence in a high-class residential district. A play director is in charge. Gymnasium classes, hikes, entertainments, holiday festivals, games and a library of children's books are enjoyed by the group of children boarded in foster homes by this agency.

Study of Costs. In September, 1920, an attempt was made to learn the cost of foster home care and whether the agencies were able to maintain a stable list of foster homes at the current rate of pay. The following questionnaire was sent to all the private agencies and county welfare departments which place children in boarding homes:

Questionnaire Re Cost of Foster Home Care of Children.

In an attempt to secure uniform figures of the cost of caring for children in foster (boarding) homes, the following questions are asked. We are not asking the net cost to your county or agency for a particular group of boarded children, but wish to know the actual amount it costs to care for a child in a foster home, irrespective of who pays the bill. Figures for the month of September, 1920, are asked covering children boarded in foster homes, not those with their own mothers.

1. Total expenditure for the care of children boarded with foster mothers during month of September-----
2. Total cash paid to foster mothers for board of children during month-----
3. Total cost of all extras, including milk, clothing, shoes, etc.-----
4. Total cost of supervision of children boarded in foster homes.-----
(This should include salaries and expenses of workers whose time is devoted exclusively to boarded children, and estimated cost of time expended by other agents, including clerical help.)
5. Total number of days' care of children boarded in foster homes.-----
(This information is necessary in arriving at per capita cost. Some children may be boarded for only a fraction of a month; it is therefore necessary to base per capita cost on total number of days' care. Following is an example how this total would be reached.)

During September	James	boarded	30	days
	Mary	boarded	13	days
	Billy	boarded	27	days
	Jane	boarded	10	days

Total days' care----- 80

6. Daily per capita cost of boarding children in foster homes-----
(This is obtained by dividing the total expense by the total number of days' care.)

7. Total number of individual children boarded in foster homes during
month of September-----

If the above figures are unusual to the month of September and do not indicate
a fair average, please so specify.

- A. What rate of board per child do you pay foster mothers?-----
 B. Is this the same for all classes and ages of children?-----
 C. Just what extras do you supply and how much of each?-----
 D. Do you supply all children with new clothing and do you meet all their clothing
needs? -----
 E. Do you furnish milk to all children and how much?-----
 F. Do you supply certified milk to babies?-----
 G. Are payments from parent made direct to your agency or juvenile court and do
you disburse all money for care of child, or does the parent pay the board
money direct to the foster mother?-----

(Signed)-----

October 22, 1920.

Questionnaires were sent to eighteen agencies and departments. Replies were received from fifteen. The information contained in the replies has been tabulated as follows:

	Total cash paid to foster mothers	Total cost of extras	Total cash paid directly for care of children	Cost of supervision	Total expenditure, including supervision
Fresno County Department of Public Welfare -----	\$703 30	\$140 87	\$844 17	*\$175 00	*\$1,019 17
Humboldt County Welfare Department -----	251 50	12 25	263 75	-----	-----
Los Angeles County Department of Charities -----	2,111 87	1,029 41	3,141 28	-----	-----
Merced County Department of Public Welfare -----	105 60	38 75	143 75	-----	-----
San Mateo County Social Service Commission -----	283 00	30 00	313 00	*100 00	*413 00
Santa Clara County Charities Department -----	440 00	20 00	460 00	-----	-----
Santa Clara County Probation Office -----	435 84	26 25	462 09	-----	-----
Sonoma County Social Service Commission and Probation Office -----	135 00	9 54	144 54	-----	-----
San Joaquin County Associated Charities -----					
<i>Private agencies.</i>					
Berkeley Charity Organization Society -----	739 55	214 05	953 60	195 00	1,148 60
Catholic Ladies' Aid Society of Alameda County -----	953 50	58 50	1,012 00	55 30	1,067 30
Eureka Benevolent Society -----	523 67	140 00	663 67	135 00	798 67
Oakland Associated Charities -----	2,393 24	72 95	2,466 19	150 00	2,616 19
Little Children's Aid -----	4,440 00	1,218 26	5,658 26	-----	-----
†Children's Agency, San Francisco Association of Charities -----					68,245 79

*Estimates involved.

†The figures for the Children's Agency cover a six months period.

These figures have not been verified.

SEPTEMBER, 1920.

Total days care	Daily per capita cost without supervision	Daily per capita cost, including supervision	Monthly rate of payment	Total number of children cared for	Extras supplied
1,055	\$0 80	*\$0 97	\$20 00	39	Clothing, necessary milk, medical and dental care
520	51	-----	\$12 00 to \$18 00	17	Clothing and shoes
4,273	74	-----	\$20 00 to \$30 00	156	Some shoes and clothing
300	48	-----	-----	10	-----
450	70	92	\$17 50 to \$20 00	15	Milk, shoes and clothing
-----	-----	-----	\$11 00	9	None
690	67	-----	\$20 00	23	None
870	53	-----	\$15 00	29	Some clothes and shoes, medical and dental care
270	54	-----	\$15 00	9	Anything needed
1,119	85	1 03	\$17 50	39	Clothing, hair cuts, medicines and one pint milk
1,620	62	66	\$11 00 to \$17 50	54	Shoes and clothing
723	91	1 10	\$20 00 to \$25 00	28	Clothing, shoes, dental care, milk when prescribed
4,344	57	60	\$17 50	145	Milk if necessary
7,380	77	-----	\$15 00 and \$17 50	-----	Milk and clothing
86,188	72	79	\$15 00 to \$17 50	-----	-----

This material was presented to the agencies and departments at a conference called by the Children's Committee of the State Board of Charities and Corrections. Standards of care, costs, common problems and legislation to increase state aid were discussed. It was the consensus of opinion that a monthly cash payment of \$20, or \$17.50 with milk, is necessary to secure the right type of home at the present time. All of the agencies present reported difficulties in maintaining standards at any lower rate of payment.

FAMILY BOARDING HOMES.

Family boarding homes for children have been defined to mean private family homes which accept one or more children to board. It is a fluctuating, changing group. Two years ago there were 680 licensed family boarding homes; in the biennial period 542 new homes were licensed. At present there are 888 licensed homes. Unquestionably, the excessive living costs have been responsible for the discontinuance of the work of boarding children by many women. They have not felt able to continue at the former rate of pay and have not been able to secure children at a higher rate. In many communities, however, the licensed homes are asking and receiving as high as \$30 to \$40 a month. A few years ago it was easy to secure private family homes for children

at \$12.50 to \$15 a month. Now \$20 is the lowest rate at which parents can place their children into family homes, and the usual rate is about \$25 to \$30. It is possible for child-placing agencies to secure foster homes for their wards at a somewhat lower rate because of the fact that they usually supply milk, clothing and extras.

Another result of the high cost of living has been the tendency of the former small family boarding home to increase in size, until it takes on the aspect of a small institution. The women claim they can not afford to board a small group of children, but must conduct work on a large scale to make expenses. This tendency is particularly noticeable in the southern part of the state. There the single dwellings and large yards lend themselves more readily to the large-group home than in the San Francisco Bay region, with its flats and apartments. Nevertheless, though the housing conditions may be ideal, the State Board of Charities and Corrections deprecates the growth of these quasi-institutional homes. The ideal of family and home life for the child who must be cared for apart from its own parents is lost. On the other hand, the child does not gain the advantages which are offered by the well-conducted institution, with its stable and responsible management, public support and interest. The State Board of Charities and Corrections has recently fixed six children as the limit of a family boarding home.

The commercial family boarding homes constitute a problem of first importance. California is one of the few states which has this problem focused by law in such wise that these homes can be found. It is our purpose to take advantage of the opportunity which our law gives us to secure a better understanding of the reasons for the existence of these homes and of the social problems involved.

DAY NURSERIES.

On November 1, 1920, there were sixty day nurseries known to this board. Twenty-five are under the auspices of private benevolence and thirty-five are seasonal nurseries conducted by industries for the children of their employes. Los Angeles has a system of day nurseries and kindergartens included in the public school system. These are not subject to the license of the State Board of Charities and Corrections because they are a part of the public educational system and are conducted by the board of education. However, these nurseries meet the standards prescribed for day nurseries by the State Board of Charities and Corrections. Oakland has established day nurseries and kindergartens in connection with three schools. These have not yet been taken over by the board of education. The need for these nurseries was discovered by the home teachers. The standards set by this board have been adopted.

When application is made to the State Board of Charities and Corrections for a license to establish a new day nursery, the first question asked by the board is, "Will the nursery meet a real community need?" The applicants are urged to make a survey of the community to be served for the purpose of learning the number of working mothers with children who would benefit by the establishment of a nursery. The

community should be made to feel that the preservation of the family group is the first consideration and that a day nursery is in a sense a confession of failure on the part of the community to give its children their just due—the full-time care and attention of their own mother in the home.

That the day nurseries of California have a keen recognition of the problems involved in their work is demonstrated by their growing interest in opportunities to discuss these problems. The nurseries themselves have requested round-table conferences at the last three annual meetings of the State Conference of Social Work. It would seem that the time has come when the day nurseries in California might be urged to unite in a state federation of day nurseries.

As we have said, the State Board of Charities and Corrections has not installed record systems for the day nurseries. The board does, however, urge the day nurseries holding its license to use the forms adopted by the National Federation of Day Nurseries. These forms seem adequate and can be procured at a minimum cost.

RESCUE HOMES.

Until the recent decision of the Attorney General that all institutions caring for children up to the age of majority are subject to license by the State Board of Charities and Corrections, the rescue homes in the state were licensed by this board by virtue of that section of chapter 69, Statutes 1913, which requires all maternity homes and hospitals to secure state license. This opinion of the Attorney General makes the rescue home subject to state license under another provision of the same act, which requires that all places for the reception and care of children shall be licensed by the State Board of Charities and Corrections. As girls under the age of majority are cared for in this type of institution, the rescue home thus comes under the supervision of the state under two distinct provisions of the statute. Rescue homes have heretofore been licensed as maternity homes and have been subject to the regulations governing maternity hospitals. It seems desirable at this time to work out a new set of standards for this group of institutions, recognizing them as a distinct classification governed by rules and regulations adjusted to the very special type of work they are doing. This is a piece of work for the immediate future.

The number of rescue homes has decreased by one during the biennial period. The Florence Crittenden Home in San Jose has closed its doors. For a time it was used as temporary quarters by the Salvation Army Beulah Home, after the fire which destroyed a portion of the building in Oakland. The Salvation Army hopes to replace its present home with a modern, class A building.

A complete list of licensed rescue homes will be found on page 72.

MATERNITY HOSPITALS.

During the biennial period 67 hospitals and homes have been licensed to care for maternity patients and 5 licenses have been denied. About an equal number have discontinued work, so that at the end of the biennium there was a total of 287 licensed institutions, as against 289 two years ago.

Semiannual reports of all births are filed with the State Board of Charities and Corrections by the maternity hospitals and homes.

The maternity hospitals represent an unsolved problem to this board. During the next biennium we hope to make some progress toward its solution. This board undertook the supervision of maternity hospitals in order to get information as to the problem of illegitimacy and the social care of illegitimate children. So far the material which is at hand is not of such nature as to warrant our making definite recommendations.

CHILD WELFARE LETTERS.

Toward the close of the biennium the Children's Committee of the State Board of Charities and Corrections initiated the practice of sending circular letters to individuals, agencies and institutions interested in work for dependent children. It is our intention to send out these letters from time to time. Following is a copy of Child Welfare Letter No. 1:

CHILD WELFARE LETTER No. 1.

The State Board of Charities and Corrections, through its Children's Department, plans to send out from time to time a "child welfare news letter" to the institutions, agencies and individuals engaged in the work of caring for needy and wayward children. The purpose of this bulletin is to report briefly notable happenings and developments in child care, to serve as a clearing-house for the exchange of ideas, and to answer questions bearing on the care of dependent children in California. We want this letter to be informing and interesting. Any suggestions or items which will help to make it so will be appreciated.

General. The University of California Extension Division announces a lecture tour throughout California, in the interest of the health of children, by Dr. James Mace Andress, recognized nationally as an authority on health education. Free lectures will be given Monday, November 15, at 8 o'clock, at Emanu-El School, 1337 Sutter street, San Francisco; Tuesday, November 16, at 8 o'clock, Wheeler Hall Auditorium, University Campus, Berkeley. Doctor Andress will be in Los Angeles November 18 to 20.

The State Board of Charities has been asked to resume the regular quarterly child welfare conferences which were discontinued during the war. The first of the new series of conferences will be held at an early date, the northern section in San Francisco and the southern section in Los Angeles. Details will be announced in the next issue of this letter. We should be glad to receive suggestions of topics for discussion at these conferences.

The interesting film "Motherhood" is available for free circulation. For information apply to Mrs. Eve Scholer Bangs, Director of Publicity and Speakers, Pacific Division, American Red Cross, Civic Center, San Francisco.

A counsel of social and health agencies, representing 98 organizations, has been formed in San Francisco. Dr. William Palmer Lucas is president.

Institutions. Within the past year, by virtue of an opinion of the Attorney General of California, a new group of institutions has come under the supervision of the State Board of Charities and Corrections. The Attorney General rules that all institutions caring for children up to the age of majority are subject to the license of this board. The new group includes the George Junior Republic, Chino; the California Girls' Training Home, Alameda; Saint Catherine's Home, San Francisco, and the Convent of the Good Shepherd, Los Angeles.

Another new group asking for state license includes *preventoria* and *homes for convalescent children*. Hill Farm in Marin County, Saint Dorothy's Rest at Guerneville, Sonoma County, and the Stanford Home for Convalescent Children at Stanford University are splendid examples of this type of child care.

Mother Cabrini Preventorium. A country home for anemic children and those predisposed to tuberculosis has been opened at Burbank, Los Angeles County, by the Missionary Sisters of the Sacred Heart. The children will receive a medical examination prior to admission and will be under the care of a tuberculosis expert while in the home.

A new building and many other splendid improvements are progressing rapidly at the *Boys' and Girls' Industrial Home and Farm at Lytton*. The story of the fire in April, which destroyed the administration building and the girls' quarters, is a

proud record of efficient organization and undaunted spirit. While the fire was still burning, provision was made for the feeding and housing of children. The boys turned over their quarters to the girls and made a lark of sleeping in the newly erected cow barn. Within twenty-four hours a "tent city" had sprung up and the institution was functioning with remarkable smoothness. The regard which the community has for Lytton was demonstrated by the prompt and generous help which was rendered. The summer has been a busy one and the accomplishments have been many.

October 3 marked the laying of the cornerstone of the new home of the Pacific Hebrew Orphan Asylum. The site of thirteen acres is attractively located on Ocean avenue in San Francisco, adjoining a very desirable residential section. The plan contemplates a group of nine buildings. The cottages are of two general types, two stories in height, and will house twenty children each, ten boys and ten girls. The interesting features of this new departure in child care are too numerous to mention here. The forward-looking spirit which animates the group responsible for this institution justifies the expectation of worthwhile achievement.

ANITA ELDRIDGE.

November, 1921.

STANDARDS FOR CHILD-PLACING AGENCIES.

(Adopted by the State Board of Charities and Corrections, April 27, 1921.)

Definition.

A child-placing agency is an organization which accepts children for placement into family boarding homes, free homes or adoption homes.

1. Organization.

Each society should be incorporated; it should have a board of directors made up of persons generally recognized as responsible citizens, persons willing to do active work for the society and representing the several religious faiths of the children in ward; and each society should have a committee which should direct the policies concerning the placement of children. There must be a superintendent who must not be engaged in raising funds towards payment of his own salary but must devote his time primarily to the organization and conduct of the work.

2. Receiving home.

If the society maintains a receiving home for its wards, this home, if of institutional type, shall conform to the standards adopted by the State Board of Charities and Corrections for children's institutions. If children are placed in boarding homes pending permanent placement, these homes must conform to the standards set by this board for family boarding homes.

3. Foster homes.

In general, the foster homes in which children are placed by boarding-out agencies, shall conform to the standards established by the State Board of Charities and Corrections for family boarding homes.

4. Physical examination.

A thorough physical examination shall be made of each child within a week's time of its reception by the child-placing agency, with prompt corrections of remediable defects.

5. Mental examination.

A mental test should be made of all cases. It must be made in all doubtful cases.

6. Supervision.

Each society shall maintain an adequate supervision of the children placed by it. It should aim to visit each child once a month.

In cities no one visitor shall be required to supervise more than 50 children under three years of age nor more than 100 children over three years of age.

No ruling is made as to the number of country placements which can be supervised by each worker, but the utmost vigilance should be maintained to insure adequate supervision.

In every case supervision shall continue until the child is legally adopted, is returned to its parents or legal guardian, or has reached majority.

7. Records.

Each society should keep an accurate record for each child in its care, covering complete family history, physical and mental condition, and school progress.

8. Reports.

Each society shall render an annual financial and social report on forms prescribed by the State Board of Charities and Corrections.

9. Reports—Continued.

Each society shall furnish to the State Board of Charities and Corrections monthly reports of placements made and foster homes used and discontinued. A report shall be made also of each ward of the society not visited within the month and of all homes where there are more than two babies or six children.

10. Adoption.

No agency should consent to the adoption of any of its wards until the child has been in one home under the supervision of the agency for at least six months.

Attention is called to the provisions of section 224 of the Civil Code, relating to persons whose consent is necessary to the adoption of a minor child and requiring that when a child has been relinquished by its parents for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections prior to the commencement of any adoption proceedings.

STANDARDS FOR CHILDREN'S INSTITUTIONS.**1. Definition.**

A children's institution shall be defined as a place for the reception and full-time care of (fifteen or more) children, the support of which is derived in whole or in part from public or private benevolence or from boarding children.

2. Governing board.

Where there are over fifteen children, the place shall be incorporated with a board of directors of at least seven members, at least four of whom shall be residents of the city or town in which the home is situated. The governing board must be responsible persons who have an active interest in the work and give personal attention to it. Board members failing to attend three successive meetings without good excuse should be dropped and replaced by persons who give more time to the problems of the institution.

The meetings of the board of directors shall be held regularly at the institution. The work of the board should be done, on the whole, through committees. These should be working committees, not merely nominal groups, and should include committees on admission, dismissals, finances, house, recreation, etc.

3. Buildings.

The building shall meet the legal requirements of the county in which the institution is located, as to construction, material, safety, lighting, ventilation, sanitation, and fire protection. The up-keep, and particularly the housekeeping, shall conform to the average of the institutions of like character of this state.

Dormitories shall provide a minimum floor space of thirty square feet per child. Furthermore, there shall be a space of at least three feet between the sides and two feet between the ends of beds.

The height of the ceiling shall be at least nine feet.

The window space shall measure at least one-eighth of the floor space.

Plans for new buildings or parts of buildings must be submitted to the State Board of Charities and Corrections for approval before any contracts are let or work begun.

4. Physical care of children.

(a) A nourishing and properly balanced dietary shall be provided, a minimum of one pint of whole milk daily to be allowed each child.

The milk used by the children either must be pasteurized in accordance with the Pure Milk Law, Statutes 1917, page 803, and amended by Statutes 1919, page 326, or from tuberculous free cows as determined by the tuberculin test. Tests will be made free on application to the State Department of Agriculture, Sacramento.

(b) Formulae for feeding infants should be prescribed by a registered physician.

(c) There shall be frequent and systematic bathing of the children.

(d) A separate bed shall be provided for each child. Each bed shall have a good spring, clean, comfortable mattress or its equivalent, and adequate bedding. Rubber sheeting when necessary.

(e) Individual toilet articles shall be supplied each child and each child instructed in their proper use.

(f) The clothing of the children shall be clean, neat, and seasonable, and of a design, quantity, and quality to develop the self respect of the child. Clothing should not be used in common. Each child should have his own supply.

5. Medical care.

- (a) A properly equipped infirmary, as well as isolation facilities, shall be provided.
- (b) All entrants shall be segregated for a period of fourteen days following admission.
- (c) A thorough physical examination, including nose and throat cultures, shall be made of each child by a competent physician prior to its admission to the institution, or during its detention in isolation quarters. This should be followed by remedial treatment when necessary. A written record of such examination shall be kept on file.
- (d) Vaccination of all children shall be enforced.
- (e) Mental tests shall be made in all doubtful cases.
- (f) Frequent and regular examinations of all children shall be made by a physician or licensed nurse and a written record kept.
- (g) Institutions with a population of more than 100 children should have a trained nurse in residence.
- (h) Dental examinations shall be made at regular intervals and corrective work done promptly. Tooth brushes shall be provided and their use enforced.

6. Education and recreation.

- (a) The education should conform with the requirements of the state and all teachers of the regular curriculum shall be duly licensed.
- (b) Children shall receive moral and religious instruction, provided that no child shall be required to attend religious services or to receive religious instruction in a faith different from that of its parents or guardian.
- (c) A library of books suitable for the use of the children shall be provided and shall be regularly accessible to them.
- (d) Playgrounds and playrooms, properly equipped with apparatus, games, and toys shall be provided.
- (e) It should be the duty of some one officer of the institution to supervise and encourage play activities.

7. Discipline.

There shall be no corporal punishment.

8. Classification of children.

Definitely wayward or feeble-minded children shall not be admitted to an institution primarily for the care of needy normal children.

9. Supervision.

The superintendent shall be a person of such character and capacity as shall guarantee to the children control and companionship, and to the board and the state the responsible management of the institution and its inmates. He must not be required to collect funds, but should devote his time to the organization and conduct of the work of caring for the children.

10. Admissions and discharge.

A careful investigation of each application for admission shall be made, to determine whether the best interests of the child will be served by admitting him.

A definite plan for follow-up of children discharged from the institution should be instituted.

11. Accounting.

All accounts shall be kept in conformity with the methods prescribed by the State Board of Charities and Corrections.

12. Records and reports.

Each institution shall report immediately to the State Board of Charities and Corrections on forms prescribed and supplied by them, placements of all children in free homes, school homes or homes for adoption, or dismissed to any person other than his parents, relatives, or guardians. It shall not be necessary to report a child dismissed to a probation officer when the probation officer has placed the child in the institution. Notice shall also be given the State Board of Charities and Corrections of any child returned to the institution from a placement and of the completion of the adoption proceedings in the case of each child placed for adoption.

August, 1921.

MINIMUM REQUIREMENTS FOR FAMILY BOARDING HOMES FOR CHILDREN.**1. Definition.**

A family boarding home for children is a private family home which accepts one or more children to board.

2. Number of children.

(a) Since the family boarding home is primarily a home, the number of children in it shall not exceed that number which it is customary to think of as constituting a normal family group. The number of boarded children should not exceed six.

(b) Not more than two infants shall be allowed in any family boarding home.

3. References.

Satisfactory references must be furnished.

4. Register.

A register shall be kept in which shall be recorded the name, age, sex of the child, the names and addresses of parents or guardians, religion, date of reception, from whom received, date of discharge of each child, and to whom it went; also a health record showing condition of the child on entrance to home and any subsequent illness or accident. Such register has been prescribed and printed by the State Board of Charities and Corrections and is supplied free of charge. This register must at all times be open to the inspector from the State Board of Charities and Corrections.

5. Housing.

(a) The home shall conform in building and maintenance to the sanitary ordinances of the city or county, and shall have the permit or endorsement of the local board of health or health officer.

(b) The house must be in a residence district (not commercial or factory), convenient to school, with sufficient room to accommodate the family group and the boarded children in a comfortable and sanitary way, and with yard space large enough for a home playground for the children.

(c) Sleeping rooms must afford at least four hundred (400) cubic feet of space for each occupant, and must have plenty of windows opening upon street or yard—no dark courts.

6. Care of children.

(a) The dietary shall be up to the standard approved by the State Board of Charities and Corrections and should include at least one pint of whole milk daily for each child. Formulae for feeding infants should be prescribed by a registered physician.

The milk used by the children either must be pasteurized in accordance with the Pure Milk Law, Statutes 1917, page 803, and amended by Statutes 1919, page 326, or from tuberculous-free cows as determined by the tuberculin tests. Tests will be made free on application to the State Department of Agriculture, Sacramento.

(b) Each child shall have a separate bed. Each bed shall have a good spring, clean, comfortable mattress, adequate bedding, and rubber sheeting for infants and bed-wetters.

(c) Proper medical supervision shall be guaranteed each child.

(d) Individual hair and tooth brushes, towel, etc., should be provided and each child instructed in their use.

(e) Every child of proper age shall be given opportunity to attend Sabbath school or church of the religious faith of its parents.

(f) Children under fourteen years shall have no routine work other than school tasks, but there is no objection to their performing simple home duties, providing these do not interfere with ample opportunity for school and play.

(g) During the absence of the foster-mother, children must be left in charge of a competent person.

7. Income.

The sum paid for the support of the children shall not be the only source of income for the family group; there must be some other resource.

8. Adult boarders.

No adult male boarders or roomers shall be permitted.

9. Removal of children.

When a child is given up, it must be to the parent, guardian, or other person having a legal right to receive it.

10. Reports.

(a) The death or serious illness of any child must be reported promptly to the State Board of Charities and Corrections and to the parent or guardian of the child.

(b) Any change in the management or address of the foster home must be reported to the State Board of Charities and Corrections.

(c) Failure to make these reports may constitute cause for revocation of license. August, 1921.

CHAPTER 69.

An act to provide for the licensing, inspecting and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children, by the state board of charities and corrections, and providing a penalty for the violation of the provisions of this act.

(Approved April 23, 1913. In effect August 10, 1913.)

The people of the State of California do enact as follows:

SECTION 1. No person, association, or corporation shall hereafter maintain or conduct in this state any maternity hospital or lying-in asylum where females may be received, cared for or treated during pregnancy, or during or after delivery; or any institution, boarding house, home or other place conducted as a place for the reception and care of children, without first obtaining a license or permit therefor, in writing, from the state board of charities and corrections, such permit or license once issued to continue until revoked for cause after a hearing.

SEC. 2. The state board of charities and corrections is hereby authorized to issue licenses or permits to persons or associations to conduct maternity hospitals, lying-in asylums, or homes for children, as provided in section one of this act, and to prescribe the conditions upon which such licenses or permits shall be granted, and such rules and regulations as it may deem best for the government and regulation of maternity hospitals, lying-in asylums and institutions, boarding houses, or homes for the reception and care of children, and said board is further authorized, by one or more of its members, secretary, or duly authorized representative, to inspect and report upon the conditions prevailing in all such institutions.

SEC. 3. Any person who maintains or conducts, or assists in maintaining or conducting as manager or officer, any maternity hospital, lying-in asylum, or any institution, boarding house, home or other place conducted as a place for the reception and care of children, or who keeps at any such place any child under the age of twelve years, not his relative, apprentice or ward, without first having obtained a license or permit therefor in writing, as provided in section one of this act, shall be punished upon conviction by imprisonment in the county jail for not more than one year, or by a fine not to exceed five hundred dollars, or both a fine and imprisonment may be imposed at the discretion of the court.

STANDARDS ADOPTED FOR DAY NURSERIES.

April, 1920.

In a community program for child welfare the day nursery may have a place. Just what this place may be is a question which every nursery should consider carefully. Experience proves that no social agency has been more abused.

No one will question that the ideal of family life for children, particularly for young children, is the mother in the home supervising their care. When this arrangement is threatened by inadequate income, illness, or industrial conditions, the most vital consideration is the stability of the family group. All community resources should be enlisted to preserve it. But after all other resources fail there may yet remain cases of children requiring day nursery care. The nursery should always inquire carefully into the case of every child seeking admittance to determine whether there may not be other solution for the family problem.

In the day nursery the health problem is paramount. The average day nursery child comes from a home where various causes contribute to a reduced standard of sanitation and hygiene. Also the age of the children involved makes them more susceptible to contagious and infectious troubles. The larger the group, the greater the danger.

Considering this menace to health the following standards for the conduct of day nurseries have been adopted.

REQUIREMENTS.**1. Yard.**

Ample play space should be provided. The surface of the playyard should be made dust-free by the use of sand, gravel or tanbark. Stone and asphalt do not make good play surfaces. A portion of the yard should be shaded. If there are no trees, sheds or awnings should be provided. There should be a drinking fountain in the yard. The yard should be provided with play apparatus.

2. Buildings.

1. *Kindergarten or Playroom.* This should be the largest room in the building. It should contain tables, chairs, and a safe heating apparatus. Suitable toys, of educational value, such as blocks, bean bags, balls, and dolls should be provided. Sewing, knitting and weaving materials for the "playwork" should be provided for children of kindergarten age.

2. *Nursery or Sleeping-Room for Children Under Two.* This room should be provided with dark shades for windows; metal cribs with woven wire springs, two feet apart on all sides; heavy folded blankets serving as mattresses; good quality of rubber sheeting; crib sheets; cotton crib blankets.

3. *Diet Kitchen.* A small room containing a cupboard for lunches, icebox for babies' milk, small work table, a gas plate or small oil burner. A sink is indispensable.

4. *Toilets.* One toilet to every twenty children should be furnished. There should be separate toilets for boys and girls beyond nursery age. Toilet paper should be furnished.

It is suggested that a stationary wooden foot bench be fixed before the toilets and that a patent wooden seat for little children be provided.

5. *Lavatories.* One lavatory bowl to every ten children should be provided. There should be furnished also an adequate supply of the following:

- Soap.
- Individual towels or paper toweling.
- Wash cloths or cut gauze.
- Drinking fountains.

Every nursery building shall be equipped with adequate fire protection which meets the requirements of the local fire ordinances. It is recommended that a chemical fire extinguisher be placed on every floor. They should be renewed at least once a year.

3. Hygiene and sanitation.

All rules of hygiene and sanitation of the local health department should be rigidly observed.

Walls, ceiling and floors should be, as far as possible, washable. Dry dusting or sweeping is prohibited while the children occupy the building.

Adequate ventilation, lighting and heating should be provided. All windows and doors of the nursery should be equipped with screens. Wire screens should be placed around all stoves, open fireplaces or other heating apparatus in the nursery department.

The use of common washcloths, towels, combs, hair brushes and drinking cups is prohibited. Arrangement should be made for the sterilizing of washcloths, bottles and nipples daily, and for sending out laundry (towels, crib sheets and blankets).

All bottles and nipples shall be provided by the nursery. No bottle or nipple shall be used a second time unless it has been thoroughly scrubbed and boiled. Milk shall be kept in sealed bottles on ice, if possible; otherwise, in a cooler.

Arrangements should be made for keeping children's outer garments in well ventilated lockers, where they are not in contact one with another.

All diapers that have become soiled during the day shall be immediately placed in water and thereafter thoroughly washed and boiled. No diapers in an unclean condition shall be removed from the premises.

Unless the clothing on a child is thoroughly clean on admission, a suitable garment (the property of the nursery) shall be worn through the day, and every such garment shall be marked for identification unless a clean garment is provided daily.

4. Medical care.

A thorough medical examination of each new child admitted to the nursery shall be made and a health certificate signed by a physician designated by the nursery shall be required. The child should be stripped and a record kept of all such examinations.

Provisions shall be made for medical supervision of children either by cooperation with clinics or by the employment of a visiting physician. The physician shall make regular visits to the nursery and shall reexamine every regularly attending child at least once a month.

An isolation room for cases of suspected contagious diseases shall be provided.

The nurse shall carefully observe each child every morning at the time of admission and if signs of contagious disease are noted, the child must be placed in the isolation room and kept entirely apart from the other children and a physician or the department of health notified at once. She should supervise the treatment of minor ailments.

5. Diet.

The physician should prescribe formulas and diet.

Bottle babies should receive their feedings on regular schedule.

All older children in care should receive a warm and nourishing noon meal. In addition to the noon meal it is recommended that a midmorning and midafternoon lunch of bread, butter and milk be provided.

Nursing mothers should be urged and encouraged to nurse their babies as long as the children gain. Nursing mothers should be urged to go into the nursery at appointed times to nurse the baby. A hot drink and a low chair would be a helpful provision.

6. Supervision.

The nursery should be under the supervision of a trained nurse, who shall be responsible for the sanitation, hygiene, preparation of formulas and health care of the nursery.

The woman directly in charge of the children should understand the proper care of the children and should be able intelligently to direct their activities.

A regular schedule for meals, naps, nursing of infants, and bottle feeding should be maintained.

Emphasis should be laid on the teaching of personal hygiene to the children.

There shall be employed by the day nursery a sufficient number of workers to insure adequate supervision and care of children at all times.

A complete segregation should be maintained between infants, runabouts, and older children.

7. Admissions.

The State Board of Charities and Corrections deprecate the day nursery care of nursing babies. If, however, their care seems absolutely necessary, no babies under three months of age should be received. Preferably none under one year. Homes of children admitted to the nurseries should be inspected before a child is accepted. In emergency cases the home shall be visited not later than one week after the child has entered. Any doubtful or dangerous conditions found in homes must be reported to the proper officers of the nursery and to the board of health.

8. Records: Social and medical.

Records should be kept. The social data should include the following recommendations:

1. Child's name.
2. Child's age.
3. When admitted.
4. Serious illness.
5. Names of both parents.
6. Parents' address.
7. Occupation of each parent.
8. Nationality.
9. Earnings of each parent.
10. Entire earnings of family.
11. Religion of each parent.
12. Mother's reason for working.
13. Whether widow, married, deserted or separated.
14. Number of children in family.
15. How many at work or in school.

A record of the medical examination of each child should be kept. It is urged by the State Board of Charities and Corrections that all day nurseries become affiliated with the National Federation of Day Nurseries, office 105 East Twenty-second street, New York City. They publish at a nominal cost a set of record forms which cover the records required by this board; also a dietary and pamphlets helpful to the manager, nurse and matron.

STANDARDS FOR FAMILY BOARDING HOMES FOR CHILDREN.**1. Definition.**

A family boarding home for children is a private family home which accepts one or more children to board.

2. Number of children.

(a) Since the family boarding home is primarily a home, the number of children in it shall not exceed that number which it is customary to think of as constituting a normal family group. The number of boarded children should not exceed six.

(b) Unless especially equipped for the care of infants, alone, not more than two infants shall be allowed in any family boarding home.

3. References.

Satisfactory references must be furnished.

4. Register.

A register shall be kept in which shall be recorded the name, age, sex of the child, the names and addresses of parents or guardians, religion, date of reception, from whom received, date of discharge of each child, and to whom it went; also a health record showing condition of the child on entrance to home and any subsequent illness or accident. Such register has been prescribed and printed by the State Board of Charities and Corrections, and is supplied free of charge. This register must at all times be open to the inspector from the State Board of Charities and Corrections.

5. Housing.

(a) The home shall conform in building and maintenance to the sanitary ordinances of the city or county, and shall have the permit or endorsement of the local board of health or health officer.

(b) The house must be in a residence district (not commercial or factory), convenient to school, with sufficient room to accommodate the family group and the boarded children in a comfortable and sanitary way, and with yard space large enough for a home playground for the children.

(c) Sleeping rooms must afford at least four hundred (400) cubic feet of space for each occupant, and must have plenty of windows opening upon street or yard—no dark courts.

6. Care of Children.

(a) The dietary shall be up to the standard approved by the State Board of Charities and Corrections, and should include at least one pint of milk daily for each child. Formulæ for feeding infants should be prescribed by a registered physician.

The milk used by the children either must be pasteurized in accordance with the Pure Milk Law, Statutes 1917, page 803, and amended by Statutes 1919, page 326, or from tuberculous-free cows as determined by the tuberculin test. Tests will be made free on application to the State Department of Agriculture, Sacramento.

(b) Each child shall have a separate bed. Each bed shall have a good spring, clean, comfortable mattress, adequate bedding, and rubber sheeting for infants and bed-wetters.

(c) Proper medical supervision shall be guaranteed each child.

(d) Individual hair and tooth brushes, towel, etc., should be provided and each child instructed in their use.

(e) Every child of proper age shall be given opportunity to attend Sabbath school or church of the religious faith of its parents.

(f) Children under fourteen years shall have no routine work other than school tasks, but there is no objection to their performing simple home duties, providing these do not interfere with ample opportunity for school and play.

(g) During the absence of the foster mother, children must be left in charge of a competent person.

7. Income.

The sum paid for the support of the children shall not be the only source of income for the family group; there must be some other resource.

8. Adult boarders.

No adult male boarders or roomers shall be permitted.

9. Removal of children.

When a child is given up, it must be to the parent, guardian, or other person having a legal right to receive it.

10. Reports.

(a) The death or serious illness of any child must be reported promptly to the State Board of Charities and Corrections and to the parent or guardian of the child.

(b) Any change in the management or address of the foster home must be reported to the State Board of Charities and Corrections.

(c) Failure to make these reports may constitute cause for revocation of license.

RULES AND REGULATIONS FOR THE GOVERNMENT OF MATERNITY HOSPITALS.

(In accordance with chapter 69, Statutes 1913.)

Physical equipment.

1. All rooms and wards shall be outside rooms and the window space shall not be less than one-fifth of the floor space.
2. The rooms and wards shall be of sufficient size to allow not less than 1000 cubic feet air space for each adult patient and 500 cubic feet air space for each infant kept therein; also 100 square feet floor space for each bed.
3. The heating of all rooms shall be of sanitary type.
4. The flooring and walls shall be in condition and of a character to permit of easy cleaning. All parts of a maternity hospital shall be kept in a cleanly condition.
5. The plumbing and draining or other arrangements for the disposal of excreta and household waste shall be in accordance with the best sanitary practice, subject to the approval of the State Board of Charities and Corrections, and in accordance with the rules and regulations of the local board of health or city ordinance. The water supply shall be pure.
6. A confinement room properly equipped shall be provided. Dressings and medicines for emergencies, clean bedding, body linen and towels shall be kept on hand in sufficient quantity. Means for sterilizing instruments shall be provided and a properly trapped and vented basin supplied with running water for washing the hands.
7. Provision for the isolation of contagious diseases must be made.
8. Sanitary accommodations for thorough bathing of patients and infants must be made part of the equipment of the institution.
9. Fire protection shall meet the approval of the State Board of Charities and Corrections, and shall be in accordance with the rules and regulations of the local fire commission or city ordinance.
10. There shall be a separate bed for each infant.

Care of patients.

1. In each labor case, at the time of expected delivery, a legally qualified physician shall be promptly notified and shall be present and in attendance at the time of birth.

2. Prevention of blindness in infants.

Attention is called to chapter 724, Statutes 1915, which requires the reporting of reddened or inflamed eyes of an infant, within two weeks after birth, to the local health officer of the county or municipality within which the mother of such infant resides. Further, the eyes of all new-born infants shall be treated immediately after birth with a one per cent solution of nitrate of silver, two drops in each eye, or with other approved solution equally efficacious, and during the first few days cleansed daily with saturated boric acid solution.

3. After the birth of the child a legally qualified physician shall be in charge of the care of the mother and child, and shall superintend all after treatment.

4. If the child is kept in the hospital and is not breast-fed by the mother, the feeding and selection of food shall be under the direction of a legally qualified physician. If a wet-nurse is provided, she shall meet with the approval of the physician. In every case where the mother is a proper subject she shall be urged to nurse her child. Under no circumstances will the use of nursing bottles which can not be readily and thoroughly washed be permitted (such as long-tubed nursing bottles). All nursing bottles and nipples must be boiled at least once a day and individual nipples must be provided for each child.

Disposal of child.

1. Attention is called to section 224 of the Civil Code in accordance with which a child not retained by the mother must be legally relinquished before it can be adopted. This relinquishment must be expressed in writing, signed and acknowledged before an officer authorized to take acknowledgments or before the secretary of one of the organizations mentioned below. Before adoption can take place, a copy of the relinquishment must be filed with the State Board of Charities and Corrections.

2. Attention is called to chapter 569, Statutes 1911, providing for the supervision and control by the State Board of Charities and Corrections of the placing of dependent children into homes, which makes it a misdemeanor for any person, association or society to engage in the work of placing children into homes without a license from the State Board of Charities and Corrections.

The following agencies have been licensed to place dependent children into homes and to arrange for adoption:

Charity Organization Society, 2120 Grove street, Berkeley.
 Children's Home Society, 2414 Griffith avenue, Los Angeles.
 Catholic Ladies Aid Society, City Hall, Oakland.
 Oakland Associated Charities, City Hall, Oakland.
 Little Children's Aid, 995 Market street, San Francisco.
 Children's Agency of the Associated Charities, 1500 Jackson street,
 San Francisco.
 Eureka Benevolent Society, 436 O'Farrell street, San Francisco.
 Native Sons and Daughters Central Committee on Homeless Children,
 955 Phelan Building, San Francisco.

3. Each licensee shall use due diligence to prevent the abandonment of children, which is, according to sections 270, 271, and 271a of the Penal Code, a penal offense.

4. A licensee shall not be permitted to advertise that he will procure the adoption of children or to hold out inducements to mothers to part with their offspring.

Records.

1. Every licensee must keep a register wherein he shall enter the name and address of every maternity patient, the date of admission and discharge of every such patient, the name and sex of every child born or boarded on the premises, the date of every such birth, the legitimacy or illegitimacy of every child, the name and residence of the father, the date of removal of the child, the name and address of the person taking away the child, and, if relinquished by the mother, the date of relinquishment, the name and address of the person to whom the child is relinquished, and the reasons therefor; and if adopted, the date of adoption, the name of the person signing the consent to adoption, and the name and address of the person adopting the child. Every admission, discharge, birth, death, relinquishment or adoption must be recorded in the register within forty-eight hours after its occurrence.

2. A semiannual report, which shall be an exact transcript of this register, shall be made to the State Board of Charities and Corrections, 995 Market street, San Francisco, January first and July first of each year.

3. Each licensee shall use due diligence to prevent deception by a patient as to her identity and shall not receive any person who refuses to give the required information, unless the case is one of emergency. If a patient does not give the necessary information before the fourth day after her delivery, the licensee shall forthwith notify the State Board of Charities and Corrections.

4. All births and deaths must be reported promptly to the local authorities by the attending physician. (See Political Code, section 3077, and chapter 378, Statutes 1915.)

Inspection.

The proprietor or person in charge of a maternity hospital shall give the inspectors of the State Board of Charities and Corrections all reasonable information and shall afford them every facility for examining the records, inspecting the premises, and seeing the inmates.

Granting and revoking license.

1. Application for license must be made on blanks furnished by the State Board of Charities and Corrections.

2. Every applicant must have the approval of the local board of health or health officer.

3. Every licensee shall frame his license and post it in a conspicuous place in the office or room of his establishment in which his patients are received.

4. The license is the property of the State Board of Charities and Corrections and subject to return on demand.

5. Any neglect or evasion of these rules, or any collusion for their subversion, shall constitute sufficient cause for revocation of the license.

6. Any change of management, location, or name shall be promptly reported to the State Board of Charities and Corrections.

CHAPTER 69, STATUTES 1913.

An act to provide for the licensing, inspecting and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children, by the state board of charities and corrections, and providing a penalty for the violation of the provisions of this act.

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SECTION 1. No person, association, or corporation shall hereafter maintain or conduct in this state any maternity hospital or lying-in asylum where females may be received, cared for or treated during pregnancy, or during or after delivery; or any institution, boarding house, home or other place conducted as a place for the reception and care of children, without first obtaining a license or permit therefor, in writing, from the state board of charities and corrections, such permit or license once issued to continue until revoked for cause after a hearing.

SEC. 2. The state board of charities and corrections is hereby authorized to issue licenses or permits to persons or associations to conduct maternity hospitals, lying-in asylums, or homes for children, as provided in section one of this act, and to prescribe the conditions upon which such licenses or permits shall be granted, and such rules and regulations as it may deem best for the government and regulation of maternity hospitals, lying-in asylums and institutions, boarding houses, or homes for the reception and care of children, and said board is further authorized, by one or more of its members, secretary, or duly authorized representative, to inspect and report upon the conditions prevailing in all such institutions.

SEC. 3. Any person who maintains or conducts, or assists in maintaining or conducting as manager or officer, any maternity hospital, lying-in asylum, or any institution, boarding house, home or other place conducted as a place for the reception and care of children, or who keeps at any such place any child under the age of twelve years, not his relative, apprentice or ward, without first having obtained a license or permit therefor in writing, as provided in section one of this act, shall be punished upon conviction by imprisonment in the county jail for not more than one year, or by a fine not to exceed five hundred dollars, or both a fine and imprisonment may be imposed at the discretion of the court.

MEDICAL EXAMINATION: RECORD FORM FOR CHILDREN'S INSTITUTIONS.

(Face)

File No.

Institution

Child's namePermanent address

Date of birth.....Weight at birth.....Date of admission.....

Birth registered?.....Breast fed?.....

Parent's nameAddress

Guardian's name.....Address

Physical history of parents.....

.....

.....

Previous diseases of child.....

Body conformation.....

PostureFacial expression

Speech

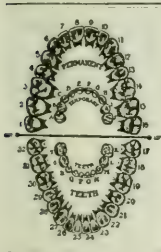
Vision (Snellen cards at 15 feet).....

Hearing (watch) at.....feet.....inches; discharge from ear.....

Throat—AdenoidsNose

Tonsils

Teeth—General care.....Individual brush.....

	FIRST TEETH			PERMANENT TEETH		
	FIRST EXAMINATION	SECOND EXAMINATION	THIRD EXAMINATION	FIRST EXAMINATION	SECOND EXAMINATION	THIRD EXAMINATION

HairScalp

Lymphatic glands—Cervical.....General

Chest—CircumferenceExpansion

(Nipple line)

MEDICAL EXAMINATION: RECORD FORM FOR CHILDREN'S INSTITUTIONS—
Continued.

(Reverse)

Heart -----
 Lungs -----
 Skin -----
 Nutrition -----
 Abdomen -----

 Genitalia -----
 *Smear on slide of discharge (if present) -----
 General Observations—
 Vaccination ----- Scar present -----
 Successfully vaccinated (date) -----
 Von Pirquet test (where history of family or general condition of child indicate) -----

 *Wasserman test (same indications) -----
 Psychological test (whenever possible) -----
 General health -----

Examinations.

Name and Address of Examiner	Date	Height (without shoes)	Weight (dressed)	Age	School Grade	Recommendations	How Fulfilled
1. -----							
2. -----							
3. -----							
4. -----							
5. -----							
6. -----							
7. -----							
8. -----							
9. -----							

*All laboratory examinations are made by the State Board of Health at Berkeley, California, Bureau of Communicable Diseases.

CHILDREN'S INSTITUTIONS: ACCOUNTING SYSTEM PRESCRIBED BY THE STATE BOARD OF CHARITIES AND CORRECTIONS AND THE STATE BOARD OF CONTROL.
REGISTER OF INCOME.

Date	Name	Folio	Amount	Public Aid			Analysis				
				State	County	City	Memberships and Subscriptions	Donations and Legacies	Board Received for Children	Sales of Produce	Entertainments and Benefits	Interest and Dividends on Investments

REGISTER OF EXPENDITURES.

Date	Invoice Number	Name	Amount	Paid	
				Date	Check No.

REGISTER OF EXPENDITURES—Continued.

Care and Subsistence

Meat and Fish	Vegetables and Fruit	Butter	Butter Substitute	Milk	Eggs	Groceries	Clothing	Shoes	Bedding and Blankets	Laundry	Medical and Dental Care	School Supplies
---------------	----------------------	--------	-------------------	------	------	-----------	----------	-------	----------------------	---------	-------------------------	-----------------

REGISTER OF EXPENDITURES—Continued.

Maintenance and Operation of Plant

Light, Heat and Power	Water	Rent	Repairs to Buildings	Furniture and Equipment	Farm Expense
-----------------------	-------	------	----------------------	-------------------------	--------------

REGISTER OF EXPENDITURES—Continued.

Administrative and General

Salaries	Wages and Labor	Expense of Raising Funds	Traveling and Transportation	Freight Carriage and Express	Office Expense	Postage Telephone and Telegraph	Printing and Stationery	New Buildings	Additions and Betterments
----------	-----------------	--------------------------	------------------------------	------------------------------	----------------	---------------------------------	-------------------------	---------------	---------------------------

REGISTER OF CASH RECEIPTS AND DISBURSEMENTS.

Receipts		Date	Name	Disbursements		
From Income	Borrowed Money			Check Nos.	For Expenditures (Claims Paid)	Loans Repaid

State Board of Charities and Corrections
San Francisco

REGISTER PRESCRIBED FOR FAMILY BOARDING HOMES.

Name of child.....

Sex.....Date of birth....., 19..... Religion.....

Received....., 19.....

Father's name

Father's address

Mother's name

Mother's address

Received from

Address

Amount board per month.....Paid by.....

Health of child when received.....

.....

Record of health of child while under my care.....

.....

.....

Date of child's removal.....

By whom removed.....

Address

Reason for removal.....

(On reverse side keep a record of dates and amounts of payments of board.)

REGISTER PRESCRIBED FOR MATERNITY HOSPITALS AND RESCUE HOMES.

Name of hospital.....

Street.....City.....

Name of patient.....Address.....

Date of arrival.....Attending physician.....

Date of discharge.....Condition on discharge.....

Name of child's father.....Address.....

Hospital charges (in detail).....

Child's—

Name.....Sex.....

Race or color.....

Date of birth.....Legitimate.....

Stillborn.....Died.....Date.....

Date of removal.....By whom.....

Address

Child relinquished—

By whom.....Date.....

To.....Address.....

Reasons

Child adopted—

By whom.....Address.....

Date.....Consent signed by.....

.....Signed

FORMS FOR REPORT PRESCRIBED BY THE STATE BOARD OF CHARITIES AND CORRECTIONS FOR CHILDREN'S INSTITUTIONS AND AGENCIES HOLDING ITS LICENSE.

STATE BOARD OF CHARITIES AND CORRECTIONS
995 Market Street, San Francisco

CHILD-PLACING AGENCY REPORT.

Children in care July 1, 19____, to June 30, 19____.

- I. On rolls July 1, 1919.....
- II. Added to rolls during year.....
- III. Dropped from rolls during year.....
- IV. On rolls June 30, 1920.....

II.

Sources from which Children Came.

- From parents
- From relatives or guardians.....
- From juvenile courts.....
- From institutions
- From other agencies.....
- From other sources.....
- Total**.....

III.

Method of Removal from Care of the Society.

- Adopted
- Transferred to other agencies.....
- Placed in institutions.....
- Returned to parents.....
- Returned to relatives or guardians.....
- Returned to juvenile courts.....
- Self-supporting
- Died
- Others
- Total**.....

IV.

Children on Rolls June 30, 1920.

- In receiving home awaiting placement.....
- In institutions
- In free homes.....
- In paid boarding homes.....
- With natural parents.....
- With relatives or guardians.....
- Others
- Total**.....

NOTE.—Please submit a separate sheet with a copy of your financial statement for the fiscal year ending June 30, 19____.

REPORTING BLANK FOR CHILDREN'S INSTITUTIONS.

I. FINANCIAL STATEMENT.

Period from.....to.....

Name of institution.....Address.....

STATEMENT OF CASH TRANSACTIONS	DETAIL	TOTAL
CASH RECEIPTS: From income		
From borrowed money		
ADD: Cash on hand—beginning of period		
Total receipts plus balance		
CASH DISBURSEMENTS: Expenditures		
Loans repaid		
BALANCE ON HAND—End of period		
Cash in office		
Cash in banks		
STATEMENT OF PROPERTIES		
LAND AND BUILDINGS		
OTHER INVESTMENTS: (Specify)		
STATEMENT OF LIABILITIES AT END OF PERIOD		
Unpaid current bills for expenditures		
Notes payable		
Indebtedness on real estate		
Other indebtedness		
Total indebtedness		
FUNDS HELD IN TRUST FOR CHILDREN:		
Number of accounts		
Total amount		
STATEMENT OF INCOME		
PUBLIC AID: State		
County		
City		
Memberships and subscriptions		
Donations and legacies		
Sales of produce		
Board received for children		
Entertainments and benefits		
Interest and dividends on investments		
Total income		
ESTIMATED VALUE OF DONATED MATERIALS AND SUPPLIES		
Received during the half-year period: Food		
Clothing (do not include second-hand clothing)		
Supplies		
STATISTICAL DATA		
Total number of institution days during the period		
EXPENDITURES:		
Care and subsistence		
Maintenance and operation of plant		
Administration and general		
Total current expenditures		
Note.—Average daily per capita cost is found by dividing total current expenditures by total institutional days.	Amount of expenditures	Average daily per capita cost

STATEMENT OF EXPENDITURES

	DETAIL	TOTAL
CARE AND SUBSISTENCE:		
Meat and fish		
Vegetables and fruit		
Butter		
Butter substitute		
Milk		
Eggs		
Groceries		
Clothing		
Shoes		
Bedding and blankets		
Laundry		
Medical supplies		
School supplies		
Total care and subsistence		
MAINTENANCE AND OPERATION OF PLANT:		
Light, heat and power		
Water		
Rent		
Repairs to buildings		
Furniture and equipment		
Farm expense		
Total maintenance and operation of plant		
ADMINISTRATION AND GENERAL:		
Salaries		
Wages and labor		
Expense of raising funds		
Traveling and transportation		
Freight, cartage and express		
Office expense		
Postage, telephone and telegraph		
Printing and stationery		
Total administration and general		
ADDITIONS AND BETTERMENTS:		
Total additions and betterments		
Total expenditures		

STATE OF CALIFORNIA, County of.....: ss.

The undersigned, being duly sworn, deposes and says that ..he is the.....
of the.....and that all the information contained in the foregoing statement is true.

Subscribed and sworn to before me on.....192.., ..

Notary Public in and for the County of....., State of California.

REPORTING BLANK FOR CHILDREN'S INSTITUTIONS.

II. SOCIAL STATISTICS.

A. Administration.

- 1. Name of institution-----
- 2. Address of institution-----
- 3. Name of superintendent-----

4.

GOVERNING BOARD					SUPERINTENDENT									
Title		METHOD OF WORK			No.	PAYES AND DUTIES								
PERSONNEL														
Number Men		Meet how often?				Sex								
Number Women		Where?				How appointed?								
How elected?		House Committee												
Term of service		Administration Committee												
Reappointment		Finance Committee				Salary								
		Auditing Committee				Term								
		Other Committees												
					TOTAL NUMBER EMPLOYEES									
					TOTAL PAY ROLL									
ADMINISTRATION AND EDUCATION	No.	SALARY	GENERAL HOUSE	No.	SALARY	LAUNDRY	No.	SALARY	SUBSISTENCE	No.	SALARY	MEDICAL	No.	SALARY
Assistant for boys			Janitor			Laundress			Cook			Nurse		
Assistant for girls			Night watch			Engineroom			Baker			Physician		
Matron			Chambermaid						Cook's assist			Dentist		
Cottage mother			Maid									Specialists		
Housekeeper			Dishwasher											

Names and addresses of officers and governing board:

B. General Statistics.

- 5. Capacity of institution----- \$-----
- 6. Total receipts for year-----to----- \$-----
- 7. Total expenditures for year-----to----- \$-----
- 8. Daily per capita cost of institution----- \$-----
- 9. Total number of institutional days during year-----
- 10. Total number of beds:
 - (a) For children-----
 - (b) For employees-----
 - (c) Others-----

II. Social Statistics—Page 2.

PRESENT ENROLLMENT			ADDED TO ROLLS DURING YEAR				DROPPED FROM ROLLS DURING YEAR	
TYPES	Sub Total	TOTAL	TYPES	Sub Total		TOTAL	TYPES	
				New	Re-admitted		Returned to parents or guardians	Total
1. Number of Orphans			1. Committed by Juvenile Court				Returned to parents or guardians	
2. Number of Half Orphans			(a) Needy				Placed in free homes (Adopted / Not adopted)	
(a) Father living and known			(b) Wayward				Placed for service	
(b) Father living and whereabouts unknown			2. Transferred from Other Institutions				Transferred for adoption to placing out agencies	
(c) Mother living and known			(a) Needy				Transferred to other institutions	
(d) Mother living and whereabouts unknown			(b) Wayward				Transferred to Juvenile Court	
3. Both Parents Living			3. From Parents and Guardians				Left without permission	
4. Marital condition			(a) Needy				Otherwise discharged	
(c) Living together			(b) Wayward				Died	
(b) Separated			4. Other					
(c) Divorced father			TOTAL				TOTAL ALL DISMISSALS	
(d) Divorced mother								
(e) Deserted father								
(f) Deserted mother								
B. Parents public charges								
(a) Father in prison—State / County			Movement of Enrollment.....				to.....	
(b) Mother in prison—State / County			On rolls at beginning of year.....					
(c) Father insane—State / County			Added during year.....					
(d) Mother insane—State / County			Dropped from rolls during year.....					
4. Number Abandoned Children			On rolls at end of year.....					
TOTAL ALL TYPES			Greatest number cared for at any one time during year.....				Date.....	
Number of families involved in above tabulation			Least number cared for at any one time during year.....				Date.....	

AGES OF CHILDREN								
Sex	No.	Under 2 Years	2 to 5 Years	6 to 8 Years	9 to 11 Years	12 to 13 Years	14 to 15 Years	16 or Over
Boys								
Girls								
TOTAL								

II. Social Statistics—Page 3.

Terms of Admission:

- (a) Age limit.....
- (b) Sex
- (c) Rate of charge.....
- (d) Describe how investigation is made before receiving children not committed by Court:

System for finding homes for children and methods of supervision of these dismissed children:

If you affiliate with any other organizations for this purpose, give names of such organizations:

Remarks:

----- President
 ----- Secretary

REPORTING BLANK FOR CHILDREN'S INSTITUTIONS.

II. SOCIAL STATISTICS.

The State Board of Charities and Corrections wishes complete information as to the amount paid by state, county or relatives for each child in your institution in June, 19.... You need not give any names, but list the children and the amount of monthly payments by number.

Illustration :

1. Harry Jones, for whom is received \$6 state aid per month.
2. William Brown, for whom the county pays \$11 per month.
3. John Doe, for whom the parents pay \$10 per month.
4. George Black, for whom the county pays \$5 and the parents pay \$6 per month.
5. Frank James, for whom the county pays \$5 and the state pays \$6 per month.
6. Henry Blank, for whom no aid is received.

THE FOLLOWING IS THE METHOD OF PRESENTING THIS INFORMATION:

Number	State	County	Parent	No pay
1	\$6 00			
2		\$11 00		
3			\$10 00	
4		5 00	6 00	
5	6 00	5 00		
6				

Please write the name of your institution on every sheet of paper used in listing the children. We recommend that you keep a duplicate copy for your own files. Kindly send this information, together with your annual reports to the State Board of Charities and Corrections, 995 Market street, San Francisco, by August first.

STATE BOARD OF CHARITIES AND CORRECTIONS.

ANNUAL REPORT BLANK: DAY NURSERY.

Name of nursery.....
 Address.....
 Superintendent or matron.....
 Names and addresses of officers and members governing board:

List of employees:

Position	Salary
.....
.....

If a nurse is employed, specify whether trained or practical.

Population—July 1, 19...., to June 30, 19....

Total number of children (individual) cared for during year.....
 Aggregate attendance during year (addition of total daily attendance).....
 Number of families represented.....
 Largest number of children any one day..... Date.....
 Smallest number of children any one day..... Date.....
 Capacity of nursery.....

Admission requirements:
 Age limits.....
 Sex.....
 Race.....
 Rate of charge.....
 Investigation prior to admission..... By whom.....
 Describe method.....

Annual Report Blank: Day Nursery—Page 2.

Cash Receipts.

City aid.....
 County aid.....
 Subscriptions.....
 Donations.....
 Entertainments and benefits.....
 Nursery fees paid by parents.....
 All other.....

Total cash income for fiscal year.....

Money borrowed.....
 Balance of cash on hand at beginning of period.....

Total cash receipts plus cash balance on hand July 1, 19....

Estimated Cash Value of Donations.

Clothing.....
 Food.....
 Supplies.....
 Total.....

Cash Disbursements.

Food.....
 Water, light and fuel.....
 Telephone and telegraph.....
 Salaries.....
 Expense of raising funds.....
 Drugs and medical supplies.....
 Clothing.....
 Taxes, interest and insurance.....
 Repairs and improvements.....
 All other.....

Total cash disbursements.....

Balance of cash on hand at end of period.....

Total cash disbursements plus cash on hand June 30, 19....

Liabilities.

Indebtedness of institution:
 Indebtedness on real estate.....
 Unpaid current bills.....
 Other indebtedness.....

Total indebtedness of institution.....

Signed.....
 Treasurer

STATE BOARD OF CHARITIES AND CORRECTIONS

995 Market Street, San Francisco

RESCUE HOME: POPULATION REPORT.

Name of institution.....

Address..... City.....

Movement of population—July 1, 19...., to June 30, 19....

Girls.

Number in home July 1, 19....

Number admitted during year.....

Total passed out during year.....

Total in home June 30, 19....

Admissions During Year.

Committed by court.....

Committed by parents.....

Personal application.....

Otherwise admitted.....

Total.....

Dismissals During Year.

Discharged to court.....

Returned to parents or guardians.....

Positions or homes secured.....

Left without permission.....

Transferred to other institutions.....

Married.....

Died.....

Otherwise discharged.....

Total.....

Babies.

In home at beginning of year.....

Born in home during year.....

Admitted (with mothers).....

Other.....

Total in institution during year.....

Left with mothers.....

Died.....

Stillborn.....

Placed for adoption.....

Boarded out.....

Placed in other institutions.....

Total discharged during year.....

Total still in home at end of year (June 30, 19....)

What disposition is made of babies.....

Are babies placed for adoption.....

Methods of placing for adoption.....

STATE BOARD OF CHARITIES AND CORRECTIONS

995 Market Street, San Francisco

RESCUE HOME: FINANCIAL STATEMENT.

July 1, 19____, to June 30, 19____.

Name of institution _____
 Address _____ City _____

Cash Receipts.

State aid _____
 Court or county aid _____
 Sale of produce or handwork _____
 Subscriptions _____
 Endowments _____
 Donations _____
 Entertainments and benefits _____
 Maternity fees _____
 Board of inmates _____
 All other _____

Total cash income for fiscal year _____
 Money borrowed _____
 Balance of cash on hand at beginning of period _____

Total cash receipts plus cash balance on hand July 1, 1919 _____

Estimated Cash Value of Donations.

Clothing _____
 Food _____
 Supplies _____
 Total _____

Cash Disbursements.

Food _____
 Water _____
 Light and fuel _____
 Telephone and telegraph _____
 Salaries _____
 Collections expense _____
 Drugs and medical supplies _____
 Clothing _____
 Taxes, interest and insurance _____
 Repairs and improvements _____
 All other _____

Total cash disbursements _____
 Balance of cash on hand at end of period _____

Total cash disbursements plus cash on hand June 30, 19 _____

Liabilities.

Indebtedness of institution:
 Indebtedness on real estate _____
 Unpaid current bills _____
 Other indebtedness _____

Total indebtedness of institution _____

State of California, County of _____: ss.

_____, being duly sworn, deposes and says that he is the _____ of the _____, and that all information contained in the foregoing statement is true.

Subscribed and sworn to before me this _____ day of _____ 192__.

FORMS USED BY CHILDREN'S INSTITUTIONS AND AGENCIES
IN APPLYING FOR LICENSE OF STATE BOARD OF CHARITIES AND CORRECTIONS.

STATE OF CALIFORNIA
BOARD OF CHARITIES AND CORRECTIONS
995 Market Street, San Francisco

APPLICATION FOR LICENSE, CHILD-PLACING AGENCY.

- 1. Name of agency.....
- 2. Location
- 3. Under what auspices.....
- 4. When organized..... 5. Date of incorporation.....
- 6. Purpose of agency.....
- 7. Sources of support.....
- 8. Amount to be paid per child.....
- 9. What extras are provided.....
- 10. Sources from which children are received.....
- 11. What investigation is made prior to acceptance of children.....
- 12. How many children are now under your care.....
- 13. What provision is made for supervision of children placed out.....
- 14. What provision is made for medical care.....
- 15. Are children examined by a physician before placement
- 16. Is a mental test made before placement.....
- 17. Are children placed for adoption.....
- 18. Has the agency a receiving home..... 19. Location.....
- 20. Capacity
- 21. What records are kept.....

Application for License, Child-Placing Agency—Page 2.

Governing board: Title.....

Names and addresses of officers and members:
.....
.....
.....

How often does the board meet..... Where.....

Is the board divided into committees.....Number of committees.....

Names of Committees. Number of Members.

.....
.....
.....

Staff of agency:

Name	Position	Salary
.....
.....
.....

Date.....

Agency

Secretary

STATE OF CALIFORNIA
 BOARD OF CHARITIES AND CORRECTIONS
 995 Market Street, San Francisco

APPLICATION FOR LICENSE, CHILDREN'S INSTITUTIONS AND DAY
 NURSERIES.

Name of institution.....

Location

Under what auspices.....

When organized.....Date of incorporation.....

Purpose of institution.....

Sources of support.....Monthly charge per child.....

Types of children to be cared for.....

Number of children to be cared for.....Age limits.....

Population on this date.....Boys.....Girls.....Total.....

How is institution supported.....

Governing board: Title.....

Names and addresses of officers and members:

.....

How often does the board meet.....Where.....

Is board divided into committees.....Number of committees.....

Names of Committees.	Number of Members.
----------------------	--------------------

.....

Application for License, Children's Institutions and Day Nurseries—Page 2.

Name	Staff of Institution. Position	Salary
.....
.....
.....

Size and description of property:

Number, description and purpose of buildings:

Date.....(Name of institution)
(Secretary)

Have the premises been inspected by local health officer and written endorsement secured.....

STATE OF CALIFORNIA
BOARD OF CHARITIES AND CORRECTIONS

995 Market Street, San Francisco

FAMILY BOARDING HOME:
APPLICATION FOR LICENSE, CARE OF CHILDREN.

I, _____ hereby make application
for a license to board and care for _____ children; ages _____ to _____; sex _____;
at No. _____ street, in the city of _____
county of _____

Name of home (if any) _____
Age of applicant _____ Nationality _____ Religion _____
Previous experience in the care of children _____

Number in family _____; men _____; women _____; children _____; ages of children _____
Roomers or boarders _____; adults _____; children _____
Provision for medical supervision and care _____

Monthly income of family _____ Occupation of breadwinner _____

Place of occupation _____

The Home: Owned or rented _____ No. of rooms _____ No. of beds _____

Size of lot _____ Directions for reaching home _____

References (give name and address)

- 1. _____
- 2. _____
- 3. _____

Date of application _____ (Signed) _____

I (have) (have not) secured a written permit from the local health authorities.

In case no written permits are issued by the local health authorities, the following endorsement
must be signed by the health officer:

"After inspection of the above named premises, I hereby certify that they are
suitable for the reception and proper care of children."

(Signed) _____
Health Officer of _____

STATE OF CALIFORNIA
BOARD OF CHARITIES AND CORRECTIONS

995 Market Street, San Francisco

APPLICATION FOR LICENSE, MATERNITY DEPARTMENT.

The undersigned makes application for a license to receive maternity patients in (Maternity
Home) (Maternity Hospital) (General Hospital), located at _____
in the city of _____, county of _____
and represents as follows:

Name of institution _____

That the premises consist of _____

That the capacity of said home or hospital is _____ maternity patients.

That the average number of maternity patients per year is _____

That the name of organization or person conducting the said home or hospital is _____

Name and address of attending physician _____

*That the applicant (has) (has not) secured a permit from the local health authorities.

Date _____ Signed _____

Title _____

P. O. address _____

*In case no written permits are issued by the local health authorities, the following endorse-
ment must be signed by the local health officer:

"After inspection of the above-named premises, I hereby certify that they are
suitable for the reception, care and treatment of maternity patients."

Health Officer of _____

INSPECTION BLANKS FOR CHILDREN'S INSTITUTIONS USED BY AGENTS OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

INSPECTION BLANK FOR CHILDREN'S INSTITUTIONS.

NAME OF INSTITUTION		ADDRESS										
MATERIAL EQUIPMENT	NAME OF SUPERINTENDENT OF MATRON	SITUATION			HOUSING OF STAFF							
		Location	Grounds	How Used	Supervisors	Sleeping Rooms—					Stg.	Location
	Country Suburb	No. acres No. city blocks	Lawn Trees Flowers	Near carline Saloons Movies Candy shop School Church Fire house	Officers Employees	Dining Rooms— Officers Employees						
PLAN	City— Residential Factory Business	Spars covered by buildings	Vegetables Agriculture Play space		Separate Bath and Toilet— Officers Employees							
CAPACITY												

EXTERIOR	BUILDINGS										FIRE PROTECTION										GENERAL SYSTEMS									
	No.		Purpose		No. Stories		Material		Fire Escapes		Eating		Hose		Ladders		Heating		Ventilation		Plumbing									
	No.	Location	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material	No.	Material								
1																														
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														

INTERIOR	DINING ROOMS					KITCHENS					LAUNDRY—Equipment		PLAY ROOMS			
	No.		Location		Equipment		Size		Location		Equipment		Description		Equipment	
	No.	Location	Tables	Chairs	Stoves	Tables	Stoves	Refrigerators	Stoves	Refrigerators	Location	Equipment	No.	Location	Description	Equipment
1																
2																
3																
4																
5																

[Reverse of Page 1.]

(This page is for agent's statement, to include additional memoranda, general impressions, improvements noted, and definite recommendations for necessary changes.)

Inspection Blank for Children's Institutions—Page 2.

INTERIOR EQUIPMENT (CONTINUED)	DISABILITIES				BATHS				SINGLE ROOMS						
	No.		Location		No.		Equipment		No.		Location		Equipment		
	No.	Location	Widened	Clear Air Space	No.	Equipment	Bedding	No.	Location	Size	Equipment	No.	Location	Size	Equipment
1															
2															
3															
4															
5															
6															
7															
8															

GENERAL LIFE	DAILY ROUTINE		DIETARY		EDUCATION		RECREATION		RELIGIOUS EDUCATION		PHYSICAL CARE			
	Rising hour Retiring hour School hours Hand work hours Recreation hours Special hours Sneak hours Visitors' hours		Number of meals Standard diet Menus served Special diet table Per capita cost		Public High Grammar Primary Kindergarten Institutions— Different schools Study room School room Manual education Art education		No. play yards Outdoor play space Gymnasium Tennis c't Ball ground Accessories Band Skates Dancing Amusements Moving pictures Trips		Bible study Church history Worship Sunday school		Resident nurse Resident physician Visiting physician Specialist Dentist		Vaccination Examination on admission Examination, how often Examination at home Examination at school	
	Fire Drill How often?				Vocational Sewing Machinery Cooking Manual								Mention of Discipline	

PERSONAL CARE	CLOTHING		SHOES		HAIR, SKIN, TEETH		BATHS		SANITATION				
	Under Sweats Per Child— Material Made in institution? Uniform? Changed for seasons? Under Sweats Per Child— How often changed? Socks Per Child— How often changed? What is furnished by institution? Separate clothing rooms? Lockers? Location?		No. pairs per year Outside cobbler Resident cobbler		Individual— Tooth brushes Brushes Combs Towels Soap		No. per week Hot or cold Shower Tub		According to Age Sex Health Meal				
									At meals At work At play At school At night				

[Reverse of Page 2.]

Date of inspection ----- By -----

DAY NURSERY INSPECTION BLANK—Page 2.

Housing and equipment (continued)	System of lighting		System of heating		Isolation room		Clothes room	
Children	Admissions						Physical care	
	Age limits Is investigation made of homes By whom Fee required Religion		Do any children come in after school Do children come from school for lunch Fee for such children Average daily attendance				Are children bathed Is clothing changed What clothing is provided Individual toilet articles Care of diapers Care of bottles and nipples Is milk bottled and on ice Drinking water— Individual cups Fountains	
Health measures	Medical supervision						Diet	
	Name of attending physician Medical examination prior to admission Written report on file Regular medical examination of all children Cooperation with clinic What provision for dental care						Who prescribed feed of babies Who prepares milk formulas Menu for older children	
General	What records are kept Is employment for mothers maintained What cooperation with other social agencies Any follow-up or extension work						Social	
							Financial	
								Health

STATE BOARD OF CHARITIES AND CORRECTIONS
San Francisco, California

FACTORY DAY NURSERY INSPECTION BLANK.

Day nursery conducted by.....
Address of firm..... Location of nursery.....
Open during season beginning..... Ending.....
Open daily from..... a.m. to..... p.m.

Departments.

Nursery:
Size of room.....
Ventilation.....
Toilets..... Drinking fountain.....
Number and kind of beds.....
Condition of bedding.....
Linen furnished.....
Cleanliness of nursery.....
Who is in charge of nursery.....
Is she a trained woman.....

Kindergarten:
Size of room.....
Ventilation.....
Equipment.....
Occupation of older children.....
Kindergarten training.....

Playground:
Location.....
Size.....
Equipment.....

Age of Children Under Care at Time of Inspection.

One year and under..... One to three years..... Three to..... years
Average number of children cared for daily.....

Feeding.

Do mothers nurse babies..... How often.....
Who prescribed feeding.....
Who prepares the formulas.....
Any help to mothers about formulas.....
Who furnished milk.....
Is milk kept on ice.....
What care is given nursing bottles and nipples.....
Does the firm provide lunch for older children.....
Give sample menu for noon lunch for older children.....
.....
.....

General Remarks.

Is a fee charged.....
Is there any medical examination or care for children requiring such attention.....
Is there supervision by the local health officer.....
Occupation and hours of work of mothers.....
Inspected by..... Date.....

INSPECTION OF FAMILY BOARDING HOMES.

14127 12-31-500

Inspected by

File No.

Date

California State Board of Charities and Corrections

Inspection of Family Boarding Homes

NAME OF APPLICANT ADDRESS

DISTRICT CAR LINE PHONE

SCHOOL DISTANCE FROM HOME

HOUSEHOLD	NAME	AGE	HEALTH	RELIGION	RELATION TO HEAD	NATIVITY	OCCUPATION	MONTHLY INCOME
								Other
								Total

CHILDREN BOARDED	NAME	AGE	HEALTH	RELIGION	AMOUNT PAID	FROM WHOM RECEIVED	ADDRESS

Has applicant permit of Board of Health?

How are children secured?

Will applicant give entire time to care of children?

What medical care?

What items are kept in register?

Report of other agencies on applicant?

Number of children applied for Number recommended by Agent

[Reverse side of above page.]

Inspector's Remarks and Recommendations.

Inspection of Family Boarding Homes—Page 2.

HOUSING	House	YARD		No. of ROOMS	No. of BEDROOMS	GENERAL USES	LIGHT	HEAT	ENVIRONMENT	PLAY FACILITIES
		Size	Use							
	Flat							*	Factory district Residence Commercial Country	
	Apartment									
	Rented									
	Owned									

ROOM IN WHICH CHILD IS TO SLEEP	SIZE OF ROOM	NUMBER OF BENS	NUMBER OF OCCUPANTS	VENTILATION	WINDOWS			INDIVIDUAL BENCH, TOWEL, ETC.
					No.	Size	Opening or View	

SANITARY CONVENIENCES	PLUMBING	RUNNING WATER	TOILETS	BATHROOM	SINK	LAUNDRY TUBS	SCREENS	STORAGE FACILITIES
	Open	Hot	Number	Tubs				
	Closed	Cold	Kind	Stationary bowls				
	Sewer system		Location	Shower,				

DIETARY

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BOARD OF CHARITIES AND CORRECTIONS
STATE OF CALIFORNIA

RESCUE HOME AND MATERNITY HOSPITAL INSPECTION BLANK.

Inspected by.....

Date.....

Name of institution.....

Located at..... City..... County.....

Conducted by..... Superintendent.....

Building and equipment: Type of building.....

Lighting..... Maternity capacity.....

Heating..... Total capacity.....

Water system..... Separate maternity department.....

Fire protection.....

Private rooms: No..... Size..... Windows: No..... Size.....

Floors..... Walls..... Beds: No..... Type.....

Maternity wards: No..... Size..... Windows: No..... Size.....

Floors..... Walls..... Beds: No..... Type.....

Nursery: No..... Size..... Windows: No..... Size.....

Floors..... Walls..... Beds: No..... Type.....

Heating..... Care of diapers.....

Equipment.....

Separate delivery room: Location..... Size..... Lighting.....

Heating..... Floors..... Walls.....

Equipment.....

Means for sterilization.....

Dressings and medicines.....

Baths..... No..... Location..... Laundry tubs..... No.....

Hoppers..... No..... Location..... Bedding.....

Toilets..... No..... Location..... Linen.....

Sanitation..... Ventilation..... Plumbing.....

Provision for isolation.....

Disposal of garbage.....

Sewer or cesspool.....

Care of feeding equipment.....

Management: Charge \$..... Physician in attendance.....

Training of woman in charge..... Training school for nurses.....

What attention to infants' eyes at birth.....

Who prescribes feeding of infants.....

Illegitimate children..... Advertise adoption.....

Attitude toward separation of mother and child.....

Method of placing children for adoption.....

Local permit..... Records.....

Compliance with vital statistics law.....

Recommendations.....

INSTITUTIONS FOR

Name	Address	Superintendent	Location	Auspices
<i>Alameda County.</i>				
Fred Finch Orphanage.....	3670 Peralta avenue, Oakland	Mr. John W. Hagan....	Suburban	Methodist Episcopal Church.....
Ladies Relief Society of Oakland	393 Forty-fifth street, Oakland	Mrs. Frances Powell....	Urban.....	Board of directors.....
Mary R. Smith's Trust.....	Park boulevard and Cot- tage avenue, Oakland	Mrs. J. W. Green (clerk)	Urban.....	Trustees of Mary R. Smith trust.....
Saint Mary's Orphanage.....	Mission San Jose	Sister M. Gonzaga.....	Rural.....	Dominican Sisters.....
Tooker Memorial School.....	953 East Eleventh street, Oakland	Miss Emma H. Mills....	Urban.....	Women's Occidental Board of Foreign Missions of Presby- terian Church.....
West Oakland Home.....	907 1/2 Campbell's t r e e t, Oakland	Miss N. Goodrich.....	Urban.....	Board of directors.....
<i>Kern County.</i>				
Kern County Children's Shelter	920 Twentieth street, Bakersfield	Mrs. Elizabeth C o o l- baugh	Urban.....	Board of directors.....
<i>Los Angeles County.</i>				
Boys' and Girls' Aid Society of Los Angeles County	815 Mission street, South Pasadena	Mrs. M. E. Grimes.....	Suburban	Board of directors.....
Church Home for Children.....	940 North Avenue Sixty- four, Los Angeles	Deaconess Evelyn Wile..	Suburban	Protestant Episcopal Church.....
David and Margaret Home.....	La Verne	Miss Flora A. Rice.....	Rural.....	Women's Home Mision- ary Society of the Methodist Episcop- al Church.....
Frances M. DePauw Spanish School	4970 Sunset boulevard Los Angeles	Miss Jennie Mathias...	Urban.....	Women's Home Mision- ary Society of the Methodist Episcop- al Church.....
Japanese Children's Home of Southern California	1841 Redcliff street, Los Angeles	Mrs. Kame Muraoka...	Urban.....	Board of directors.....
Japanese Sisters' Home.....	425 South Boyle avenue Los Angeles	Rev. Albert Breton.....	Urban.....	Catholic Church.....
Jewish Orphans' Home of Southern California	632 Irvington avenue Huntington Park	Dr. Sigmund Frey.....	Suburban	Federation of Jewish Charities.....
Kiddie Koop.....	641 East Twenty-eight street, Los Angeles	Miss Eula L. Wilson....	Urban.....	Board of directors.....
Lark Ellen Home for News and Working Boys	1941 Isabel street, Los Angeles	Miss Jessie White.....	Suburban	Board of directors.....
Los Angeles Orphan Asylum...	917 South Boyle avenue Los Angeles	Sister Cecilia.....	Urban.....	Sisters of Charity.....
Los Angeles Orphans' Home.....	815 El Centro avenue Los Angeles	Mrs. Charlotte V. V. Fisher	Urban.....	Board of directors.....
Masonic Home of California.....	Covina	Mr. Knight.....	Rural.....	Masonic Grand Lodge of California.....
Maud B. Booth Home for Boys and Girls	451 South Boyle avenue Los Angeles	Major May Sprague....	Urban.....	Volunteers of America
McKinley Industrial School.....	Gardena	Dr. W. Franklin Jones..	Rural.....	Board of directors.....
Mission Home for Mexican Girls	545 Pasadena street, Whittier	Miss Mary Chapman...	Suburban	Friends' Church.....
Pasadena Children's Training Home	Wilson avenue and Del- mar street, Pasadena	Miss Emma M. Conley..	Urban.....	Board of directors.....
Regina Coeli Orphan Asylum...	610 North Hill street, Los Angeles	Mother Cherubina Botti.	Urban.....	Missionary Sisters of the Sacred Heart....
Saint Vincent's Infant Home.....	1044 North Mariposa avenue, Los Angeles	Miss Nellie McNeil....	Urban.....	Bureau of Catholic Charities.....
<i>Marin County.</i>				
Presbyterian Orphanage and Farm	San Anselmo.....	Dr. Andrew Beattie....	Suburban	Presbyterian Church..
Saint Vincent's Orphan Asylum	Saint Vincent's.....	Brother Vellesian.....	Rural.....	Christian Brothers....
<i>Mendocino County.</i>				
Albertinum Orphanage.....	Ukiah	Sister M. Hyacinth.....	Suburban	Dominican Sisters.....
<i>Nevada County.</i>				
Grass Valley Orphan Asylum...	Grass Valley.....	Sister Mary Francis....	Suburban	Sisters of Mercy.....

NEEDY CHILDREN.

Plan	Capacity	Admission requirements			Monthly rate of charge	Education
		Type of children admitted	Sex	Age limits		
Congregate.....	116	Needy.....	Both.....	5 to 13 years...	\$20.00	Public grammar school.
Congregate.....	110	Needy.....	Both.....	Infancy to 14 years	\$5.00 to \$17.50	Public grammar and high schools.
Cottage.....	72	Needy orphans and half orphans	Girls.....	Infancy to 13 years	No charge	Public grammar and high schools. Advanced ed.
Congregate.....	165	Needy.....	Girls.....	3 to 15 years...	\$20.00	Grammar school in institution.
Congregate.....	45	Chinese.....	Girls..... Boys.....	2 to 12 years... 2 to 5 years	Varies	Public grammar schools. Chinese taught in institution.
Congregate.....	100	Needy.....	Both.....	1 to 10 years...	\$12.00	Public grammar school.
Congregate.....	51	Needy.....	Boys..... Girls.....	3 to 12 years... 3 to 18 years	\$15.00	Public grammar and high schools.
Cottage congrega- te	125	Needy.....	Both.....	2 to 15 years...	\$12.50	Public grammar and high schools.
Cottage.....	28	Needy.....	Both.....	None.....	\$20.00	Public grammar and high schools.
Congregate.....	87	Needy.....	Both.....	3 to 12 years...	\$11.00 to \$15.00	Public grammar school.
Congregate.....	59	Mexican and Span- ish American	Girls.....	6 and over.....	\$8.00	Grammar school in institu- tion.
Congregate.....	40	Japanese.....	Both.....	None.....	\$20.00 to \$30.00	Public grammar school.
Congregate.....	30	Japanese.....	Both.....	2 to 12 years...	\$20.00	Parochial grammar school.
Congregate.....	105	Needy Jewish.....	Boys..... Girls.....	2½ to 15 years... 2½ and over...	Not fixed	Public grammar and high schools.
Congregate.....	25	Needy.....	Boys..... Girls.....	1 to 6 years... 1 to 14 years...	\$32.00	Public grammar and high schools.
Congregate.....	20	Needy.....	Boys.....	8 to 14 years...	\$20.00	Public grammar and high schools.
Congregate.....	400	Needy.....	Girls.....	2 to 14 years...	0 to \$20.00	Grammar school in institu- tion.
Congregate.....	105	Needy.....	Boys..... Girls.....	2 to 12 years... 2 to 14 years...	\$15.00	Public high and grammar schools.
Congregate.....	132	Orphans and half or- phans of Masons.	Both.....	None.....	None	Public high and gramma schools.
Congregate.....	110	Needy.....	Both.....	2 to 16 years...	Not fixed	Public grammar and high schools.
Congregate.....	128	Needy.....	Boys.....	7 to 16 years...	\$12.50	Public high and grammar schools.
Congregate.....	20	Mexican.....	Girls.....	4 to 12 years...	\$5.00	Public grammar school.
Cottage.....	69	Needy.....	Boys..... Girls.....	2 to 10 years... 2 to 12 years...	\$12.50	Public grammar school.
Congregate.....	172	Needy children of Latin races	Girls.....	3 to 11 years...	0 to \$15.00	Grammar school in institu- tion.
Congregate.....	16	Needy.....	Both.....	To 2 years.....	\$30.00	-----
Congregate.....	130	Needy.....	Both.....	2 to 15 years...	Not fixed	Public grammar and high schools. Primary on prem.
Congregate.....	525	Needy and wayward	Boys.....	7 to 15 years...	\$15.00 to \$20.00	Grammar school in institu- tion.
Congregate.....	170	Needy.....	Boys.....	4 to 14 years...	\$20.00	Grammar school in institu- tion.
Congregate.....	200	Needy.....	Both.....	18 months to 15 years	\$12.50 to \$25.00	Grammar and high schools in institution.

INSTITUTIONS FOR

Name	Address	Superintendent	Location	Auspices
<i>Orange County.</i> Saint Catherine's Orphanage...	Anaheim.....	Sister M. Hedwig.....	Suburban	Dominican Sisters.....
<i>Sacramento County.</i> Sacramento Orphanage and Children's Home	3800 Franklin boulevard, Sacramento	Miss Lillian Loranger...	Suburban	Board of directors.....
Stanford Lathrop Memorial Home	800 N street, Sacramento	Sister Mary Theresa.....	Urban	Sisters of Mercy.....
<i>San Diego County.</i> Boys' and Girls' Aid Society...	4285 Third street, San Diego	Mrs. Florence A. Rood...	Suburban	Board of directors.....
Helping Hand Children's Home	2245 G street, San Diego	Mrs. Frank Chase.....	Urban	Board of directors.....
San Diego Children's Home....	Sixteenth and Ash streets, San Diego	Mrs. Genevieve B. Miles	Urban	Board of directors.....
Imperial Children's Home.....	3674 Villa Terrace, San Diego	Miss Anna Buckner.....	Urban	Board of directors.....
<i>San Francisco County.</i> Ellen Stark Ford Home.....	2025 Pine street, San Francisco	Mrs. H. E. Lincoln.....	Urban	Women's Home Mis- sionary Society of the Methodist Epis- copal Church.....
Infant Shelter.....	1025 Shotwell street, San Francisco	Miss Elizabeth Clark...	Urban	Board of directors.....
Maria Kip Orphanage and Al- fred Nuttall Nelson Memoria Home.....	720 Forty-first avenue..	Mother Gertrude Paul...	Urban	Episcopal Church.....
McKinley Orphanage.....	San Francisco 3841 Nineteenth street, San Francisco	Mrs. L. R. Courneen...	Urban	Methodist Episcopal Church.....
Oriental Methodist Episcopal Home	940 Washington street, San Francisco	Mrs. Edith Lesley.....	Urban	Women's Home Mis- sionary Society of the Methodist Epis- copal Church.....
Pacific Hebrew Orphan Asylum	Ocean avenue and Faxon street, San Francisco..	Dr. Samuel Langer.....	Urban	Federation of Jewish Charities.....
Presbyterian Mission Home....	920 Sacramento street, San Francisco	Miss Donaldina Cameron	Urban	Woman's Occidental Board Foreign Mis- sions of Presbyterian Church.....
Roman Catholic Orphan Asylum	Bayview and Newhall streets, San Francisco..	Sister Helena.....	Urban	Sisters of Charity.....
Saint Andrew's Inn.....	2840 Twenty-fifth street, San Francisco	Rev. George Maxwell...	Urban	Episcopal Church.....
San Francisco Ladies' Protec- tion and Relief Society's Home.	1200 Franklin street, San Francisco	Miss Ida V. Graham.....	Urban	Board of directors.....
San Francisco Nursery for Homeless Children	Fourteenth avenue and Lake street, San Fran- cisco	Mrs. D. Duff.....	Urban	Board of directors.....
San Francisco Protestant Or- phan Asylum.....	520 Lake street, San Francisco	Mr. C. W. Mark.....	Urban	Board of directors.....
Youths' Directory.....	Nineteenth and Church streets, San Francisco	Rev. D. O. Crowley.....	Urban	Catholic Church.....
<i>San Joaquin County.</i> Children's Home of Stockton..	340 North Pilgrim street, Stockton	Miss C. G. Patterson...	Urban	Board of directors.....
<i>Santa Barbara County.</i> Saint Vincent's Institution.....	925 De la Vina street, Santa Barbara	Sister Vincent.....	Urban	Sisters of Charity.....
<i>Santa Clara County.</i> Home of Benevolence.....	11th and Martha streets, San Jose	Mrs. A. M. Skidmore...	Suburban	Board of directors.....
Independent Order Odd Fellows Orphans' Home	Gilroy.....	Mrs. Susie J. Harris.....	Suburban	Independent Order Odd Fellows.....
<i>Santa Cruz County.</i> Santa Cruz Female Orphan Asylum	Santa Cruz	Sister Mary Agnes.....	Urban	Sisters of Charity.....
Saint Francis Orphan Asylum..	Watsonville	Rev. Louis Galli.....	Rural	Salesian Fathers.....
<i>Sonoma County.</i> Boys' and Girls' Industrial Home and Farm	Lytton.....	Lieut.-Col. A. Smeeton..	Rural	Salvation Army.....

NEEDY CHILDREN—Continued.

Plan	Capacity	Admission requirements			Monthly rate of charge	Education
		Type of children admitted	Sex	Age limits		
Congregate	143	Needy	Boys	6 to 12 years	\$20.00 to \$25.00	Grammar school in institution.
Cottage-congregate	300	Needy	Both	Infancy to 15 years	\$20.00	Public grammar school on premises.
Congregate	60	Needy	Girls	5 to 16 years	Not fixed	Private grammar and high schools.
Congregate	38	Needy and wayward	Both	3 to 14 years	\$17.50	Public grammar school.
Congregate	52	Needy	Both	Infancy to 16 years	\$12.50	Public grammar school.
Congregate	110	Needy	Both	3 months to 14 years	Varies	Public grammar school.
Congregate	24	Needy	Both	2 to 13 years	\$15.00	Public grammar school.
Congregate	46	Needy Japanese and Korean children	Boys	Infancy to 5 years	\$20.00	Public grammar and high schools.
			Girls	Infancy to 18 years		
Congregate	41	Needy	Both	Infancy to 6 years	\$20.00	
Congregate	22	Needy	Girls	Over 6 years	\$30.00	Public grammar and high schools. Higher education.
Congregate	40	Needy	Both	3 to 14 years	\$17.50	Public grammar and high schools.
Congregate	50	Needy Chinese	Girls	None	\$20.00	Public grammar and high schools. Higher education.
Congregate	200	Needy	Both	4 to 13 years	Not fixed	Public grammar and high schools.
Congregate	50	Needy Chinese	Boys	To 7 years	Not fixed	Public high and grammar schools.
			Girls	No age limits		
Congregate	500	Needy	Girls	4 to 15 years	\$15.00	Grammar school on premises. Private high school
Congregate	47	Needy	Boys	7 to 18 years	\$23.00	Public high and grammar schools.
Congregate	120	Needy	Both	3 to 8 years	\$15.00	Public grammar school.
Congregate	90	Needy	Both	3 to 14 years	\$22.50	Public grammar and high schools.
Congregate	124	Needy orphans and half orphans	Both	2 to 10 years	Not fixed	Public grammar and high schools.
Congregate	67	Needy and wayward	Boys	7 to 18 years	Not fixed	Public grammar school.
Congregate	54	Needy	Both	4 to 12 years	\$15.00	Public grammar school.
Congregate	125	Needy	Boys	2 to 6 years	\$15.00	Grammar school in institution. Public high school.
			Girls	2 years and over		
Congregate	80	Needy	Both	3 to 14 years	\$17.50	Public grammar and high schools.
Congregate	100	Needy orphans and half orphans of members of Ind-pdt. Or.Odd Fels.	Both	Infancy to 14 years	None	Public grammar and high schools.
Congregate	125	Needy	Girls	5 to 17 years	\$22.50	Grammar and high schools in institution.
Cottage-congregate	150	Needy	Boys	6 to 16 years	\$20.00	Grammar school in institution.
Congregate	200	Needy and wayward	Boys	8 to 14 years	\$20.00	Public grammar school on premises.
			Girls	8 to 12 years		

DAY

Name	Address	Superintendent	President of board of directors
<i>Alameda County.</i>			
Berkeley Day Nursery.....	Seventh and Addison streets, Berkeley	Mrs. Gertrude B. Middleton	Mrs. F. Slate.....
Saint Vincent's Day Home.....	086 Eighth street, Oakland	Sister M. de Sales.....	Mother Theresa.....
<i>Fresno County.</i>			
Fresno Day Nursery.....	502 D street, Fresno.....	Mrs. Clara Bizant.....	Mrs. J. O. Cross.....
<i>Los Angeles County.</i>			
Boss Overall Factory Day Nursery.....	1142 San Julian street, Los Angeles	Mrs. Martin.....	Mr. L. Goldwater (treasurer).....
King's Daughters' Day Nursery.....	132 North Clarence street, Los Angeles	Mrs. Jennie C. Harrison.....	Mrs. Anna K. Mosher.....
Long Beach Day Nursery.....	805 Alamitos avenue, Long Beach	Miss Florence E. Fisher.....	Mrs. Fred Bixby.....
Mother Cabrini's Day Home.....	1412 Mateo street, Los Angeles	Sister Eufemia.....	Mother Cherubina Botti.....
Pasadena Day Nursery.....	88 Garfield avenue, Pasadena	Mrs. Adelaide McKinlock.....	Mrs. Mary Mason.....
Salvation Army Day Nursery.....	815 Crocker street, Los Angeles	Adjutant Lillie M. Rogers.....	Commissioner Adam Gifford (for western territory).....
Saint Elizabeth Day Nursery.....	135 North Anderson street, Los Angeles	Mrs. Nellie C. Peyton.....	Mrs. J. P. Farrell.....
Woman's Day Nursery.....	1373 East Eighteenth street, Los Angeles	Mrs. Cora Cranshaw.....	Mrs. S. Jones.....
<i>Orange County.</i>			
Ebell Day Nursery.....	311 East Fifth street, Santa Ana	Mrs. Paul Wright.....	Mrs. Arthur Lyon.....
<i>Riverside County.</i>			
City Home League Day Nursery.....	177 West Fourteenth street, Riverside	Miss Estelle Bothwell.....	Mrs. A. N. Wheelock.....
<i>San Bernardino County.</i>			
Redlands Day Nursery.....	626 Orange street, Redlands	Mrs. M. Smith.....	Mrs. Halsey W. Allen.....
<i>San Francisco County.</i>			
Canon Kip Memorial Mission Day Nursery.....	246 Second street, San Francisco	Miss Edith Fox.....	Mrs. E. L. Griffith.....
Community Day Nursery.....	1015 Shotwell street, San Francisco	Miss Katherine Anderson.....	Dr. A. C. Stevens.....
Holy Family Day Home.....	299 Dolores street, San Francisco	Sister M. Philomena.....	Mother Theresa.....
Saint Francis Day Home.....	1441 Powell street, San Francisco	Sister M. Aloysius.....	Mother Theresa.....
<i>San Joaquin County.</i>			
Stockton Day Nursery.....	1440 East Main street, Stockton	Mrs. R. J. DeLong.....	Mrs. Edward S. Munford.....
<i>Santa Clara County.</i>			
Saint Elizabeth's Day Home.....	136 Vine street, San Jose.....	Sister M. Clare.....	Sister Theresa.....
San Jose Children's Day Nursery.....	165 Devine street, San Jose.....	Mrs. M. Simonds.....	Mrs. William Bogen.....
<i>Ventura County.</i>			
Santa Paula Day Nursery.....	Santa Paula.....	Mrs. E. Cooper.....	Mrs. F. A. Shipley.....

NURSERIES.

Auspices	Capacity	Daily rate of charge	Admission requirements.		
			Sex	Age limits	Race
Board of directors.....	75	\$0.15	Both....	6 months to 11 years	All except Japanese.
Sisters of the Holy Family.....	100	Not fixed	Both....	1½ to 10 years (boys) 1½ to 14 years (girls)	White and black.
Board of directors.....	45	\$0.25	Both....	3 months to 7 years	All.
Cohn-Goldwater Company.....	40	None	Both....	Must be able to walk.	White.
Kings Daughters.....	60	\$0.10	Both....	3 months to 9 years	All.
Board of directors.....	50	\$0.15 for infant \$0.10	Both....	1 to 10 years	All.
Missionary Sisters of the Sacred Heart.....	45	\$0.20	Both....	40 days to 6 years	White, including Mexican.
Board of directors.....	75	\$0.05 to \$0.50	Both....	1 month to 12 years	All.
Salvation Army.....	15	\$0.10	Both....	2 to 12 years	White.
Affiliated with Bureau of Catholic Charities.	100	\$0.10 for 1 \$0.25 for 3 or 4	Both....	3 months to 10 years	All.
Board of directors.....	12	\$0.25	Both....	7 months to 7 years	Colored.
Ebell Club of Santa Ana.....	10	\$0.25	Both....	1 to 10 years	White.
City Home League.....	18	\$0.15 to \$0.30	Boys.... Girls....	1 to 6 years 1 to 10 years	All.
Board of directors.....	40	\$0.10 to \$0.25	Both....	1 to 12 years	All.
Episcopal Church.....	75	\$0.10 to \$0.15	Both....	3 months to 8 years	All.
Protestant Churches of Mission District....	60	\$0.50 to \$1.00 weekly	Both....	14 months to 6 years	All.
Sisters of the Holy Family.....	200	Not fixed	Both....	1½ to 10 years (boys) 1½ to 14 years (girls)	White.
Sisters of the Holy Family.....	200	Not fixed	Both....	1½ to 10 years (boys) 1½ to 14 years (girls)	White and black.
Board of directors.....	25	\$0.20 to \$0.50	Both....	2 to 10 years	White.
Sisters of the Holy Family.....	100	Not fixed	Both....	1½ to 10 years (boys) 1½ to 14 years (girls)	White.
Board of directors.....	40	\$0.10 to \$0.25	Both....	6 months to 12 years	All.
Board of directors.....	20	\$0.10	Both....	6 months to 10 years	All.

RESCUE

Name	Address	Superintendent	President of board of directors
<i>Alameda County.</i>			
Rest Cottage.....	2107 Thirteenth avenue, Oakland	Mrs. F. A. Reed.....	Mr. Z. E. Bells.
Salvation Army Rescue and Maternity Home	5205 Underwood avenue, Oakland	Commandant Nora Hudspeth	Commissioner Adam Gifford (for western territory).....
<i>Los Angeles County.</i>			
Florence Crittenden Home.....	234 East avenue Thirty-three, Los Angeles	Mrs. Mary B. Whirlow....	Dr. A. J. Scott.....
Salvation Army Truelove Home....	2670 North Griffin avenue, Los Angeles	Major M. Louise Coggeshall	Commissioner Adam Gifford (for Western territory).....
<i>Sacramento County.</i>			
Peniel Rescue Home.....	Route 4, box 290, Sacramento	Mrs. M. L. Richardson....	Mrs. M. P. Ferguson.....
<i>San Diego County.</i>			
Girls' Home of San Diego.....	729 Twentieth street, San Diego	Mrs. C. C. Shearer.....	Mrs. M. E. Armstrong....
<i>San Francisco County.</i>			
Florence Crittenden Home.....	376 Twentieth avenue, San Francisco	Miss Mary L. Mullen.....	Mrs. Mary T. Gamage....

HOMES.

Auspices	Location	Capacity	Admission requirements		Monthly rate of charge
			Age limits	Other	
Nazarene Rescue Association	Suburban	17 girls	None	None	None.
Salvation Army	Suburban	30 girls	To 25 years	None	Varies. Confinement \$30.00.
National Florence Crittenden Mission	Urban	30 girls 25 babies	None	White race. Clean bill of health	Varies.
Salvation Army	Urban	30 girls 15 babies	None	Must promise to remain 3 months	Varies. Confinement \$35.00.
Peniel Rescue Association	Rural	30 girls 20 babies	None	None. Wish girls to promise to stay 3 months	Varies.
Door of Hope	Suburban	25 girls 10 babies	14 to 35 years	White race, including Mexicans. Clean bill of health	Varies.
National Florence Crittenden Mission	Urban	14 girls 14 babies	To 30 years	Free from venereal disease and not feeble-minded	Varies.

REPORT OF AGENT FOR JUVENILE COURTS.

During this period the board has begun a separate department, with a special agent to give attention to the problems of the wayward child. The work of the juvenile courts, a group of institutions caring for wayward children, the plans and policies of the 24 detention homes in the counties, and the standardization of forms and records for probation officers have been some problems given careful consideration.

1. SPECIAL STUDY OF NINE DETENTION HOMES.

With the purpose of determining whether the detention home is a necessary institution and, if so, what its proper function should be, special agents of the State Board of Charities and Corrections made a study of nine counties. The report of this special study is on file at the office of the State Board of Charities and Corrections and is available for the use of any person with legitimate interest in probation and juvenile court work. From this study and from subsequent observations the following conclusions were drawn:

A. There is a lack of agreement among the counties as to the proper function of a detention home. There is no established policy on the following essential matters:

First—As to type of persons to be detained. In some instances adults, including the sick and blind, have been cared for with the children. In a few counties dependent as well as delinquent children are placed in the detention home.

Second—As to purpose of detention. In some of the nine counties the detention home is used for correctional purposes; children are committed to the home for a definite period. In a number of counties the home is used for dependent children and resembles an orphanage rather than a detention home. In some counties it is used as a place for temporary detention of delinquent minors pending examination and final disposition of the court.

B. There is lack of necessary equipment for medical examination and scientific research.

C. There is no uniformity regarding location of detention homes and their relation to the court and probation office.

First—Detention homes in some counties are located on county hospital grounds. This proximity with the county indigents is undesirable.

Second—Detention homes in some of the counties are long distances from the court and probation office and not easily accessible.

Juvenile Court and Probation

This State is the Friend of the Child and Provides for its Care when in trouble through

Aids to Diagnosis

- Public Schools, through Nurses, Teachers, Attendance Officers
- Physicians
- Psychologists
- Clinics
- Relief Agencies, Community Centers, Playgrounds and other Social Service Organizations
- Churches

The Juvenile Court
The Judge of the Juvenile Court who decides on the treatment of the Child

The Probation Officer who collects facts and befriends the Child

The Detention Home which provides opportunity to observe and protect the Child

The Probation Committee which maintains through its contacts the community's interest in the Child

Aids in Treatment

- Probation Officers in 35 Counties befriend and supervise children on probation
- Three State Schools offer training to delinquent boys and girls
- Two State Institutions provide care and protection to the mentally defective
- 6 Private and Semi-Public Correctional Institutions for wayward wards of the Court
- Parental Schools
- 60 Children's Institutions care for Needy wards of the Court
- Supervised Boarding homes for wards of the Court

How is your county using these resources in the care and protection of children

A. INSTITUTIONS FOR

Name	Address	Superintendent	Auspices
<i>Alameda County.</i> California Girls' Training Home.....	520 Lincoln avenue, Alameda	Mrs. A. G. Douglas.....	Board of directors.....
Saint Catherine's Home and Training School	901 Potrero avenue, San Francisco	Sister Mary Emmanuel.....	Sisters of Mercy.....
<i>Los Angeles County.</i> Convent of the Good Shepherd.....	1312 Arlington avenue, Los Angeles	Mother Julitta.....	Sisters of the Good Shepherd.....
<i>Ventura County.</i> California School for Girls.....	Ventura.....	Dr. Olive P. Walton.....	State of California.....

B. INSTITUTIONS FOR

Name	Address	Superintendent	President of board of directors
<i>San Bernardino County.</i> California Junior Republic.....	Chico.....	Mr. Homer W. Charles....	Board of directors.....
<i>San Francisco County.</i> Boys' Aid Society.....	460 Baker street, San Francisco	Mr. George C. Turner....	Board of directors.....
Strickland Home for Boys.....	776 Eagle Rock avenue, Los Angeles	Mr. F. J. King.....	Board of directors.....
Whittier State School.....	Whittier.....	Mr. Fred C. Nelles.....	State of California.....
<i>Amador County.</i> Preston School of Industry.....	Waterman (Railroad station Ione)	Mr. O. H. Close.....	State of California.....

WAYWARD GIRLS.

Location	Capacity	Sex	Admission requirements		Monthly rate of charge	Education
			Age limits	Other		
Urban....	50	Girls.....	10 to 18 years....	On commitment or from parents. Must have clean bill of health	\$17.50 or \$20.00	Public grammar school in institution. Commercial and vocational.
Urban....	93	Girls.....	14 to 21 years....	On commitment or from parents	\$17.50	Grammar school in institution. Commercial and vocational. Music.
Urban....	121	Girls.....	8 to 21 years....	On commitment or from parents	\$15.00	Grammar school in institution. Commercial and vocational. Music.
Rural....	160	Girls.....	8 to 21 years....	On commitment.....	\$20.00	Grammar and high schools in institution. Vocational.

WAYWARD BOYS.

	Capacity	Sex	Admission requirements		Monthly rate of charge	Education
			Age limits	Other		
Rural....	85	Boys....	14 to 18 years.....	On commitment or from parents. Must be of normal mentality. White race. Finished sixth grade	\$20.00 or \$25.00	Public grammar and high schools on premises. Vocational.
Urban....	150	Boys....	10 to 14 years....	On commitment or from parents	\$20.00	Public grammar school in institution.
Suburban..	45	Boys....	7 to 14 years.....	On commitment or from parents	\$20.00	Public grammar school.
Rural....	275	Boys....	8 to 16 years.....	On commitment.....	\$20.00	Grammar school in institution. Vocational.
Rural....	375	Boys....	16 to 21 years....	On commitment.....	\$20.00	Grammar and high schools. Vocational.

D. There is no accepted form of detention home records. Therefore an effort should be made, to standardize detention home administration along the lines of—

Limitation of the scope of the work. This would mean restricting the detention home to the care of children awaiting final disposition. The period should be long enough for medical, mental and social diagnosis. There is a need for special institutions in the state to care for children with venereal diseases.

2. STANDARDS FOR DETENTION HOMES.

The findings of the above mentioned study, together with subsequent work in detention homes in the state, and the careful consideration of plans for the alteration of old buildings or the construction of new ones to be used for detention of minor delinquents in ten or more counties during the past eighteen months, has demonstrated the need for the establishment of certain general principles covering construction and size of detention homes, with special reference to the supervision, segregation and proper care of the children. To meet this need the following standards have been adopted by the board for the guidance of county officials in providing adequate and satisfactory care for delinquent children awaiting final disposition.

GENERAL PRINCIPLES REGARDING THE CONSTRUCTION AND OPERATION OF JUVENILE DETENTION HOMES.

In sending out the following general principles regarding detention home construction and supervision, the State Board of Charities and Corrections understands they will be subject to some modification to meet the peculiar needs of each county. The location of the home, the probation office and the court room will often depend on local considerations.

In the main, however, these principles should be applicable in any county large enough to maintain a detention home.

It will, however, be noted that these standards do not contemplate the care in detention homes of the child who is dependent only, except on an emergency basis. Therefore, many features indispensable to the home for the more or less permanent care of needy children have been purposely omitted as unimportant and involving unnecessary expense. A detention home should in no case be an orphanage.

A. Purpose of the Detention Home.

1. For temporary custody only of court wards. By temporary is meant sufficient time for social investigation, mental and physical examination and treatment and proper disposition of the child.

2. Dependent children should be cared for in the detention home only in emergency, for the shortest time possible, until placed in family boarding homes, suitable children's institutions or normal family life.

B. Location of the Detention Home.

1. Juvenile court sessions should be held in the detention home if possible and in any case should be readily accessible to court officials and parents.

2. The State Board of Charities and Corrections disapproves of the county hospital site as a location for detention home, especially when combined with custodial care of indigents, where children are subject to contact with custodians and ambulatory patients who frequently come from defective, vagrant and criminal classes.

C. Size of the Detention Home.

1. The size should be based upon a careful consideration of the population of the county, previous number of children passing through the juvenile court and a preliminary study of the county by a person with knowledge of the needs and use of detention homes in similar communities.

2. Growing needs of the community may be met by building the home on the unit plan.

3. The site should be sufficiently large to provide for adequate recreation courts.

D. Probation Office.

1. The Juvenile Court Law contemplates conducting children's cases with the minimum of publicity. Privacy is obtained with difficulty in the average courthouse where juvenile hearings are frequently held.

2. The best practice provides for the probation office in the detention home. The office thus located facilitates investigation and study of the child's problem and should make for the most satisfactory disposition of the child.

3. This arrangement is also economically advantageous.

E. Segregation.

1. The building should be so arranged and used that communication of all kinds between boys and girls will be impossible. We realize this precludes the possible practice of allowing the older delinquent girls to have charge of younger dependent children, but believe the gain outweighs any advantage in service.

2. The best detention home plans show bedrooms, play rooms and courts for boys and girls on opposite sides of the building.

3. The state board approves of single bedrooms only for delinquent children in detention homes, as contrasted with dormitories or rooms that can be used to accommodate more than one child.

4. The door to each room must be provided with a glass window 6 by 10 inches to provide for proper supervision of rooms.

5. There should be one strong room for boys and one for girls, each provided with toilet facilities and running water. This equipment should be of the type used in the best institutions for detention.

6. If children are locked in rooms at night, or at other times, in buildings that are not fireproof, an unlocking device should be installed.

F. Physical Care of Children.

1. A room or rooms should be provided to care for sick or infected children. A physician's room, properly equipped for mental and physical examination and treatment is necessary.

2. A receiving room should be provided for the isolation of all children entering the detention home until after medical examination.

3. The best practice provides dental care for the children. In the larger counties it is often most satisfactory to install a dental chair.

4. Showers are preferable to tub baths, in cases of all but the younger children.

G. Supervision.

1. The arrangement of the rooms should permit of adequate and economical supervision.

2. All bedrooms on a floor should be adjacently placed and open on a single corridor. Each door should be provided with a 6 by 10 inch glass window. When there are doorways on both sides of corridor they should be staggered to prevent communication between children. Doors should open out to prevent barricading from the inside.

3. There should be at night one supervising officer on each floor for boys and one for girls. Adequate supervision should be provided for the children at all times.

4. There should be no closets in bedrooms. A dressing room for each group should be provided with lockers and be placed convenient to bedrooms, showers and toilet facilities.

H. Detention.

1. Adequate protection for windows, doors, transoms, courts and yards must be provided.

I. Recreation.

1. There should be at least two courts or yards for boys and two for girls so that proper segregation can be maintained between groups of children.

3. TYPES OF BUILDINGS USED FOR DETENTION HOMES, WITH LIST OF COUNTIES USING EACH TYPE.**a. Specially designed building for this purpose.**

1. Alameda County has a comparatively new detention home, with provision for complete segregation of the children by sex, health, age and moral history. Medical examination is given upon admission. Mental tests and personal follow-up work make possible the proper disposition of the child.

2. San Francisco County's detention home is a modern, fireproof structure. It is unique in its plan, being five stories in height and having very little ground space for recreation. There is provision for segregation of the children by sex, age, health and moral history. Medical examination and medical treatment form a special feature of this institution. A psychological clinic is held regularly and efforts made to fit the child into its proper place in the community or in an institution.

3. Los Angeles County is adding to its detention home, known as "Juvenile Hall." There have been many changes in this county institution during the past two years. In addition to Juvenile Hall, Los Angeles County maintains a separate institution at El Retiro for older girl wards of the court, where they are given industrial and vocational training.

4. San Joaquin County has completed and occupied its new detention home, which was carefully planned for its purpose. It was built at a cost of over \$27,000 and has been occupied since February, 1918.

5. Fresno County's detention home has been improved by addition of a dormitory for older girls and also several single rooms for both boys and girls. These improvements were completed in 1920 and have increased the efficiency of the home.

6. Santa Barbara County provides a carefully planned building for the wards of its juvenile court. Equipment is good and adequate with exception of outdoor recreation facilities. A good feature in the management of this home is the system of follow-up supervision maintained over children who go out from the home to earn their living. They report regularly and receive friendly advice and encouragement to budget their expenses and make progress in their work.

7. Humboldt County detention home has been commended for its simple and convenient plan of building, which provided the proper segregation and supervision with a minimum amount of space and expense. Unfortunately it has just been destroyed by fire, but will be rebuilt practically on the same lines.

b. Remodeled buildings used for juvenile detention homes.

1. Sacramento County practically rebuilt its detention home when the building was moved on the county hospital grounds and remodeled for detention home purposes. The location of the home is not ideal. It does not fit in with the buildings of the new county hospital and is too close to that institution for the best interests of the children. There is not proper opportunity for outdoor recreation.

2. San Diego County is using at present a remodeled building formerly the old county hospital. It has been ordered to meet the needs of a detention home as far as can be done, but it is still unsatisfactory, and the county is planning for a new detention home to be erected very soon. A good feature of the home is an attractive little building in which is held the open-air school. The home is about four miles from the center of the city, and therefore a teacher is provided for the children detained here.

3. San Mateo County has just opened its juvenile home during the past year. It is a remodeled dwelling house and has been changed to provide proper segregation of the boys and girls. A feature of this home which is unique is the interest taken in its equipment by the private citizens of the county. A group of women undertook to furnish the playrooms and the sleeping rooms and the result is a very attractive house. Chintz curtains and cushions, pretty dressers, rugs and pictures give a very homelike appearance to the place. The County Welfare Commission was active in assisting the board of supervisors and probation officers to establish this home.

4. Orange County made a fairly adequate detention home out of a remodeled school house. It lacks many of the features needed in a detention home, but is meeting the needs of a home for dependent children. The older and more difficult boys and girls form a problem which the present detention home does not solve. A new detention home building is under consideration in this county.

5. San Bernardino plans to erect a new detention home during the coming year. The present building is a remodeled dwelling, and while it has served its purpose in the past, it has never been satisfactory either in size or arrangement.

6. Sonoma County has used a remodeled dwelling house for years, and under good management and careful supervision it has met the needs of the juvenile court wards. This county uses family boarding homes under the supervision of the probation officers and the State Board of Charities and Corrections. In this way the population of its detention home is kept down to a minimum. The detention home is attractive and homelike and has a very good record in its handling of the children who have passed through its care.

7. Kern County, during the past year, has moved its detention home from the old dwelling in which it was housed for years into a remodeled building formerly used as a dormitory for the high school students on their agricultural farm. It is in the city limits and accessible to schools. The building was altered in many ways to make it more convenient for the juvenile court wards and it is now fairly satisfactory.

8. Riverside County detention home is one of the largest in the state in point of population. Medical examinations are given the children upon entrance. The children attend public school with the exception of a few who for reasons of health, protection or conduct are not permitted to leave the home during their temporary detention therein.

c. Family boarding homes subsidized and used as county detention homes.

1. Ventura County uses a family boarding home for detention of its court wards. While this seems satisfactory for the younger children, it does not provide adequate segregation and supervision of the older boys and girls. It is a question of time only until this county is ready to build a proper detention home for its court wards.

2. Tulare County detention home is a large private dwelling, the home of the assistant probation officer and his wife. Provision for the care of the children is inadequate and the county is now considering a new detention home. Management of the Tulare County home has been good, and this has been the only protection to the children, for the housing does not segregate or provide proper facilities for the boys and girls.

3. Monterey County boards its juvenile court wards in a private boarding home. The woman is paid a small salary and a per capita sum for the children boarded. The juvenile court officers and other workers feel the need for a more adequate provision for care of the court wards and it is probable that this county will have a specially designed detention home within the next two years.

4. Butte County has used a private boarding home for years, paying the women in charge a small salary and a per capita sum for board of children. A plan for a new and modern detention home is under consideration in that county and will doubtless be carried out within the near future.

5. Marin County places its homeless children in a private boarding home until disposition can be made of their cases. One large family home has been subsidized for this purpose. Children are boarded in other family homes in the county, also in the two children's institutions which are in Marin County and which will accept children for temporary care.

6. San Luis Obispo County pays a small salary and a per capita board for each child to the owner of a large family home in the county seat.

d. Buildings or wards at the county hospitals used as detention homes.

1. Contra Costa County has a small separate building on the grounds of the county hospital in which are detained the wards of the juvenile court. There is no regular matron or person in charge of this detention home and not proper provision for segregation and supervision of the children.

2. El Dorado County has a small separate building on the grounds of the county hospital which was intended for detention home, but no matron or superintendent is provided and it has proved so unsatisfactory to have the children there without proper supervision that the use of the building is almost discontinued.

3. Santa Cruz County detains its juvenile court wards in the cottage of the superintendent of the county hospital. This practice is not satisfactory to the hospital authorities or to the community at large and it is hoped that the county will soon see its way clear to provide more adequately for the care of these children.

4. Yuba County has no detention home and wards of the court are placed for temporary care in the county hospital. There is not adequate provision there for the children and the arrangement is not satisfactory.

4. JUVENILE COURT AND PROBATION OFFICE RECORDS.

The use of uniform reports by juvenile courts in committing minor delinquents to the state schools has long been recognized as the first step toward standardizing probation work in California. For the purpose of considering the forms of such reports two conferences were arranged with superintendents of state schools, representatives of the Probation Officers' Association and members of the State Board of Charities and Corrections. In the second conference the State Bureau of Research was also included.

Uniform court and probation office records would make possible accurate and comparable information regarding the juvenile delinquency problem in California, which to date has not been available. As

a result of these conferences the following medical and social history forms have been accepted:

MEDICAL EXAMINATION.

Report to the Juvenile Court of _____ County
(Copy to accompany all wards sent to institutions.)

Sex: Male _____ Female _____ File No. _____ Clinic No. _____

Name _____ Date _____ Examined by Dr. _____

Address _____ Name of nurse or matron present _____

Age _____ years _____ months. Weight _____ pounds. Height _____ feet _____ inches

Family history (medical):
Relationship _____ Physical mental defect _____

Father: Living, dead _____

Mother: Living, dead _____

Brothers: Living, dead _____

Sisters: Living, dead _____

Previous history (illnesses):

Age of puberty _____ Menses _____ Regular _____ Duration _____ Date of last menses _____

Sexual _____

Obstetrical _____

Injuries or physical stigmata:

General physical condition:

Nutrition _____ Skin _____

Posture _____ Gait _____

Facial expression _____ Speech _____

Head:
Circumference: _____ inches; shape _____

Eyes _____

Nose _____ Obstruction _____ Discharge _____

Mouth _____ Breath _____ Gums _____

Tongue _____ Coated _____ Tremor _____

Teeth _____

Ears _____ Discharge _____ Hearing _____

Tonsils _____

Scalp _____ Hair _____

Glands:
Cervical _____

Thyroid _____ Goiter _____

Thorax:
Chest: Circumference _____ Expansion _____

Lungs:
Right _____

Left _____

Heart _____ Pulse: Rate _____ Quality _____

Breasts _____

Abdomen:
_____ Tenderness _____ Hernia _____

Medical Examination—Page 2.

Genito-urinary:
Genitalia _____ Discharge _____

Pelvic examination _____

Extremities:

Feet _____ Hands _____

Reflexes:

Coordination _____

Laboratory report:
Wasserman _____ Positive _____ Negative _____

Smears _____ Positive _____ Negative _____

Urinalysis _____

Special reports:
Vaccination _____ Date _____

Treatment recommended:

Reexamination: (Signed) _____ M. D.

5. PROBATION COMMITTEES.

Reports of probation committees and conferences with many members of committees indicate that their activities and interpretation of their responsibilities as defined by law varies widely in different counties. Uniform understanding as to the proper functioning of probation committees and their possibilities for community service seems necessary in any program for the improving of methods and standards of probation work. With this end in view, a round table for probation committee members was arranged in connection with the State Conference of Social Work, which met in San Francisco in February, 1921, and the subject, "Functions of Juvenile Probation Committees in Smaller Counties," was discussed by Judge Curtis D. Wilbur in a section on rural problems.

ROUND TABLE LUNCHEON PROGRAM.

Mabel Weed, *Chairman.*

Curtis D. Wilbur, *Presiding.*

THE DUTIES AND OPPORTUNITIES OF PROBATION COMMITTEES.

1. Some Children's Problems in Rural Communities.
Mrs. Frank Potter Hill, Secretary Sonoma County Probation Committee.
2. The Responsibilities of Probation Committees.
Judge Fred V. Wood, Juvenile Court Judge for Amador County.
3. Race Track Boys and Floaters in San Diego County.
Judge Spencer M. Marsh, Juvenile Judge for San Diego County.

6. PROBATION LETTER.

The State Board has instituted a probation letter which will be sent out from time to time. It carries to probation officers and other court and county officials information regarding problems of juvenile delinquency in California and elsewhere. Three such probation letters have been issued.

PROBATION LETTER No. 1.

STATE BOARD OF CHARITIES AND CORRECTIONS,
995 Market Street, San Francisco.

State conference of social work, San Francisco, February 22-26, 1920.

Probation committee members will be interested to know that Judge Curtis D. Wilbur of the Supreme Court, and formerly Judge of the Los Angeles Juvenile Court, will preside at a luncheon roundtable where problems relative to the work of probation committees will be presented and discussed. In some instances probation committees have not realized their possibilities for usefulness. In other cases they have felt uncertain of their powers. They feel that their duties are too vaguely defined by the law and state that they receive little instruction or guidance in the performance of their work. Probation committees in rural communities are asking for a definite program. Every county has problems affecting juvenile delinquency and every committee would prefer to be active. Come to the conference and join the discussion.

The Probation Officers' Association will hold its annual meeting in connection with the State Conference of Social Work. Three sessions are being planned. One for business and two for the discussion of the technical problems of the probation officer. Arrangements are also being made for the presentation on one of the conference programs of some of the problems of general interest connected with adult and juvenile probation. The chairman of the program committee asks for suggestions on subjects and speakers. Address, Mr. Leonard D. Compton, 512 Broadway, Oakland, California.

State institution notes.

Pacific Colony. Probation officers will be interested to know that the Pacific Colony will soon be open. Mr. Clarence W. Peck, the business manager, expects the first building, which will be used for the group of moron boys, will be ready for occupancy shortly after the first of the year.

California School for Girls. The new school building is nearing completion. Work has begun on the Return from Parole Cottage. It is the present policy of the administration to segregate, on return to the school all girls who fail on parole.

Miss Beryl Bard of Hueneme has been appointed a trustee of the California School for Girls at Ventura, in the place of Mrs. B. E. Howard, resigned.

Uniform records for the use of juvenile courts in committing boys and girls to our state schools has long been recognized by the courts, the state schools, and the State Board of Charities and Corrections as the first step toward standardizing reports and the work of probation officers. Every county at present uses different forms and procedure. For the consideration of this question two conferences were recently arranged between the state school superintendents, a committee of the Probation Officers' Association and this board. The plan is to work out forms which will be acceptable to all concerned and adaptable to the needs of the smaller counties.

The Russell Sage Foundation in a comparative study of state school systems shows that Montana is the best and California second. The lowest average salary paid to teachers was found to be in North Carolina. The highest average was found in California. (New York "World," May 24, 1920.)

Census of State Schools for November.

	Number November 30, 1920	On parole November 30, 1920	On parole November 30, 1919
California School for Girls.....	150	50	63
Preston School of Industry.....	351	350	322
Whittier State School.....	271	118	94
Totals.....	772	518	484

This report shows an increase of 38 in the total population of the schools over that of the same date last year.

Personal notes.

Sidney N. Reece, Judge of the Juvenile Court of Los Angeles, has taken over Judge Gavin Craig's bench and is succeeded in the juvenile department by *Judge Burton Weyl*, appointed by Governor Stephens to fill the vacancy.

Mr. Harold K. Van, who recently resigned as probation officer of Los Angeles County, has accepted the position of probation officer for Seattle.

Mr. J. C. Astredo, probation officer of San Francisco, has been invited to sit with the Civil Service Commission in selecting a probation officer for Los Angeles County.

Judge H. Z. Austin, for many years Judge of the Juvenile Court of Fresno County, has resigned from the superior bench. His resignation takes effect in January. *Judge Sidney L. Strother* will take over the juvenile work.

Mr. W. J. Mosher, probation officer of San Diego County, has resigned and *Mr. Herbert Sallee*, at present adult probation officer, has been appointed to fill the vacancy, January 1, 1921.

December, 1920.

MABEL WEED, *County Agent.*

SIGNIFICANT FACTS ABOUT JUVENILE PROBATION WORK IN CALIFORNIA.

Gathered From Probation Officers' and Committees' Reports to the State Board of Charities and Corrections.

Probation Committees.

Ten counties report they have no probation committees.

Twelve counties report their probation committees meet regularly, varying from once a week to once a quarter.

Eighteen counties report the juvenile court judge attends all meetings of the probation committee.

Fifteen counties report the judge attends probation committee meetings occasionally or when requested.

Twenty-five counties report their probation officers attend all meetings of probation committee.

Eleven counties report inspections of institutions by the probation committee.

Twenty-five counties report their probation committee visit wards of the court placed in institutions or private homes.

Probation Officers.

Three counties report they have no probation officer.

Twenty-four counties report each one part-time probation officer.

Thirty-one counties report 108 full-time probation officers.

NOTE.—There are a few part-time officers employed in offices where the chief officer is full-time, who are not included in the above figures.

The highest salary reported is \$300.

Twenty-four counties report part-time probation officers with salaries varying from \$10 to \$70.

In fifteen counties probation officers also hold other county positions.

Detention Homes.

Sixteen counties have detention homes especially designed for this purpose, or are using buildings made suitable by remodeling.

Six counties use subsidized private homes.

Nine counties use the county hospitals.

One county uses the detention home of an adjoining county.

Twenty-two counties use private boarding homes, arrange to keep children in their own homes or devise an expedient to meet each emergency.

REPORT OF THE COUNTY COMMITTEE.

Chairman—B. H. PENDLETON.

County Agent—MISS ESTHER DE TURBEVILLE.

1. GENERAL SUMMARY OF COUNTY INSTITUTIONS AND COUNTY AGENCIES IN CALIFORNIA.
2. COUNTY HOSPITALS AND ALMSHOUSES.

A. PROGRAM.

1. Better provision for maternity care in county hospitals.
2. Better balanced diet for sick and aged and better service of food.
3. Provision for employment with just compensation of indigents able to work, in county institutions.
4. Establishment of county hospital social service.
5. Extension of county public health service by trained officials and public health nurses.
6. Establishment of county hospital library service.
7. Establishment of mental hygiene or psychiatric clinics in county centers.

B. PROGRESS.

1. New buildings for county hospitals.
 - a. General hospital buildings.
 - b. Tuberculosis sanatoria.
 - c. Isolation buildings.
 - d. Psychopathic wards.
 - e. Nurses' homes on hospital grounds.
2. Facts concerning service as shown by replies to a questionnaire on—
 - a. Maternity care.
 - b. Care of insane and senile.
 - c. Provision for hospital care of children.
 - d. Care of the dying.
 - e. Burials.
 - f. Organization of the county hospital service.

3. COUNTY JAILS.

A. PROGRAM.

1. Improved conditions in jail buildings.
2. Employment of prisoners in educative and healthful occupation.
3. Arrangement for medical care and segregation of prisoners.

B. PROGRESS.

1. New buildings.
2. Good features in certain jails.
3. Special study of medical care in Los Angeles County Jail.
4. Employment for misdemeanants.

4. COUNTY OUTRELIEF AND WELFARE.

A. PROGRAM.

1. Organization of county welfare work, by appointment of an unpaid county welfare department or commission under whom shall be employed trained paid workers to handle all public relief and welfare problems and to cooperate with private social agencies in the community.
2. Installation of proper relief records in every county.
3. Closer working relations and better understanding between state and county social workers.

B. PROGRESS.

1. Organization of county relief and welfare work.
 - a. Use of the law permitting supervisors to appoint welfare commission.
 - b. Experience of counties now organized.
2. Counties assisted in installation of records on relief cases.
3. Reprint of actual county ordinance creating county welfare department.

1. GENERAL SUMMARY OF COUNTY INSTITUTIONS AND COUNTY AGENCIES IN CALIFORNIA.

Each county in California is a law unto itself in social matters and there is wide diversity in the understanding and administration of the county problems affecting dependents and delinquents. The State Board of Charities and Corrections is the only state agency which touches all the county institutions and agencies of this character, and in its plans for state-wide improvement of social conditions this board recognized the need for definite standards towards which the counties could work. The first step in this direction was the prescription of records for all county hospitals, county jails and county outrelief offices. These records enable the state board to gather facts from each county in such form that the statistics are comparable. In the matter of outrelief there are still twelve counties which keep no social records; the forms of record have been purchased in most instances, but in these twelve counties there is no person delegated or fitted to install and keep up these records. However, as the counties become more accustomed to the use of uniform records, there is better cooperation between them, and, slowly but steadily, there is growing up a more or less standardized method of dealing with the sick, the aged, the dependent family and the juvenile delinquent.

The State Board of Charities and Corrections, through its county department, acts as a central office where county social problems may be cleared. A regular means of intercommunication has been established by the issue of the "County Welfare Letter," which contains notes of general interest and happenings in the various counties. The "County Welfare Letter" goes from the office of the State Board of Charities and Corrections directly to the officials and social workers in each county. It is directed especially to the county welfare departments and agencies doing similar work. Most of the counties have the same problems to solve in dealing with their unfortunates, and the county officials find it helpful to know how other counties have met successfully these vexing questions. It is hoped that eventually every county in the state will have a county welfare department or commission adapted to the needs of the local community.

The social institutions and agencies of the county, over which the State Board of Charities and Corrections has supervision, group themselves into four divisions: (1) the County Hospitals and Almshouses, (2) the County Jails, (3) the County Detention Homes, and (4) the County Out-relief or Welfare Administration.

STATE BOARD OF CHARITIES AND CORRECTIONS,
995 Market Street, San Francisco.

County Department: Chairman, B. H. Pendleton; Agent, Esther De Turbeville.

COUNTY WELFARE LETTER No. 3.

State conference.

The State Conference of Social Work held its annual session in San Francisco, February 22 to 26, inclusive. People who are interested and engaged in social welfare activities throughout the state came together for help, advice and inspiration. There were many county welfare workers in attendance, representing northern counties, mountain counties, valley counties and coast counties as far down as San Diego which sent a delegation of eighteen persons. Public health, recreation, school welfare, probation work, private charitable organizations, industrial welfare, psychology, immigration, day nurseries, family and child welfare and relief—all of these were represented on the program and discussed by persons who are deeply interested in the solution of these problems. "Unity and Democracy" were the watchwords of the conference and were reflected in the spirit of the whole session. Next year the State Conference of Social Work will meet in San Diego. Judge Spencer Marsh of San Diego was elected president for the coming year.

During a session on "Pending Legislation" many bills of interest to county welfare workers were discussed. Among them were the following:

Assembly Bill No. 146.—Raising the age of children eligible for state aid to sixteen years.

Assembly Bill No. 975.—An act to extend state aid to the children of fathers who are "incapacitated for gainful work by permanent physical disability or suffering from tuberculosis" in such a stage that they can not pursue a gainful occupation.

Assembly Bill No. 753.—An act to provide for county industrial farms or camps to which certain persons may be committed instead of the county jail. Section 1 states that "It is the purpose of this act to make possible the substitution of constructive labor for profitless prison confinement."

Assembly Bill No. 49.—This bill places private homes for aged persons under the same rules of inspection and license that now pertain to children's institutions, thus extending to old people the same protection which is given to children.

County notes.

Fresno County. The Fresno Department of Public Welfare has been given additional responsibility since the first of the year; the board of supervisors on January 6, 1921, amended Ordinance No. 174, which names the powers and duties of the welfare department, to read: "To act as the representative of the board of supervisors in the administration of the County Hospital and Old People's Home; the department of public welfare shall recommend a director of said institutions to the board of supervisors."

Mendocino County. The board of supervisors in this county has appointed as the county relief and social service agent, Mrs. T. M. Cleland of Ukiah. Mrs. Cleland attended the State Conference of Social Work and met many of the county welfare workers from other parts of the state. There is no county welfare department as yet in Mendocino County, but inquiries may be addressed to Mrs. T. M. Cleland, Ukiah, on matters of social welfare or county relief.

Humboldt County. A change in the membership of the Humboldt County Welfare Department was caused by the resignation of Mr. W. H. Robson, who removed from the county. Mr. J. W. Henderson, city attorney of Eureka, was appointed to the department in Mr. Robson's stead. Humboldt County looks forward to entertaining the Supervisors' Association next year. The beautiful environs and unique resources of Eureka should make it a very successful convention city.

Care of lepers.

Many county hospitals have had patients afflicted with leprosy and their care has been one of the almost hopeless problems because the state has no provision for their treatment. A recent letter received by the State Board of Charities from the Surgeon General at Washington states that the government has purchased the Carville Leprosarium in Louisiana and as soon as it is ready for additional patients (probably after July, 1921) lepers may be sent there at the expense of the federal government. They will receive expert care and treatment. Announcements will be sent to county hospitals as soon as notice is received from Washington that the institution is ready to receive patients.

March, 1921. STATE BOARD OF CHARITIES AND CORRECTIONS.
By COUNTY AGENT.

2. COUNTY HOSPITALS AND ALMSHOUSES.

A. PROGRAM.

The program of the board for this biennium included continued work with the counties to secure in their county hospitals and almshouses better provision for care of maternity patients, more attention to diet, occupational therapy, trained hospital officials, establishment of medical social service, county hospital library service, mental or psychiatric clinics in county centers and organization of hospital administration; together with these aims was the general effort to secure improved buildings and equipment in counties which fell short of the minimum standard in these respects.

B. PROGRESS.

In all except four counties the county hospital and almshouse is a combined institution known as the "county hospital." In some counties it is absolutely not a hospital in any medical sense. In Los Angeles, San Francisco, Santa Clara and Fresno counties the medical or hospital care of dependents is entirely separated from the custodial or almshouse care. Alameda County is planning separation of the two types in that county; the medical unit now being under construction in the city of Oakland, while the custodial unit will remain at the present site in San Leandro.

There is great variation in the standard of equipment and care in the fifty-eight counties of the state. On the whole, it may be said that custodial care of the aged is fairly adequate; some counties still show poor housing and lack of occupation and recreation, but kindly treatment and good food are the rule.

Medical care of the sick and aged in the county hospital is improved, but there is much to be done in this field. The forward movement in the counties tends toward separation of the hospital and the almshouse; in the smaller counties where it is not possible to maintain two separate institutions a proper ward for medical and surgical patients is advocated.

An instance of unique interest and neighborly feeling was shown in the agreement whereby Mariposa County provides for the care of its aged indigents in the hospital of the adjoining county, Merced. Mariposa is a mountain county with a very small population. Its old county hospital building was bare, cold, dirty and ready to fall to pieces. The county did not feel able to raise the money necessary to build a new institution. At the suggestion of the State Board of Charities and Corrections, a joint meeting was arranged with the supervisors of Merced and Mariposa counties, the Merced County hospital was visited and approved as a place for the old people where they would have also proper medical and nursing care. An agreement was entered into whereby the Mariposa County supervisors agreed to pay and the Merced County supervisors agreed to accept a stipulated monthly sum for the care of the indigents from Mariposa County. This sum was to the financial advantage of both counties. The spirit shown by the county supervisors of both counties was very commendable, as their chief interest was the comfort of the old people involved.

New buildings for care of sick and aged have been erected or started during the past two years in thirteen counties. These comprise in all 18 buildings of the following types: General hospitals, 7; tuberculosis sanatoria, 7; isolation ward, 1; psychopathic ward, 1; nurses' homes, 2. In addition to these new buildings, many improvements and alterations have been made in old buildings, thus adding to the efficiency of the health service in the counties.

1. New county hospital buildings.

A. GENERAL HOSPITALS.

1. *Alameda County* has entirely remodeled its hospital building at the old site and has started construction on an entirely new and modern medical hospital in the city of Oakland, the cost of which when completed will be about two million dollars.

2. *Lake County* has built and is now occupying a new hospital and almshouse structure. It is intended for a small population, but is fairly adequate. It contains wards for old men and women, separate rooms for the sick, an operating suite, nurses' quarters and the necessary service department of kitchen, dining-room and other offices.

3. *Nevada County* is a sparsely settled mountain county, but it has just completed three units of a new and modern institution for the sick and aged. The fourth and last unit will be built next year. The completed group consists of four detached buildings connected by a corridor of cement and plaster, lighted and heated, so that there is no break in the passage from one unit to another. One of the unique and attractive features in this hospital is the furnishing of the social hall in the women's building. A wealthy resident of the county seat bequeathed to the hospital much of the furniture in his own house; this included a grand piano, statues, paintings, flowering plants and other furniture which add very much to the comfort and pleasure of the old people.

4. *Sacramento County* has planned an ambitious group of buildings for its county almshouse and hospital. Only three units are completed. These contain wards for medical and surgical patients, children, maternity patients, chronic old cases and some cases of contagious disease. The custodians are still housed in the old buildings, which are to be torn down as soon as the new wards are built.

5. *Solano County* has built and is now occupying a new general hospital. It is a modern structure.

6. *Ventura County* is completing a unit of its new county hospital and almshouse. Other units will be added as quickly as possible. The first unit contains thirty beds and all equipment will be new and modern.

7. *San Mateo County* general hospital will be a handsome, modern structure located near the highway and accessible from all parts of the county. A specially appointed expert on hospital construction and administration is working in conjunction with the county officer in the direction of its erection and equipment.

B. TUBERCULOSIS SANATORIA.

1. *Alameda County* has built and equipped a beautiful group of buildings for the care of tuberculosis patients at Arroyo, in the south-eastern part of the county, protected from fog and winds by a range of hills.

2. *Kern County* has recently opened a sanatorium for its tuberculous patients at Keene, in the mountain district, where patients may receive every advantage of climate and care. It is built on the cottage plan, is very attractive and gives excellent service.

3. *Los Angeles County* opened on October 27, 1920, at Olive View, in the San Fernando Valley, one of the best planned and equipped tuberculosis sanatoria to be found anywhere. Special features are X-ray department, clinic, laboratory, electric heat, cubicle dressing rooms with built-in conveniences, inclined planes instead of steps, and many other modern ideas in the care of tuberculous patients. The completed units contain 200 beds. The plan permits addition of other units as required.

4. *San Diego County* has built and occupied within the past two years a complete and separate tuberculosis hospital, some little distance from the county general hospital. In addition to the main building are several cottages for patients.

5. *Santa Barbara County* has added to its county hospital group a modern fifty-bed tuberculosis sanatorium. It is not far from the general hospital and is served from the main kitchen.

6. *Stanislaus, Merced and Madera counties* have combined to build a joint tuberculosis sanatorium at Ahwanee, in the mountains near Yosemite. It is a remodeled hotel building, but has been completely done over and equipped.

7. *A group of northern counties* joined in the erection of a joint tuberculosis sanatorium at Weimar, in the mountains of Placer County. It is located in a climate which is famed for its health-giving qualities and is accessible by railroad or highway.

8. *Tulare and Kings counties* have combined to build a joint tuberculosis sanatorium at Springville.

C. ISOLATION BUILDINGS.

1. *Santa Barbara County* added a new unit for care of contagious diseases, during the past year. It contains four small wards, nurses' rooms, diet kitchen and necessary toilet and bathing facilities. It is about fifty yards from the main building and is served from the main kitchen.

D. PSYCHOPATHIC WARDS.

1. *Los Angeles County* recently added a building for care of senile and psychopathic patients at the county farm. This is a ward which is needed in many of our county hospitals, but Los Angeles County is the first to appreciate and meet the problem of the psychopath in the county institution. This ward is in addition to the general psychopathic hospital which has been established in Los Angeles County several years.

E. NURSES' HOMES ON HOSPITAL GROUNDS.

1. *Sacramento County* has built a very attractive and commodious hall for the nurses at the county hospital.

2. *Santa Barbara County* erected a new home for the nurses at the county hospital this year. It will add much to the comfort of the nursing staff. It is well planned and convenient to the main building.

2. Facts concerning service as shown by replies to questionnaire on county hospitals covering certain features in buildings and in service.

A. PROVISION FOR CARE OF MATERNITY PATIENTS.

Only twenty-eight county hospitals have separate wards or suites for maternity care. These maternity wards range all the way from a modern Class A hospital ward with the latest and best equipment to a little suite of rooms in one wing of an old wooden hospital, made passable by the use of white paint and new equipment. Not all of these wards are provided with special delivery room or nursery.

In eight county hospitals certain single rooms are reserved for the use of maternity patients. These rooms have no equipment other than that of an ordinary hospital bedroom, except that they are kept for the use of this class of patients and are usually near the operating room.

In twenty-two of our California counties there is no provision at the county hospital for maternity care. In case of an emergency the patient is received and put in any bed available.

B. CARE OF INSANE AND SENILE IN COUNTY HOSPITALS.

Keeping mentally-disturbed patients under observation for a definite period before commitment to a state hospital implies a proper place of detention. Outside of our few large cities the problem falls upon the county seats. The State Board of Charities and Corrections recommends detention of the insane in hospitals instead of jails. Insane and psychopathic patients need the atmosphere of a hospital and the attention of specialist and nurse. They should not be regarded as criminals and put in charge of a jailer. Each county hospital should have at least the minimum equipment for proper care of insane patients.

The results of the questionnaire sent to county hospitals show that twenty-seven counties still detain their insane in county jails.

Only eight counties segregate the senile from the other old people in the custodial departments of their county hospitals. This failure to segregate causes annoyance to the other inmates and makes it very difficult to maintain order and morale in the institutions.

C. PROVISION OF HOSPITAL CARE OF CHILDREN.

With the present-day movement for preventive health measures, particularly with regard to children, it is sad to note the small number of county hospitals which provide wards for children. In the large cities there are special children's hospitals, but in most of our fifty-eight counties the free hospital care for children must be had through the

county hospitals. The recent questionnaire developed the following facts concerning care of children in county hospitals:

Children.

Number of county hospitals having wards for children-----	9
Number of county hospitals using single rooms for children-----	14
Number of county hospitals placing children in wards with adult patients-----	24
Number of county hospitals having no rule regarding place where children are cared for-----	11

D. CARE OF THE DYING.

Nothing can be more depressing to an old person than to see or hear the death struggle of a companion. Yet in many county hospitals there is lacking an appreciation of this fact. Proper respect for the dying person and for the other inmates of the ward would dictate the use of a separate room. But only twenty-five county hospitals make this provision. In twenty-two counties a screen is placed round the bed of a person dying. Eleven counties do not make even this concession to the feelings of their patients.

E. BURIALS AT COUNTY HOSPITALS.

There is no regular method of handling the matter of graves and burial of the indigent dead. Religious services are held in twenty-five county hospitals over every grave. In sixteen counties this is done only on request. Seventeen counties bury the indigent dead without religious service, according to their own reports. Graves are usually marked, although seven counties report that this is not done regularly. The cost of burial ranges from \$5 in one county to \$40 in another. The average cost is about \$22. In six counties coffins are made on the premises.

ORGANIZATION OF COUNTY HOSPITAL SERVICE.

The State Board has adopted certain plans of procedure in county hospital matters that seem to work admirably in counties of certain size.

As the result of a careful detailed study of the hospital situation in Alameda County and on the recommendation of the State Board of Charities and Corrections, the supervisors of that county appointed a hospital commission composed of highly representative citizens. This hospital commission has undertaken to assist the supervisors in the administration of these institutions. They were able to get the services of a trained and highly specialized director who is today bringing the hospitals of that county up to a very high standard.

The supervisors are pleased with the machinery which they have installed and feel that the results are of very great benefit to the unfortunates of the county, and the work is being accomplished at a minimum of expense.

A large general hospital is being erected near the center of the city of Oakland, which is admirably designed for economy of administration and for service. Alameda County now has a tuberculosis sanitarium composed of a group of well designed and well constructed buildings.

Its county home for the aged is now being constructed on a farseeing plan that looks to the needs of the future. Its great new general hospital, costing two and a half millions of dollars, will be completed inside of two years.

The Alameda supervisors, by their recognition of the needs of the county and by the administrative machinery which they have created, will in the course of a few years evolve a hospital organization that will redound to the credit of the county and our state.

The supervisors of Fresno County, induced by the success of the experiment in Alameda County, requested the State Board to make a detailed, technical survey of their county hospital situation. As a result of this survey, Fresno has turned over the administration of its county hospital and home for the aged to the county department of public welfare, which has selected a competent director of the hospitals at a high salary. The department of public welfare is composed of members of the board of supervisors and five other citizens.

San Mateo County board of supervisors requested a survey of their county hospital conditions. When the pressing needs of their county were shown clearly to the supervisors they met the situation by purchasing an admirable site in the center of the county. They asked for competitive bids, which secured for them plans that will ultimately give them a hospital of which the county may well be proud. The supervisors showed their wisdom in securing a competent hospital administrator to assist their architect in drawing the plans for hospital building.

The plans have been accepted and the bids for the building asked for. Construction will begin this year.

LIBRARY SERVICE.

In many counties the county library is being utilized to bring pleasure and education to the inmates of the county hospital and almshouse. In Fresno County a young librarian from the county library goes through the wards of the hospital weekly with a portable book rack on wheels, distributing books to the patients, to whom cards are issued in regular order. These books are fumigated before they are returned. The same service is given to the Fresno County home for old people. This privilege of receiving books from the county library is extended in several other counties and is commended as a real service to the sick and aged. It is hoped that the practice may be inaugurated in every county where it is practicable.

In Kern County the superintendent of the county hospital and his wife were much interested in occupational therapy. Books on basketry, weaving and other industries were secured from the county library for the instruction of the patients and for such of the old people as could profit by it. A special instance is quoted from this hospital, where an elderly blind man was taught to read by the Braille system. Books were secured for him from the state library through the medium of the county library and he is now reading for the first time since the accident which robbed him of his sight years ago. The example of Kern County in this respect could well be followed by other counties.

In three counties where the tuberculosis patients are housed in separate sanatoria, the county libraries send out to these particular hospitals books which need not be returned to the library. They are not necessarily damaged or worn-out books. Sometimes it is a book of which the library has several copies or which is given for this specific purpose. The damaged books are put in order before being sent out to the tuberculosis hospital. It is understood that they will not be returned. Patients in these hospitals are sometimes there for long periods, and as the modern treatment does not permit them much exertion, recreation is limited. Reading is a favorite occupation and this library service is deeply appreciated.

MENTAL CLINICS.

In most of our large counties the juvenile courts arrange for some degree of attention to the psychological diagnosis of their wards. The mental hygiene or psychiatric clinic for the benefit of other members of the community under the auspices of the county is, however, a new movement. San Bernardino County has established such a clinic through the efforts of its county welfare commission. The clinic is maintained by the county in cooperation with the state hospital at Patton, in San Bernardino County. The state hospital contributes the services of a psychiatrist twice a month, thus bringing to the local community the expert knowledge of a specialist. The social service of the clinic is in charge of the county welfare commission. Feeble-mindedness and mental deviation are prolific sources of poverty and crime, hence the preventive value of this clinic to the county can hardly be overestimated.

3. COUNTY JAILS.

A. PROGRAM.

The program for this biennium contemplated a continuance of efforts to improve the jail buildings by proper provision for medical care and segregation of the prisoners, toilet and bathing facilities, cleanliness, ventilation, light and heat; in addition, it was hoped to awaken interest in giving the prisoners some outdoor or other healthful and educative occupation.

B. PROGRESS.

1. *New buildings and improvements to old jails.*

There have been few new jail buildings erected during the past two years, and the State Board of Charities and Corrections has not urged the counties to expend much money on new buildings of this nature. Improvements have been made in many counties to render existing jails more convenient and livable and to provide for the segregation required by the state laws. Tulare and Plumas counties have completed new jail buildings. The future of the county jail is a moot question at this time and careful consideration should be given to the subject before investing large sums in monumental buildings of stone and steel. The population of many county jails has decreased to such proportion that the local

communities are considering other means of dealing with their prisoners than confinement in steel cells. The county agents of the State Board of Charities and Corrections visited many counties during the past year where the county jails were found entirely empty. It is impossible at this writing to make any accurate statement as to the reason for this decrease in jail population. It is due to a number of causes and combinations of causes. It may be only a temporary condition. If it is a permanent condition of affairs due to prohibition, industrial relations, good county government or preventive work with juvenile delinquents, then we may hope to see the punitive treatment of crime in the counties reduced to a minimum. County farms for misdemeanants may be the solution.

During the next biennium the State Board of Charities and Corrections, through its county agents, desires to make a careful study of the county jail situation throughout the state. When this is done, the board should be able to contribute some definite program to the people of the counties and to the state for constructive treatment of the adult offenders.

2. *Good features in certain jails.*

A. San Mateo County jail is a two-story Class A cement structure, built in 1918. It has many modern features and as a building is one of the best in the state. The equipment perhaps could not be copied by some of the smaller counties because of expense, but there are some good things about the management which could well be followed by any county jail. One commendable feature is the reception of prisoners; new prisoners are detained in the receiving cell for several days, they are given a bath, their clothes are changed and they are observed carefully before being put into the cells.

B. San Diego County jail is one of the few goods jails in the state. The building is of white stone, fireproof construction. Provision is made for proper segregation of the prisoners. More attention is paid to the health of prisoners in this jail than is usual in jail procedure. A well equipped dispensary, a matron who is a graduate nurse and a special department for drug addicts are some of the unique features in this county jail. The matron has been at the jail for many years and has done much to install good housekeeping and cleanliness in the institution. Her special charges are the women prisoners and the drug addicts. She has charge of the entire food supply of the jail.

3. *Special study of the Los Angeles County jail, covering medical care and length of stay of prisoners in this institution.*

Owing to inquiries and complaints received regarding medical care and other conditions in this county jail, two special studies were made by agents of the State Board of Charities and Corrections during the last year.

A. Medical care of prisoners in the Los Angeles County jail was the subject of a careful study, detailed report of which is on file. The result of this report and conferences with county authorities was the adoption

of the following recommendations, all of which, with the exception of No. 6, were put into immediate effect:

1. Medical examination of all prisoners admitted.
2. Segregation of prisoners until after examination.
3. Daily visits of physician to jail at regular hour.
4. Rounds made of jail by attending physician so as to obtain personal information.
5. Inspection by physician as to sanitary and hygienic conditions of jail.
6. Equipment of room for first aid and for sick men awaiting removal to county hospital.
7. System of card index with record of medical examination.

B. Length of stay of prisoners pending trial was the subject of the second study made in this jail. The purpose of the study was to determine probable number of men who might be available for employment on an industrial farm or on the jail premises. Detailed report of this study is on file in office of the State Board.

4. *Employment for misdemeanants.*

We can but repeat what was said in the last biennial report of the State Board of Charities and Corrections on this subject: "The punitive function of a prison is of only minor consideration. The chief end of a prison sentence is to transform the offender, to teach him how to make an honest livelihood and to install into him a different spirit, so that he will come out of prison not a dangerous but a useful member of society. To this end we should place in farm colonies or in other healthful and educative industries, under supervision and control, those men who can be given more normal life conditions than are found in jail confinement, but who can not with safety be paroled." Enforced idleness is one of the worst features of the present system of handling misdemeanants. The employment of county jail prisoners is provided for by law (Pen. Code Sec. 1613, and Pol. Code Sec. 4041, subdivision 29), but comparatively few counties employ their prisoners outside of the jails.

4. COUNTY OUTRELIEF AND WELFARE.

A. PROGRAM.

1. Organization of county welfare work, by appointment of an unpaid county welfare department or commission under whom shall be employed trained paid workers to handle all public relief and welfare problems and to cooperate with private social agencies in the community.
2. Installation of proper relief records in every county.
3. Closer working relations and better understanding between state and county social workers.

B. PROGRESS.

1. Organization of county relief and welfare work.

(a) *Use of the law permitting supervisors to appoint welfare commission.*

The administration of county funds for relief to the "indigent sick and dependent poor" is in the hands of the county board of supervisors.

This body had power to delegate its responsibility of investigation, standard of relief and method of treatment of indigents to an agent, a committee or an organization which it may authorize to do this work. Under this law (Statutes of California 1917, Chapter 252) the State Board of Charities and Corrections prescribes records of outrelief to be kept, and has been called upon by boards of supervisors and county auditors to assist in the installation of these records. This has led to county surveys and to a realization of the need for more businesslike and constructive treatment of the whole problem of the county indigent.

In ten of the largest counties of the state the board of supervisors has created by ordinance a county welfare department or commission through which to handle this part of the county work. Members of the boards of supervisors serve on these unpaid boards or commissions, together with a group of their best county citizens, men and women. A typical department of welfare consists of two supervisors and five other citizens, chosen for their interest in or knowledge of social work.

(b) Experience of counties now organized.

It has been found that employment of trained social workers to do the investigation and follow-up work with dependent persons, children and families is "good business" for the county. Not only does it make for greater efficiency in the distribution of county funds for relief, but it results in restoring many persons and families to self-supporting places in the community, persons who otherwise might have become permanently dependent upon public funds. Relief to the poor has meant too long a sentimental giving of alms to the unfortunate; the newer and better way which is advocated by the State Board of Charities and Corrections, and which is being adopted by the county governments throughout the state, is to measure the relief given by results obtained. Aside from humanitarian aspects, county relief is a business investment and unless it shows returns in healthier, more independent citizens it is a failure. California counties are spending annually more than a million dollars in relief outside the county hospitals. In the hands of trained workers this expenditure should be made to reduce the number of people needing relief and to prevent future indigency.

2. Counties assisted in installation of records on relief cases.

The State Board of Charities and Corrections, through its county agents, plans to continue this organization work through the counties and to assist such counties as have not yet succeeded in obtaining adequate records of their indigents, to the end that ultimately a more intelligent grasp of the entire dependency group of the state may be had. With accurate and complete information in hand, it may be possible to outline some concerted program for controlling the indigent problem in California. In the meantime, the individual county survey is making for better understanding and cooperation between the state and county officers and there is an awakening of local interest and responsibility which assures a higher standard of social work for the future in all our counties.

3. *Reprint of county ordinance creating county welfare department.*

A typical county ordinance creating a county welfare department is given below. This is an exact copy of the ordinance in one of our large counties under which is operating a very successful county welfare department. There is some variation in the ordinances of different counties, as they are designed to cover the local needs, but the primary object is always the same—so to administer the county relief funds that dependents shall be restored eventually to self-support, or, in the case of the aged or permanently disabled, given proper care.

An ordinance creating a department of public welfare and prescribing its powers and duties.

The board of supervisors of _____ County, in the State of California, do ordain as follows:

Section 1. A department of county work is hereby created to be known as the _____ County welfare department; said department shall consist of seven members to be appointed by the board of supervisors, two of whom shall be members of the board of supervisors. The members of the department shall serve without salary. The term of office shall be for a period of four years except as hereinafter specified, subject to the power of the supervisors to remove for cause any member of the department.

Section 2. As soon as members of the department are appointed, they shall organize and divide their number by lot into three groups; the first group shall consist of two members, the second group of two members and the third group of three members. The term of office for the first group shall end on the first Tuesday after the first Monday in January, 1921; the term of office for the second group shall end on the first Tuesday after the first Monday in January, 1922; and the term of office for the third group shall end on the first Tuesday after the first Monday in January, 1923.

Section 3. When a vacancy shall occur in the department other than by expiration of term, the supervisors, upon recommendation of the department, shall make an appointment for the unexpired term.

Section 4. Wherever in this ordinance the word "department" is used it shall mean the county welfare department; the word "board" shall mean the board of supervisors.

Section 5. The powers and duties of the department shall be as follows:

(a) To appoint a secretary and such assistants as may be necessary to carry on the work of the department. The secretary shall be the executive officer of the department in charge of the work and shall not be one of the members of the department. The salaries of the secretary and assistants shall be fixed by the department, subject to confirmation by the board, and shall be allowed by the board, together with necessary expenses, in the usual manner of such claims.

(b) To investigate, determine and supervise the giving of relief to persons applying for county aid and to devise ways and means of restoring them to self support where possible.

(c) To cooperate with the county hospital, county almshouse and the county jail and to assist the heads of those departments in matters of social service and investigation.

(d) To investigate, determine and supervise the family homes where children may be boarded; the standards of investigation, record and care to be in accord with those required by the State Board of Charities and Corrections with which board cooperation shall be maintained; for the purpose of carrying out the provisions of this section the department shall be authorized to receive children on commitment from the juvenile court under section 8 of the juvenile court law.

(e) To cooperate with the juvenile court, the probation officer and probation committee.

(f) To maintain through its paid secretary a modern system of records on the county relief cases according to forms and methods prescribed by the State Board of Charities and Corrections as provided in Statutes of California, 1917, p. 444.

These records may be used as a confidential exchange by charitable and welfare organizations of the county to prevent overlapping of work.

(g) To act as a coordinating agency for all relief and other welfare agencies and societies of the county which care to avail themselves of the services of the department.

(h) To cooperate with the state, county and city health authorities in advancing and maintaining standards of housing, sanitation and other preventive health measures.

(i) To assist with the state welfare work when possible and to utilize the information and services furnished by the State Board of Charities and Corrections, the State Board of Health, the State Board of Education, the State Industrial Accident Board, the State Industrial Welfare Board, the State Commission of Housing and Immigration, the State Bureau of Labor Statistics and such other state agencies as may be called into the county work.

Section 6. Applications for relief made to the board or to any member thereof shall be referred promptly to the department for investigation and recommendation.

Section 7. The department shall file with the board monthly a report of work done and shall render for the board's approval a statement of relief claims against the county with the list of additions, deductions and changes; the department shall also file monthly with the board a statement of expenses incurred in the usual manner of such claims.

Section 8. The department shall make all needful rules and regulations for the transaction of its business.

Section 10. All ordinances and parts of ordinances in conflict herewith are hereby repealed.

RESEARCH WORK OF THE BOARD.

A. PROGRAM.

The board has contemplated special studies on questions touching definite features in institutions, in county work and in children's work, as well as more general surveys covering the wider fields of social improvement. Owing to changes in the staff and press of detail work it has not been possible to carry out the entire program, but some special questionnaires have gone out and some personal studies have been made in addition to the routine work of the department.

B. PROGRESS.

1. Questionnaire on "County Hospital Problems" covering certain features in buildings and service.
2. Questionnaire on "Homes for the Aged," securing a minimum amount of information on the name, location, admission requirements and other items regarding private institutions for the care of old people.
3. Questionnaire on "Family Desertion."
4. Study of probation committee and juvenile court procedure. (Page 43.)
5. Study of the detention homes in nine counties. (Page 106.)
6. County Welfare Letter. A multigraphed sheet issued bimonthly by the County Department. (Page 122.)
7. Child Welfare Letter. A multigraphed sheet issued quarterly by the Children's Department. (Page 62.)
8. Probation Letter. A multigraphed sheet issued bimonthly by the County Department. (Page 117.)
9. Questionnaire on County Support of Dependent Children. (Page 56.)
10. Census of alcoholics, drug addicts, and criminal insane in state hospitals.
11. Compilation of statistics on the effect of influenza in state hospitals, 1919.
12. Monthly census bulletin of movement of population in all state institutions.

STATE BOARD OF CHARITIES AND CORRECTIONS.

995 Market Street, San Francisco

County Department, September 12, 1920.

COUNTY HOSPITAL PROBLEMS.

I. Hospital Care.

1. Have you a hospital department apart from the home for indigents.....
2. If you have a hospital department is it in a separate building.....
3. Have you a separate ward for children.....
4. Are sick children cared for in the wards with adult patients.....
5. Have you a separate department for maternity cases.....
6. Have you a separate building or ward for tubercular patients.....
7. Do you segregate venereal cases.....
8. What provision do you make for the isolation of contagious cases.....
9. If you have no hospital department, where do you care for indigents with any of the following illnesses:
 - a. General medical and surgical cases.....
 - b. Contagious diseases.....
 - c. Tuberculosis.....
 - d. Infectious venereal diseases.....
 - e. Leprosy.....

II. Insane.

1. Do you provide for temporary detention of the insane in your hospital.....
2. If not, where are the insane cared for in your county.....
3. Have you a special room or ward for the insane.....
4. How is it equipped—
 - a. Has it toilet facilities.....
 - b. Are the windows barred.....
 - c. Has it good ventilation.....
 - d. Is it light.....
 - e. Is it heated.....

5. Is there a padded cell.....
6. Do you use physical restraint.....
 - a. What form.....
7. Where are the examinations of the insane held—
 - a. In the hospital.....
 - b. In the court house.....
8. How many insane were detained in your hospital last year.....
9. Average length of detention.....

III. Senile Dementia.

Have you any special provision for senile dementia.....

IV. Juvenile Court Wards.

Are juvenile court cases detained in your hospital.....

- a. In a separate building.....
- b. In private rooms.....
- c. In wards with the indigent.....

IV. Occupation.

1. Do you give inmates an opportunity to work for wages.....
2. Do you supervise light occupation for patients and inmates who are not able to work for wage.....

V. Recreation.

1. Have you an assembly room.....
2. Do you provide for moving pictures.....
3. Do you provide for music.....
4. Do you provide for books and magazines.....
5. Do you provide tobacco.....

VI. Special Entertainments.

Are special entertainments provided.....

- a. By hospital.....
- b. By outside community.....

VII. Religious Services.

Do you have religious services.....

- a. How often.....
- b. How provided.....
- c. Where held.....

VIII. The Dying.

1. Have you a separate room for the dying.....
2. If you have no separate room, do you use screens.....
3. Are religious services provided for the dying.....
4. Are relatives notified.....
 - a. How.....
 - b. By whom.....

IX. The Indigent Dead

1. Have you a special room or building to put the dead.....
2. If not, what provision is made pending the arrival of the undertaker.....
3. Is there a religious burial service provided for the indigent in each case.....
4. How provided.....
5. Where are the dead buried.....
6. Are the graves marked.....
7. What kind of coffins are used.....
 - a. Are they made on the premises.....
 - b. Are they purchased from an undertaker.....
8. Have you a contract with an undertaker.....
9. Cost of burial.....

X. Effects of Indigents.

1. What disposition is made of effects of indigents.....
 - a. Valuables.....
 - b. Clothing.....
 - c. Other effects.....

BOARD OF CHARITIES AND CORRECTIONS
STATE OF CALIFORNIA

October 11, 1920.

RE HOMES FOR THE AGED.

This board is receiving, constantly, inquiries regarding private homes for aged people in California. The information which we have in our files regarding your institution or home is inadequate and is not recent. We desire to have a correct and complete list of these institutions or homes together with a minimum amount of information concerning them. Any printed forms or literature which you may have will be appreciated. In order that our information should be uniform on certain lines, we ask you to kindly fill out and return to this office as promptly as possible the following brief questionnaire:

Name of institution or home.....
 Location.....
 Name of person in charge or to whom application should be made for admission.....
 Terms of admission:
 Social:
 Age limits..... Men or women..... Both.....
 Requirements or restrictions.....
 Financial:
 Entrance fee, amount.....
 Variations according to accommodations.....
 Variations according to type.....
 Payable in installments.....
 Are inmates accepted for temporary care.....
 Board per month for temporary care.....
 General facts regarding the institution:
 What medical care is provided.....
 Religious affiliation.....
 What is the total capacity of the institution or home.....
 What is the present population: Life members, men..... women.....
 Temporary care, men..... women.....
 Name of the governing body.....
 Members or officers of the board.....

STATE BOARD OF CHARITIES AND CORRECTIONS

905 Market Street, San Francisco

QUESTIONNAIRE RE FAMILY DESERTION.

	1918	1919
1. Total number of cases handled in your office or institution.....
2. Number of cases of family desertion handled in your office or institution.....
3. Percentage of cases attributable to family desertion.....
4. Number of minor children in families of deserters.....
5. In how many instances was an attempt made to apprehend the deserter by issuing a warrant for his arrest.....
6. In how many instances was the deserter apprehended.....
7. What is your procedure? Who swears out the warrant?
8. Considering increase in population, any greater availability of facts concerning this question and other qualifying conditions in your community, in your judgment is family desertion increasing or decreasing in California?
9. Will you kindly make any suggestion you may have in reference to the problem of family desertion and its remedy?

RECAPITULATION OF FACTS CONCERNING CARE OF INSANE AND SENILE IN COUNTY HOSPITALS.

Insane.		
Counties using the jail for detention of the insane.....	.....	27
Counties which have no settled policies, detaining sometimes at the jail and sometimes in hospitals.....	.....	2
Counties which detain insane in the state hospital..... (San Joaquin)	.....	1
Counties using the county hospital as a place of detention for insane.....	.....	25
Counties using emergency or detention hospitals.....	.....	2
Counties which maintain special psychopathic hospital.....	.....	1
		58
Senile.		
Counties which make special provision for care of senile in their county institutions (Los Angeles).....	.....	1
Counties which segregate the senile in their county hospitals.....	.....	7
Counties in which the senile are not separated from other old people in their county hospitals.....	.....	50
		58

2. HOMES FOR THE AGED.

During the past two years there has been an increasing number of inquiries received at the office of the State Board of Charities and Corrections regarding available homes for old people who are able to pay for their care. It is a reasonable supposition that the climate of California attracts many old people who enjoy the mild winters and who are in position to retire from active work; as they reach a period of infirmity or loneliness it is natural that they should desire to find a home where they will be free from housekeeping responsibilities and assured of nursing care in time of sickness. Whether or not this is the reason for the increasing interest in homes for old people, the State Board of Charities and Corrections is unable to say, but in order to have at hand an accurate list of private institutions and homes of this class a short questionnaire was sent out over the state in November, 1920, to secure this information. The results of this questionnaire are summarized on the following page.

Complaints of neglect and financial injustice in homes claiming to care for the aged have come to the office of the board. There is at the present time no legal supervision of these private homes for old people and no standardization of the equipment and care provided. If the bill now before the legislature (Assembly Bill No. 49), providing for state supervision of homes for the aged, is passed, the State Board of Charities and Corrections will outline a minimum set of standards to which the homes will conform. These will insure protection, justice, kindly treatment and comfort to the aged inmates. Many of the existing homes already meet these standards and will welcome the state license. Homes for old people should be clean, warm and conveniently arranged. Food should be specially adapted to the needs and tastes of old people. Medical care should be assured in case of sickness.

Compilation of the replies to a questionnaire sent out by the State Board of Charities and Corrections for the aged in California brought out the following facts in existing homes of this character:

Entrance fees vary from none at all to \$5,000. Some of the institutions do not receive inmates for temporary board and care. Of those which do have temporary inmates, the boarding charge varies from \$24 per month to \$80 per month. The average would seem to be about \$50 per month. Some institutions take the old people to board for a period of three months "probation," with the understanding that at the end of three months the inmate will be satisfied to become a life boarder or else will be willing to leave the institution. In most cases there is a written contract signed by both parties when the agreement provides for life care.

Medical care is very uneven. The best institutions are provided with a resident nurse and visiting physician. Many of the institutions reply that the patient may call his own physician. In two cases the institutions which replied to our questionnaire stated that their homes savored more of the nature of sanitariums, in that they took old people who were semiinvalids and provided hospital care. This, however, is the exception. Many of the institutions stated under the heading "restrictions"

that they accepted none but able-bodied persons, those able to care for their own personal wants, not bedfast patients. The replies regarding medical care were unsatisfactory in many instances and in some cases were entirely wanting. Only an inspection would give the full facts regarding this feature of the institutions.

Age limits are set by nearly all of the institutions. These vary from sixty to eighty. The average age limit is "over sixty-five years of age."

In some few instances the entrants are limited to persons of the same faith as the governing body. One institution, the "Altenheim," in East Oakland, limits its entrants to "those of German birth or descent, speaking the German language." This is the only instance of such limitation among the replies to our questionnaire. Two other institutions have restrictions regarding the length of residence in California. The Masonic Home for Aged, of course, restricts its inmates to the members of that organization and their close relatives.

Population figures range from 300 (Little Sisters of the Poor) down to the private family boarding home for old people, with 3 inmates. There are only five private family homes for old people on our list. The institutional type of home averages about 75 in population. Most of the institutions are running very close to their full capacity. Two exceptions are the following institutions, which are new and not yet ready for reception of regular boarders: Pisgah Home, No. 6026 Echo street, Los Angeles, which reports a capacity of 200, with no boarders, and the Protestant Episcopal Home for Aged, Los Angeles, which expects to take a small number of aged persons, but is not quite ready to open.

Seven of the institutions will take women only. The others will receive both men and women.

LAWS DIRECTLY AFFECTING THE WORK OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

I.

Statutes of 1903, page 482, as amended by Statutes of 1911, page 1334. An act to create a State Board of Charities and Corrections, prescribing its duties and powers, and appropriating money therefor, approved March 25, 1903, as amended by act approved May 1, 1911.

II.

Statutes of 1911, page 1087. An act providing for the supervision and control by the State Board of Charities and Corrections of the placing of dependent children into homes and for the supervision of all societies or organizations engaged in such work and known as children's home finding societies.

III.

Statutes of 1913, page 73. An act to provide for the licensing, inspecting, and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children by the State Board of Charities and Corrections.

IV.

Penal Code, Sec. 1203, subdivision (*j*) (as amended in 1917). Relating to the probation of persons convicted for crime, and requiring the probation officer to file a copy of his semiannual report with the State Board of Charities and Corrections.

V.

Statutes of 1913, page 682. An act making it the duty of the State Board of Charities and Corrections to prescribe forms of record for the use of county hospitals and almshouses, county jails, and city prisons.

VI.

Statutes of 1915, page 1225. The Juvenile Court Law, which requires the probation committee of each county to file a copy of its annual report with the State Board of Charities and Corrections.

VII.

Statutes of 1917, page 444. An act making it the duty of the county boards of supervisors to investigate every application for relief, to supervise persons receiving relief from county funds, and to keep records of such investigation, supervision, relief, and rehabilitation

as shall be prescribed by the State Board of Charities and Corrections, and making it the duty of the State Board of Charities and Corrections to prescribe forms for the use of supervisors in keeping such records.

VIII.

Civil Code, Sec. 224 (as amended in 1917). Relating to persons whose consent is necessary to the adoption of a minor child, and requiring that when a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections prior to the commencement of any adoption proceedings.

1.

An act to create a state board of charities and corrections, prescribing its duties and powers, and appropriating money therefor.

(Approved March 25, 1903, Stats. 1903, p. 482, as amended by act approved May 1, 1911, Stats. 1911, p. 1334, as amended by act approved May 26, 1915, Stats. 1915, p. 847.)

Personnel of board; term of service.

SECTION 1. A state board of charities and corrections is hereby created of six members, to be appointed by the governor, with the advice and consent of the senate, not more than three of whom shall be of the same political party. Such members shall hold office for a period of four years and until their successors are appointed and qualified; *provided*, that the terms of the three members who were appointed February 17, 1908, shall expire February 17, 1912, and the other three terms shall expire February 17, 1914, and thereafter the terms of three members of said board shall expire on February 17 of each even numbered year. Women may be appointed members of said board or hold any position in the appointment of said board. No person shall be appointed a member, or continue to act as such, while he is a trustee, manager, director, or other administrative officer of an institution, subject to the provisions of this act. Appointments to fill vacancies before the expiration of such terms shall be for the residue of terms in the same manner as original appointments. The governor shall be *ex officio* a member of said board.

Board unpaid; appointment of secretary; organization for work.

SEC. 2. The members of said board shall act without compensation, but shall be allowed their actual necessary expenses. The said board may appoint a secretary and such other employees as it may deem necessary to carry out the provisions of this act, and shall determine their salaries. The secretary of said board shall execute a bond in the sum of five thousand (\$5,000) dollars, and take the oath of office prescribed by the Political Code for the executive officers of this state. The board shall provide itself with an office in the city and county of San Francisco. Meetings of the board may be held at such times and in such places in the State of California as said board may deem fit. It may make such rules and orders for the regulation of its own proceedings as it may deem necessary, and may fix the number of members necessary to constitute a quorum. The failure of a member to attend three consecutive meetings of said board during any calendar year, unless excused by formal vote of the board, may be construed by the governor as a resignation of said nonattending member.

Powers and duties: To investigate, examine and report on all charitable, correctional, and penal institutions of the state, counties, cities and towns; to prescribe forms of record and report for above institutions; to criticize and make suggestions on plans for new buildings or parts of buildings for above institutions.

SEC. 3. The board is hereby empowered and authorized, and it shall be its duty as a whole, or by committee, or by its secretary, or other agent whom it may authorize, to investigate, examine, and make reports upon the charitable, correctional, and penal institutions of the state, including the state hospitals for the insane, of the counties, cities and counties, cities, and towns of the state, and such public officers as are in any way responsible for the administration of public funds used for the relief or maintenance of the poor. All the persons or officers in charge of or connected with such public institutions, or with the administration of said funds,

are hereby required to furnish to the board or its committee or secretary such information and statistics as they may request or require, and allow said board, committee, or secretary free access to all departments of such institutions and to all of their records. In order to secure accuracy, uniformity, and completeness in such statistics and information, the board may prescribe such forms of report and records by the state commission in lunacy regarding the state hospitals for the insane and by such other officers, boards, or institutions as it may deem necessary, and also such forms of registration at all public institutions referred to in this section as it may require. The state commission in lunacy, on behalf of the institutions under its charge, and the officers of all other institutions, and all officers in any way responsible for public funds used for the relief of the poor or the maintenance of any inmates of said public institutions, are hereby required to follow such forms, records, and registration so prescribed: *provided*, that the intent of this law is that, so far as possible, the board shall make use of the forms of report, record, and registration now obtaining in the state commission of lunacy and other state boards and institutions. All plans of new buildings, or parts of buildings for any of the public institutions coming under the provisions of this section, or any additions or alterations in such buildings, shall, before their adoption by the proper officials, be submitted to the board for suggestions and criticism.

To subpoena witnesses within county; to swear witnesses; penalty.

SEC. 4. The board shall have power to issue compulsory process to compel the attendance of any witness before said board or any member thereof, and to require the production of such books or papers relating to any public institution mentioned in section three of this act as they may deem necessary; *provided*, that no witness shall be required to attend before said board out of the county in which he resides. Any member of said board shall have power, and he is hereby authorized to administer an oath to any and all witnesses coming before said board, or any member thereof, for examination, and to examine such witness or witnesses in reference to any matter relating to public institutions mentioned in section three of this act appertaining to the inquiry before the board, or said member. Disobedience of a subpoena issued by said board, or refusal to be sworn, or to answer, shall subject such person disobeying or refusing to a forfeiture of one hundred dollars, to be recovered in a civil action brought in a court of competent jurisdiction by said board in its name as plaintiff, the money recovered to be appropriated to the use of said board.

To investigate all state aid for dependent children.

SEC. 5. The board is hereby empowered and authorized, and it shall be its duty as a whole, or by committee, or by its secretary, to investigate, examine, and make reports upon all institutions or persons receiving any state aid for the care of orphan, half-orphan, abandoned or dependent children, and may prescribe forms of record thereof to be kept, and require reports thereof.

Penalty for refusing information.

SEC. 6. Any public officer, superintendent, manager or person in charge of any said public institution, or with the administration of said funds, who refuses or neglects to furnish said board, its committee or secretary, the information and statistics which they may request or require shall be subject to a forfeiture of fifty dollars, to be recovered as provided in section four of this act for disobedience of a subpoena.

To act in response to request from governor.

SEC. 7. No provision in this act contained shall in any way be construed as preventing the governor of this state from making a plenary investigation in reference to the conduct of any public institutions under the terms of any act of the legislature of this state. Furthermore, the governor may at any time order an investigation by the board, or by a committee of its members, of the management of the above-named institutions, or any thereof.

To report to governor.

SEC. 8. Two months prior to each regular session of the legislature, the board shall make a full and complete report to the governor of all its transactions during the preceding two years, showing fully and in detail all expenses incurred and moneys paid out by it, and giving a list of all officers and agents employed, and the actual condition of all institutions under its supervision, with such suggestions as it may deem necessary and pertinent, and with recommendations for legislative and executive action.

Limitation of powers.

SEC. 9. The provisions of this act shall not apply to the Veterans' Home of California, located at Yountville, Napa County, nor to the Woman's Relief Corps Home at Evergreen, Santa Clara County.

SEC. 10. All acts and parts of acts in conflict with the provisions of this act are hereby repealed.

II.

An act providing for the supervision and control by the state board of charities and corrections of the placing of dependent children into homes and for the supervision of all societies or organizations engaged in such work and known as children's home finding societies.

(Approved April 24, 1911; Stats. 1911, p. 1087.)

Unlawful to place dependent children without permit.

SECTION 1. It shall hereafter be unlawful for any organization, society, or persons to engage in the work of placing dependent children into homes in this state without first obtaining a permit therefor, duly executed in writing, from the state board of charities and corrections.

Powers of board: To investigate, regulate and make rules for persons placing children; to require reports.

SEC. 2. The said state board of charities and corrections may investigate, or cause to be investigated, the books, records, and methods of such organizations, societies, or persons, and the disposition of the children coming into their custody; and it may make such rules and regulations as it may deem best for the government and regulation of such societies or persons, and may require such reports as it may desire.

To revoke permit for cause after hearing.

SEC. 3. The said state board of charities and corrections is hereby authorized and empowered to withdraw and cancel any permit to engage in the work of placing children into homes for any failure to observe the rules and regulations established for their government, or the failure to report as required, or for any failure on their part to perform their work as required by the best interests of the state, but no permit shall be canceled or withdrawn without due notice and hearing.

Child-placing without permit a misdemeanor.

SEC. 4. It is hereby made a misdemeanor for any person or persons, either as individuals or officers of any association or society, to engage in the work of placing children into homes, or the soliciting of funds therefor, in this state without a permit duly executed in writing by the state board of charities and corrections, authorizing said persons or such association or society to engage therein, or to engage in such work after any permit has been canceled.

State aid orphanages exempted from provisions of this act.

SEC. 5. This act shall not be construed as applying to any regularly established orphan home or any officer or official thereof acting for or on behalf of such home receiving aid from the state for the care of orphans, half-orphans or abandoned children in any effort such institution or its officers may make to procure the adoption into homes, or any officer or official thereof acting for or on behalf of such home of any such children.

SEC. 6. This act shall take effect immediately.

III.

An act to provide for the licensing, inspecting and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children, by the state board of charities and corrections, and providing a penalty for the violation of the provisions of this act.

(Approved April 23, 1913; Stats. 1913, p. 73. In effect August 10, 1913.)

Unlawful to maintain maternity hospital or place for the reception and care of children without license.

SECTION 1. No person, association, or corporation shall hereafter maintain or conduct in this state any maternity hospital or lying-in asylum where females may be received, cared for, or treated during pregnancy, or during or after delivery; or any institution, boarding house, home, or other place conducted as a place for the

reception and care of children, without first obtaining a license or permit therefor, in writing, from the state board of charities and corrections, such permit or license once issued to continue until revoked for cause after a hearing.

Board to issue licenses.

SEC. 2. The state board of charities and corrections is hereby authorized to issue licenses or permits to persons or associations to conduct maternity hospitals, lying-in asylums, or homes for children, as provided in section one of this act, and to prescribe the conditions upon which such licenses or permits shall be granted, and such rules and regulations as it may deem best for the government and regulation of maternity hospitals, lying-in asylums and institutions, boarding houses, or homes for the reception and care of children, and said board is further authorized, by one or more of its members, secretary, or duly authorized representative, to inspect and report upon the conditions prevailing in all such institutions.

Penalty for violation.

SEC. 3. Any person who maintains or conducts, or assists in maintaining or conducting as manager or officer, any maternity hospital, lying-in asylum, or any institution, boarding house, home, or other place conducted as a place for the reception and care of children, or who keeps at any such place any child under the age of twelve years, not his relative, apprentice, or ward, without first having obtained a license or permit therefor in writing, as provided in section one of this act, shall be punished upon conviction by imprisonment in the county jail for not more than one year, or by a fine not to exceed five hundred dollars, or both a fine and imprisonment may be imposed at the discretion of the court.

IV.

Relating to the probation of persons convicted of crime and requiring the probation officer to file a copy of his semiannual report with the state board of charities and corrections. Penal Code, Sec. 1203, sub. (j).

Probation officer to furnish copy of semiannual report to secretary of board.

Every probation officer, within fifteen days after the thirtieth day of June, and within fifteen days after the thirty-first day of December, of each year, shall make in writing and file as a public document with the county clerk a report to the superior court of the county or city and county in which such probation officer is appointed to serve, and shall furnish a copy of such report to each judge in said county or city and county who has released any person on probation who at the time of such report remains on probation; and a further copy to the secretary of the state board of charities and corrections. Such report shall state, without giving names, the exact number of persons, segregating male and female, and segregating misdemeanors and felons, who have been released on probation to such probation officer as such number exists, deducting all cases of expiration, discharge, dismissal, and restoration of rights, on said thirtieth day of June and said thirty-first day of December; and such report shall further segregate such persons as having been released on probation, as the case may be, in one thousand nine hundred three, one thousand nine hundred four, one thousand nine hundred five, and so on up to and including the calendar year in which such report is made and filed.

V.

An act making it the duty of the state board of charities and corrections to prescribe forms of record for the use of county hospitals and almshouses, county jails, and city prisons; and authorizing such board to furnish such records; and making the neglect or failure on the part of superintendents and jailers in charge thereof to keep such records a misdemeanor.

(Approved June 11, 1913; Stats. 1913, p. 682. In effect August 10, 1913.)

Board to prescribe forms of record for county hospitals and almshouses, county jails, and city prisons.

SECTION 1. It is hereby made the duty of the state board of charities and corrections to prescribe forms of record for the use of the superintendents of county hospitals and almshouses, and jailers in charge of county jails and city prisons, in keeping the records of persons received into or discharged from such county hospitals, almshouses, jails, and city prisons.

Board may furnish forms.

SEC. 2. Books of record for the records so prescribed by said state board of charities and corrections may be printed at the expense of said board and furnished to such county hospitals and almshouses, county jails and city prisons, at the cost thereof.

Failure to keep prescribed records a misdemeanor.

SEC. 3. It shall be the duty of the superintendent in charge of any such hospital or almshouse and the jailer in charge of any such jail or city prison to keep the records prescribed by the state board of charities and corrections as fully and completely as possible, and any such superintendent or jailer who neglects and fails to keep the records thus prescribed shall be guilty of a misdemeanor.

VI.

An act to be known as the juvenile court law, and concerning persons under the age of twenty-one years; and in certain cases providing for their care, custody and maintenance; providing for the probationary treatment of such persons, and for the commitment of such persons to the Whittier State School and the Preston School of Industry, the California School for Girls, and other institutions; establishing probation officers and a probation committee to deal with such persons and fixing the salary thereof; providing for the establishment of detention homes for such persons; fixing the method of procedure and treatment or commitment where crimes have been committed by such persons; providing for the punishment of those guilty of offenses with reference to such persons, and defining such crimes; and repealing the juvenile court law approved March 8, 1909, as amended by an act approved April 5, 1911, and as amended by an act approved June 16, 1913, and all amendments thereof and all acts or parts of acts inconsistent herewith.

(Approved June 5, 1915; Stats. 1915, p. 1225.)

* * * * *

Copy of annual report of probation committees to be filed with State Board.

SEC. 17b. The juvenile court, or the judge thereof, may at any time and upon request of the county board of supervisors shall require said probation committee or the probation officer to examine into the qualifications and management of any society, association or corporation, other than a state institution, receiving, or applying for, any ward of the juvenile court and to report thereon to the court; *provided*, that nothing in this section shall be construed as giving any probation officer or probation committee any power to enter any institution without the consent of such institution but in the event that such consent is refused, commitments thereto shall not be made. It shall be the duty of each probation committee to prepare each year one or more reports in writing on the qualifications and management of all societies, associations, corporations and institutions, except state institutions, applying for or receiving any ward of the juvenile court from the courts of their respective counties, and in such report said committee may make such suggestions or comments as to them may seem fit; such report shall be filed for the information of said court with the clerk of the juvenile court appointing such committee. The probation committee shall also make to the court an annual report to be filed as a public document prior to the first day of December, copies of which shall be filed with the county board of supervisors and the state board of charities and corrections. It shall be the duty of the probation committee to exercise a friendly supervision and visitation over the wards of the juvenile court when so directed by the court, to furnish the court information and assistance whenever required upon the request of the court and from time to time, to advise and recommend to the court any change or modification of the order made in the case of a ward of the juvenile court as may be for the best interests of such person. Upon request of the judge any member of the probation committee shall investigate the case of an alleged ward of the juvenile court coming under the provisions of this act, and render a report thereon to the judge. The probation committee shall also have the control and management of the internal affairs of any detention home or branch detention home heretofore or hereafter established by the county board of supervisors; and it shall be the duty of said board of supervisors to provide for the payment of such employees as may be needed in the efficient management of such detention home or branch detention home or homes.

* * * * *

VIII.

An act to provide for the maintenance and support, in certain cases, of indigent, incompetent, and incapacitated persons, other than persons adjudged insane and confined within the state hospitals, becoming a public charge upon the counties or cities and counties within the State of California, and for the payment thereof into a fund for the maintenance and support of such persons.

(Approved March 23, 1901; Stats. 1901, p. 636. Amendment approved May 14, 1917; Stats. 1917, p. 444.)

* * * * *

Duty of supervisors to investigate applications for relief; to supervise persons receiving relief; to keep records; may delegate duties.

SEC. 5. It shall be the duty of the board of supervisors of every county and every city and county as a whole, or by committee or by such person or society as it may authorize, to investigate every application for relief from the funds of such county or city and county, to supervise by periodic visitation every person receiving such relief, to devise ways and means for bringing persons unable to maintain themselves to self support and to keep full and complete records of such investigation, supervision, relief and rehabilitation, as shall be prescribed by the state board of charities and corrections.

* * * * *

Duty of board to prescribe records for above.

SEC. 10. It shall be the duty of the state board of charities and corrections to prescribe forms of records for the use of board of supervisors and their agents in keeping records heretofore mentioned.

IX.

Relating to persons whose consent is necessary to the adoption of a minor child, and requiring that when a child has been relinquished by its parents for the purpose of adoption, a copy of the relinquishment must be filed with the state board of charities and corrections prior to the commencement of any adoption proceedings. Civil Code, sec. 224.

(Approved May 19, 1917.)

Consent necessary for adoption; exemptions.

A legitimate child can not be adopted without the consent of its parents if living, nor any illegitimate child without the consent of its mother if living, except that consent is not necessary in the following cases, to wit:

From parent if deprived of civil rights.

1. From a father or mother if deprived of civil rights.

From parent adjudged guilty of cruelty or adultery.

2. From a father or mother adjudged guilty of adultery or cruelty and for either cause divorced.

From parent judicially deprived of custody and control.

3. From a father or mother who has been judicially deprived of the custody and control of such child on the ground of abandonment, cruelty, neglect or habitual intemperance, either by order of the juvenile court declaring said child to be free from the custody and control of its parents as provided in the juvenile court law of the State of California, approved June 5, 1915, and any act or acts superseding or amending same, or by order of the juvenile court of the county, where such child was left in the care and custody of another by its parent or parents, without any provisions for its support, for the period of one year, determining such child to be an abandoned child as defined in said juvenile court law; *provided, however*, that said juvenile court shall never make such order of abandonment without first giving notice of said abandonment proceeding by personal service of citation or other court process on the parent or parents or person having the custody of such child residing within the state, if their residence is known, and also such other or further notice to said parent or parents or person having the custody of such child, or other person or persons as the court may require, or by order of any other court of competent jurisdiction.

From parent declared feeble-minded or insane.

4. From a father or mother who has been declared either feeble-minded or insane by the state commission in lunacy or by three competent persons appointed by said commission; *provided*, that if so declared insane, said father or mother shall have subsequently been determined to be incurably insane by the superior court of the county where he or she resides.

From parent abandoning child without means of identification.

From a father or mother of any child deserted by its parents without provision for their identification.

From parent relinquishing child for adoption when relinquishment is filed with board.

From a father or mother of any child relinquished by its parent or parents for the purpose of adoption expressed in writing signed and acknowledged by such parent or parents before an officer authorized to take acknowledgments, or signed by such parent or parents before two subscribing witnesses and acknowledged by such parent or parents before the secretary of any organization or society engaged in the work of placing dependent or deserted children into the homes in this state, which organization or society has obtained a permit therefor, duly executed in writing, from the state board of charities and corrections, and when a copy of this relinquishment shall have been filed with the state board of charities and corrections prior to the commencement of any adoption proceedings affecting such child.

Procedure for adoption in cases where consent is not necessary.

Any child, the consent of whose parents is not necessary for its adoption within the meaning of this section maintained by or in the custody of any orphan asylum within this state, any charitable organization or society receiving state aid or receiving commitments from the juvenile court, may be adopted with the consent of the president of such orphan asylum, charitable organization or society, or with the consent of such officer as may be authorized by the directors or managers of such asylum, organization or society to consent to adoption in such cases. Any orphan child for whose support no provision has been made by any person for a period of one year, but who has been maintained during said year, by or in the custody of any orphan asylum within this state, any charitable organization or society receiving state aid or receiving commitments from the juvenile court may be adopted with the consent of the president of such orphan asylum, charitable organization or society or with the consent of such officer as may be authorized by the directors or managers of such asylum, organization or society to consent to adoption in such cases.

INDEX OF LAWS.

Adoption.

When a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections before adoption can be completed. Civil Code, Sec. 224.

Charitable institutions.

Public charitable institutions shall be investigated by the State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; plans for new buildings must be submitted to S. B. C. and C. Stats. 1911, p. 1334.

Child-placing agencies.

Must hold the license of the State Board of Charities and Corrections. Stats. 1911, p. 1087; S. B. C. and C. may require reports from. Stats. 1911; p. 1087; S. B. C. and C. may regulate. Stats. 1911, p. 1087.

Children's homes.

Licensed by State Board of Charities and Corrections. Stats. 1913, p. 73; regulated by S. B. C. and C. Stats. 1913, p. 73; subject to inspection by S. B. C. and C. Stats. 1913, p. 73.

Children's institutions.

Licensed by State Board of Charities and Corrections. Stats. 1913, p. 73; regulated by S. B. C. and C. Stats. 1913, p. 73; subject to inspection by S. B. C. and C. Stats. 1913, p. 73.

City prisons.

Plans for new buildings or additions to buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records are prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

Correctional institutions. (See Public institutions.)

County almshouses.

Plans for new buildings or additions to buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County boards of public welfare.

Must file a copy of all reports to their supervisors with the State Board of Charities and Corrections. Stats. 1915, p. 339.

County detention homes.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records and reports may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County hospitals.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by the S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County jails.

Plans for new buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County outrelief systems.

Records must be prescribed by State Board of Charities and Corrections. Stats. 1917, p. 444.

Day nurseries.

Inspection, license, and regulation by State Board of Charities and Corrections. Stats. 1913, p. 73.

Hospitals.

Hospitals having maternity departments must be licensed by State Board of Charities and Corrections. Stats. 1913, p. 73.

Institutions.

Public charitable, correctional, and penal institutions shall be investigated by State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by the S. B. C. and C. and plans for new buildings must be submitted to S. B. C. and C. Stats. 1911, p. 1334.

License.

Agencies which place children in homes must have a permit from the State Board of Charities and Corrections. Stats. 1911, p. 1087. Children's institutions, children's homes, homes which receive and care for children, day nurseries, maternity hospitals, lying-in asylums, hospitals must be licensed by the S. B. C. and C. Stats. 1913, p. 73.

Lying-in asylums.

Must be licensed by the State Board of Charities and Corrections. Stats. 1913, p. 73; inspection and regulation by S. B. C. and C. Stats. 1913, p. 73.

Maternity hospitals and homes.

Must be licensed by the State Board of Charities and Corrections. Stats. 1913, p. 73; inspection and regulation by S. B. C. and C. Stats. 1913, p. 73.

Penal institutions. (See Public institutions.)**Plans for new buildings.**

Must be submitted to State Board of Charities and Corrections by all public, charitable, correctional, and penal institutions. Stats. 1911, p. 1334.

Prisons. (See Public institutions.)**Probation committees.**

Must file copy of annual report with State Board of Charities and Corrections. Stats. 1915, p. 1225.

Probation officers.

Must file copy of semiannual report with State Board of Charities and Corrections. Penal Code, Sec. 1203, Sub. (j).

Public institutions.

Public charitable, correctional, and penal institutions shall be investigated by State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. and plans for new buildings must be submitted to S. B. C. and C. Stats. 1911, p. 1334.

Records.

May be prescribed by State Board of Charities and Corrections for all public charitable, correctional, and penal institutions. Stats. 1911, p. 1334; shall be prescribed by S. B. C. and C. for county almshouses, county hospitals, county jails, and city prisons. Stats. 1913, p. 682; for county outrelief systems. Stats. 1917, p. 444.

Relinquishment.

Copy of relinquishment of a child by its parent or guardian for the purpose of adoption must be filed with the State Board of Charities and Corrections before adoption can be completed. Civil Code, Sec. 224.

Reports.

State Board of Charities and Corrections may require from child-placing agencies. Stats. 1911, p. 1087; from all public charitable, correctional, and penal institutions. Stats. 1911, p. 1334; must be filed with the S. B. C. and C. by county boards of public welfare. Stats. 1915, p. 339; annual reports of probation committees must be filed with S. B. C. and C. Stats. 1915, p. 1225; probation officers must file copy of semiannual report with S. B. C. and C. Penal Code, Sec. 1203, Sub. (j).

State Home for the Adult Blind.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

State Home for the Feeble-minded.

Same as above.

State hospitals for the insane.

Same as above.

State prisons.

Same as above.

State reformatories

Same as above.

STATE BOARD OF CHARITIES AND CORRECTIONS: ANALYSIS OF DISBURSEMENTS FOR THE SEVENTIETH FISCAL YEAR, JUNE 30, 1919.

	Salaries and wages	Service and expense	Property and equipment	Totals
Administration:				
Board of managers.....		\$1,691 84		\$1,691 84
Secretary	\$3,225 00	547 09		3,772 09
Total administration	\$3,225 00	\$2,238 93		\$5,463 93
Child welfare.....	\$6,077 50	\$1,835 91		\$7,913 41
Institutional welfare	\$2,725 15	\$1,837 22		\$4,562 37
Community welfare.....	\$1,952 90	\$825 59		\$2,778 49
Social research:				
Surveys, statistics and library.....	\$500 00	\$571 31		\$1,071 31
General:				
Clerical	\$4,743 75	\$790 10	\$634 86	\$6,168 71
Postage		437 95		437 95
Printing		1,421 20		1,421 20
Rent		663 22		663 22
Telephone and telegraph.....		1,412 08		1,412 08
Traveling expense, scrip—undistributed.....		300 00		300 00
Liberty Fair exhibit.....		126 85		126 85
Total general.....	\$4,743 75	\$6,151 40	\$604 86	\$10,560 01
Total expenditures.....	\$19,224 30	\$12,460 36	\$664 86	\$32,349 52
Appropriation for support, Chap. 358-1917:				
Unexpended balance, sixty-ninth fiscal year.....				\$33,170 20
Total disbursements, seventieth fiscal year.....				32,349 52
Unexpended balance, close of seventieth fiscal year.....				\$820 68

STATE BOARD OF CHARITIES AND CORRECTIONS: ANALYSIS OF DISBURSEMENTS FOR THE SEVENTY-FIRST FISCAL YEAR, JUNE 30, 1920.

	Salaries and wages	Service and expense	Property and equipment	Totals
Administration:				
Board of managers.....		\$1,553 72		\$1,553 72
Secretary	\$3,600 00	430 78		4,030 78
Total administration	\$3,600 00	\$1,984 40		\$5,584 50
Child welfare.....	\$7,001 92	\$2,288 64		\$9,290 56
Institutional welfare	\$2,044 17	\$3,723 35		\$5,767 52
Community welfare.....	\$2,159 20	\$935 46		\$3,094 66
Social research:				
Surveys, statistics and library.....		\$43 14		\$43 14
General:				
Clerical	\$4,834 93	\$1,452 15	\$519 05	\$6,806 13
Postage		283 40		283 40
Printing		112 43		112 43
Rent		1,472 64		1,472 64
Telephone and telegraph.....		684 40		684 40
Total general.....	\$4,834 93	\$4,005 02	\$519 05	\$9,359 00
Total expenditures	\$19,640 22	\$12,680 11	\$519 05	\$33,139 38
Appropriation for support, seventy-first and seventy-second fiscal years, Chap. 645-1919.....				\$60,000 00
Emergency Resolution No. 10.....				2,500 00
Emergency Resolution No. 39.....				625 00
Total disbursements, seventy-first fiscal year.....				\$63,139 38
Unexpended balance, Emergency Resolution No. 10.....				28 75
Unexpended balance, Emergency Resolution No. 39.....				23 69
Unexpended balance, appropriation for support, close of seventy-first fiscal year.....			30,033 18	
			\$63,225 00	\$63,225 00

TENTH BIENNIAL REPORT

OF THE

State Board of Charities and
Corrections

OF THE

State of California

From July 1, 1920, to June 30, 1922



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

**LIST OF PUBLICATIONS OF THE STATE BOARD OF CHARITIES
AND CORRECTIONS OF CALIFORNIA.**

1. A Standard Dietary for an Orphanage. 1914.
Written for the State Board of Charities and Corrections by Dr. Adele S. Jaffa. "A standard dietary is one which provides for every fundamental need of the body, which makes for good health, full development and best efficiency, and does this at the least possible cost."
2. Index to Social Legislation. 1915.
Laws enacted by the forty-first legislature of the State of California. Prepared by the State Board of Charities and Corrections and published by the San Francisco Social Workers' Alliance.
3. Institutional Reports: What they are and what they should be. 1916.
By Dr. Samuel Langer, superintendent of Pacific Hebrew Orphan Asylum, San Francisco.
4. A Guide to California Laws Pertaining to Charities and Corrections. 1916.
An index to these laws with brief statement concerning the content of each.
5. County Outdoor Relief in California. 1916.
By E. P. Von Allmen. First bulletin by the State Board of Charities and Corrections on county out-relief. (Out of print.)
Revised edition by Esther DeTurbeville. 1918.
This bulletin presents the salient facts concerning the administration of public relief to the poor in their own homes in California. The outline shows the distribution of responsibility for the care of public dependents between the state and county governments on the one hand and between institutional and outdoor care on the other.
6. A Study in County Jails in California. 1916.
Prepared by Stuart A. Queen, when secretary of the State Board of Charities and Corrections. Shows the uses and cost of the jails and recommends various changes; primarily the establishment, by the state, of a colony for misdemeanants.
7. A Standard Plan for Small Jails. 1917.
Plans prepared by Earl H. Markwar, architect, with brief explanation.
8. Surveys in Mental Deviation, in Prisons, Public Schools, and Orphanages. 1918.
By Dr. Lewis M. Terman, Dr. J. Harold Williams, and Dr. Grace M. Fernald.
9. A Dietary for the Aged and Infirm. 1918.
By Alice M. Heinz, A.B., M.A.

LETTER OF TRANSMITTAL.

SAN FRANCISCO, November 1, 1922.

To His Excellency, WILLIAM D. STEPHENS, Governor,
State Capitol, Sacramento, California,

SIR: In accordance with section eight of the act creating the State Board of Charities and Corrections (Statutes 1903), we have the honor of transmitting herewith our Tenth Biennial Report for the period commencing July 1, 1920, and ending June 30, 1922.

Respectfully submitted.

CHARLES A. RAMM, *President.*

CARRIE P. BRYANT, *Vice President.*

JOHN R. HAYNES.

JESSICA B. PEIXOTTO.

B. H. PENDLETON.

HATTIE HECHT SLOSS.

State Board of Charities and Corrections.

CORNELIA MCKINNE STANWOOD, *Secretary.*

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ROSTER OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

EX OFFICIO.

	From	To
GOVERNOR GEORGE C. PARDEE-----	1903	1907
GOVERNOR JAMES N. GILLETT-----	1907	1911
GOVERNOR HIRAM W. JOHNSON-----	1911	1917
GOVERNOR WILLIAM D. STEPHENS-----	1917	1923

MEMBERS.

	From	To
O. K. CUSHING, San Francisco-----	June, 1903	—Feb., 1908
ANDREW M. DAVIS, San Francisco-----	June, 1903	—Feb., 1908
W. C. PATTERSON, Los Angeles-----	June, 1903	—Feb., 1908
E. C. MOORE, Los Angeles-----	June, 1903	—Aug., 1910
J. K. McLEAN, Berkeley-----	June, 1903	—Sept., 1911
CHARLES A. RAMM, San Francisco-----	June, 1903	—
R. S. TAYLOR, Yreka-----	Feb., 1908	—Feb., 1910
LOUIS ROSENTHAL, San Francisco-----	Feb., 1908	—May, 1912
W. S. TINNING, Martinez-----	Feb., 1908	—Aug., 1915
CLARA SHORTRIDGE FOLTZ, Los Angeles-----	Feb., 1910	—April, 1912
MARTIN A. MEYER, San Francisco-----	Sept., 1911	—Feb., 1920
CARRIE PARSONS BRYANT, Los Angeles-----	Nov., 1911	—
JOHN R. HAYNES, Los Angeles-----	April, 1912	—
JESSICA B. PEIXOTTO, Berkeley-----	May, 1912	—
B. H. PENDLETON, Oakland-----	Aug., 1915	—
HATTIE HECHT SLOSS, San Francisco-----	Feb., 1920	—

SECRETARY.

W. ALMONT GATES-----	Sept., 1903	—Dec., 1913
STUART A. QUEEN-----	Jan., 1914	—Aug., 1917
ANITA ELDRIDGE (Acting Secretary)-----	Sept., 1917	—Jan., 1918
JOEL D. HUNTER-----	Jan., 1918	—Feb., 1918
ANITA ELDRIDGE (Acting Secretary)-----	Feb., 1918	—Sept., 1918
CORNELIA McKINNE STANWOOD-----	Oct., 1918	—

STATE BOARD OF CHARITIES AND CORRECTIONS.

November, 1922.

GOVERNOR WILLIAM D. STEPHENS, <i>ex officio</i>	SACRAMENTO
CHARLES A. RAMM.....	SAN FRANCISCO
CARRIE PARSONS BRYANT.....	LOS ANGELES
JOHN R. HAYNES.....	LOS ANGELES
JESSICA B. PEIXOTTO.....	BERKELEY
E. H. PENDLETON.....	OAKLAND
HATTIE HECHT SLOSS.....	SAN FRANCISCO

ORGANIZATION OF THE BOARD.

CHARLES A. RAMM.....	<i>President</i>
CARRIE PARSONS BRYANT.....	<i>Vice President</i>

Standing Committees for the Current Year.

1. INSTITUTIONS: Mrs. Bryant, Messrs. Haynes and Pendleton.
2. CHILDREN: Mrs. Sloss, Dr. Peixotto and Mrs. Bryant.
3. COUNTY ORGANIZATION: Messrs. Pendleton, Ramm and Haynes.
4. RESEARCH: Dr. Peixotto, Messrs. Ramm and Haynes.

STAFF.

CORNELIA MCKINNE STANWOOD.....*Secretary*

Institutions.

MARGARET F. SIRCH.....*Head of Southern Office and Agent for Institutions*
 GRACE SHUFF.....*Agent*

Children.

MABEL WEED.....*Chief Agent*
 ALIX G. SMITH.....*Agent*
 VALERIE SARRAT.....*Agent*
 DOROTHY BOTSFORD.....*Agent*
 MARY B. OGDEN.....*Agent*
 MARY BALCH NOBLE.....*Clerk*

Juvenile Courts.

UNFILLED.....*Clerk*

County Welfare.

ESTHER De TURBEVILLE.....*Agent*
 CATHERINE E. NOEL.....*Clerk*

Research and Clerical Service.

KATHRYN E. THOMAS.....*Statistician*
 EMMA S. HUNT.....*Chief Clerk*
 EMILY E. KING.....*Chief Stenographer*
 ELSIE LATTA.....*Stenographer*

BY-LAWS.

OFFICERS.

Sec. 1. The board shall elect a president, whose duty it shall be to preside at all meetings and perform such other duties as usually pertain to the office of president, and who shall hold office for one year, from and after the fourth Thursday in April of each year.

Sec. 2. The board shall elect a vice president, who shall hold office for the same time, and who shall perform the duties of the president in case of the absence of the latter or his inability to act.

Sec. 3. The board shall elect a secretary, who shall hold office during the pleasure of the board, and who shall receive such salary as the board may determine, and whose duty it shall be to keep a record of the proceedings of the board, to have charge of its office as executive officer, and to perform such other duties as are contemplated by the law creating the board, and as the board may from time to time direct.

MEETINGS.

Sec. 1. The board shall hold regular meetings on the fourth Tuesday of every other month.

Sec. 2. Special meetings may be held at the call of the president or of three members at such times and places as may be fixed. Notices of special meetings shall be mailed to the address of each member at least five days before the date of meeting.

Sec. 3. The board may meet at any time and place without notice, if six of the members are present or give their written consent thereto.

Sec. 4. The nature of the business to be transacted shall be stated in the notice of special meetings, and no other business shall be transacted at such meeting without the consent of five members of the board.

Sec. 5. The president, vice president and secretary shall be elected or appointed only at a regular meeting or an adjourned regular meeting.

EXPENDITURES.

Sec. 1. The secretary shall keep an itemized account of the expenditures of the board, and of each member or officer thereof.

Sec. 2. An auditing committee of two shall be appointed, whose duty it shall be to audit all expenditures of the board, or any of its members or officers.

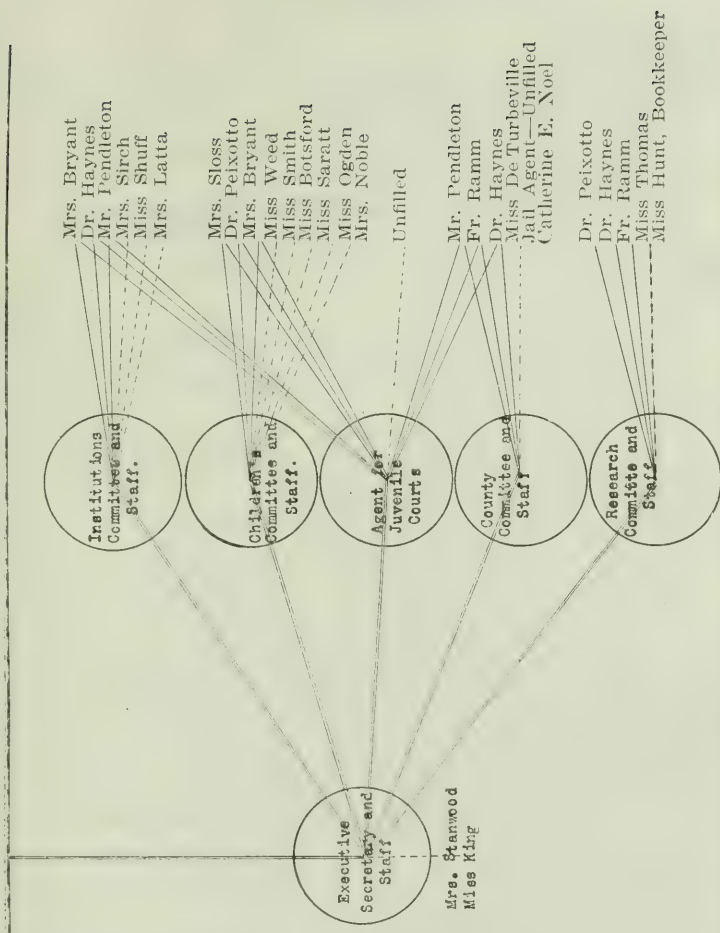
QUORUM.

Sec. 1. Four members shall constitute a quorum, and a less number can not transact any business except to adjourn from day to day.

AMENDMENTS.

Sec. 1. These by-laws may be amended by the vote of four members at any regular meeting without notice, or at a special meeting, provided notice in writing of the proposed amendment is mailed to each member five days before the date of meeting. The by-laws may be amended or suspended at any time by the unanimous vote of six members.

ORGANIZATION CHART OF THE STATE BOARD OF CHARITIES AND CORRECTIONS. (An unpaid board of six members.)



Solid lines indicate board members; dotted lines, staff members, and double lines executive.

THE SCOPE OF THE WORK OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

It is an unpaid Board.

Its members do voluntary work, giving time and personal service.

I. CHILDREN'S DEPARTMENT.

This Board, through license, directs the following:

	Midnight June 30, 1922	1921-1922 Enrollment
A. Children's Institutions:		
104 Institutions	6,603 children	15,623
60 Institutions for Needy Children caring for	4,802 children	
6 Homes for Convalescent and Crippled Children, caring for.....	204 children	
7 Training Schools for Wayward Children, caring for.....	471 children	
24 Day Nurseries, caring for.....	930 children (average daily attendance)	
7 Rescue Homes, caring for.....	131 girls 65 babies	
B. Family Boarding Homes for Children:		
1,792 Boarding Homes caring for.....	2,706 children	
1,199 Boarding Homes caring for.....	1,691 children	
593 Boarding Homes supervised by eight licensed agencies caring for.....	1,015 children	2,706
C. Child Placing Agencies for Adoption:		
8 Agencies supervising 893 adoptive or permanent free homes caring for.....	866 children	896
D. Homes and Hospitals Caring for Maternity Patients:		
296 Maternity Hospitals, Departments and Homes with a capacity of.....	1,824 patients	1,824
77 Maternity Departments with a capacity for	1,083 patients	
117 General Hospitals with a capacity for..	463 patients	
102 Maternity Homes with a capacity for..	277 patients	

II. COUNTY DEPARTMENT (58 COUNTIES)

This Board supervises, examines and reports on:

146 County Institutions	30,431 county wards	96,524
62 County Hospitals, caring for.....	8,074 sick and aged	63,712
60 County Jails, caring for.....	1,768 inmates	32,812
24 Detention Homes, caring for.....	357 children	
Counties giving county aid to.....	20,232 persons	

III. STATE INSTITUTIONS.

This Board supervises, examines and reports on:

15 State Institutions	17,722 state wards	25,464
6 State Hospitals, caring for.....	11,291 patients	
2 State Prisons, caring for.....	3,769 prisoners	
2 State Homes for Feeble Minded Children, caring for	1,600 children	
3 State Schools for Delinquent Children, caring for	914 boys and girls	
1 Industrial Home for Adult Blind, caring for..	133 adult blind	
1 Industrial Farm for Women, caring for.....	24 women	
*Total Annual Enrollment.....		143,037
570 Institutions } 2,631 Homes } Grand total		60,182 wards

IV. APPROXIMATE COST OF SUPERVISION OF WARDS OF BOARD.

Total expenditures of Board from June 30, 1921, to July 1, 1922.....	\$89,920.42
Number of wards supervised during year.....	143,037
Approximate cost of supervision per ward.....	28 cents

The Board of Charities and Corrections is the only State Board charged with and doing the work listed above.

*Total annual enrollment includes all persons on the registers of the institutions at the beginning of the year, June 30, 1921, and all persons registered during the year to July 1, 1922. For boarding homes, maternity hospitals and homes and detention homes, only the number on register at end of year was available.

ANALYSIS OF DUTIES AND POWERS
OF THE
STATE BOARD OF CHARITIES AND CORRECTIONS

Board—unpaid. Six members.

Staff—Secretary and agents—employed by the board.

Duties.

I. *Supervises*, investigates and reports on all state, county and city charitable, correctional, penal and reformatory institutions.

II. *Licenses* (1) Agencies which place children in homes either to board or for adoption; (2) Institutions and family boarding homes caring for dependent, delinquent and feeble-minded children; (3) Preventoria, convalescent homes; (4) Day nurseries; (5) Maternity hospitals and homes and hospitals having maternity departments; (6) Rescue homes.

III. *Prescribes* records for (1) State institutions; (2) County hospitals; (3) Almshouses; (4) County jails; (5) City prisons; (6) County outrelief systems; (7) County welfare departments.

IV. *Keeps on file* (1) Reports legally required from probation committees, juvenile probation officers, and adult probation officers to superior court judges; (2) Copy of relinquishment of a child by parents or guardian for the purpose of adoption to be filed before adoption is completed.

V. *Promotes the organization*, through boards of supervisors, of county welfare departments for proper expenditure and supervision of relief.

VI. *Holds hearings* in connection with all institutions and organizations under its supervision; issues compulsory process, requires the production of books and papers, and administers oaths.

VII. *Passes upon plans* for new buildings or parts of buildings of all institutions legally under the supervision of the board.

(The legal authorization for the foregoing duties is shown on the following page.)

DUTIES AND POWERS OF STATE BOARD OF CHARITIES AND CORRECTIONS.

Duties and powers

Statutes

Inspection.

Supervision of all state, county, city, charitable, correctional and penal institutions -----	Statutes 1903, page 482, as amended by Statutes 1911, page 1334, and by Statutes 1915, page 847.
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License.

Agencies which place children in homes either to board or for adoption must be licensed by this board -----	Statutes 1911, page 1087.
Maternity hospitals and homes and hospitals having maternity departments must be licensed by this board -----	Statutes 1913, page 73.
All institutions and homes where children are received and cared for must be licensed by this board -----	Statutes 1913, page 73.

Prescribing of Records.

This board prescribes records for county hospitals, almshouses, county jails and city prisons -----	Statutes 1913, page 682.
Board prescribes records for county outrelief systems -----	Statutes 1917, page 444.

Miscellaneous.

County boards of public welfare must file copies of all reports with this board -----	Statutes 1915, page 339.
Probation committees must file copies of all annual reports to the judge with this board prior to December 1 -----	Statutes 1915, page 1225.
Juvenile probation officers must file copies of all annual reports to the judge with this board prior to January 15 -----	Statutes 1915, page 1225.
Adult probation officers must file copies of all semiannual reports to the judge with this board -----	Penal Code, Section 1203, subdivision (j).
When a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with this board before adoption can be completed -----	Civil Code, Section 224.
Plans for new buildings or parts of buildings for any county or city institution under its supervision must be submitted to this board for approval -----	Statutes 1911, page 1334.
This board has the power to hold hearings in connection with the public institutions under its supervision, issue compulsory process, require the production of books and papers, and administer oaths -----	Statutes 1903, page 482.

TRANSACTIONS OF THE BOARD

Nearly twenty years ago, March 25, 1903, the legislature created the State Board of Charities and Corrections. The act creating the board limited its duties and powers to the public institutions. These duties and powers were neither administrative nor financial but supervisory. The wards of the state, confined in its several institutions, were already under the administrative control of the respective superintendents, while the financial interests of the state were under the inspection of the State Examiner. There was, however, another aspect of the care of these wards which the state recognized when it created the State Board of Charities and Corrections. The wards had been taken over by the state; they had been separated from their families and relatives by court action. Bonds had been broken and in most cases the wards had been removed far from their former homes. It was both wise and necessary that some individual or board representing those who were left behind should be charged with the duty of following the wards into their several institutions and reporting back that they were being properly cared for. This is a distinctly social work, it stresses the human side of a problem which on its two other sides is administrative and financial. It was clear that the work could be more satisfactorily done by a representative board than by any one individual. It was upon this theory that the State Board of Charities and Corrections comprising a membership of six unpaid citizens was created.

Hitherto, whenever difficulties arose in the state institutions or complaints were made the usual recourse was to a legislative committee with all the attendant stress and disturbance. Such a committee would from the nature of the case be casual and not especially familiar with the social work of such institutions. A state board on the other hand, permanent in its tenure, going quietly about among the institutions would gradually come to know them intimately and be constantly ready to make inspections and carry on investigations with the least possible disturbance to the institutions and anxiety to the interested relatives.

It is evident from the nature of the supervisory work of such a board as the State Board of Charities and Corrections, that it should possess the most complete independence in its investigations, findings and recommendations. It should not be under nor should it be a department of the board of finance or administration, but should be coordinate with them. The necessity of such independence is emphasized in a report, "A Valuation of a System for the Administration of State Institutions Through One Man Control as Operated in Illinois," which was made for the State Charities Aid Association of New York by Henry C. Wright, formerly First Deputy Commissioner of Charities of the City of New York. We quote from page 41 on this report as follows:

"A centralized form of government such as that in Illinois, so designed that it may be very good or very bad, needs some check, at least as applied to that division which deals with the welfare of the state wards. If that department goes bad, many thousands may suffer

without the knowledge of the public. There needs to be some independent informatory body of citizens whose affair it is to let the public know what is happening to patients and inmates under the care of the state. * * * The membership of a board with that function should be so constituted by method of appointment, or by length of term, that it will be entirely independent in its judgment. There should be no hesitancy in telling the public if the state's wards are faring badly."

In 1911, the people through legislative action extended the responsibility of the board to the care of homeless children, and in 1913 gave the board the responsibility of licensing all institutions and family boarding homes caring for dependent children. In 1917 the board was made responsible for the standards of relief and records in the county relief work.

Board.

Reverend Charles A. Ramm, now its president, has served on the board from the beginning, 1903, a period of twenty years. The other members, with the exception of Mr. Pendleton, who has served seven years, and of Mrs. Sloss, who has served three years, have served over eleven years.

The members are unpaid. They are chosen by the Governor to represent geographically the varying social needs of a state 750 miles long and 250 miles wide, and the varying religious viewpoints of its 60,182 wards who represent all religious faiths. They bring to their task the best of professional experience and training in social matters, a devotion and interest that is recorded in service.

The board is divided into committees as follows:

1. *Institutions*—Mrs. Bryant, Messrs. Haynes and Pendleton.
2. *Children*—Mrs. Sloss, Dr. Peixotto and Mrs. Bryant.
3. *County Organization*—Messrs. Pendleton, Ramm, Haynes.
4. *Research*—Dr. Peixotto, Messrs. Ramm and Haynes.

These committees meet regularly, the children's committee every Tuesday afternoon, the county committee and the institutions committee on call of the chairman.

The committee meetings have a regular order of business which includes reports of agents, the hearing of complaints against institutions and agencies, conferences with the directors over plans and programs, and action on licenses.

During this biennial period the board has lost a valuable worker in Miss Anita Eldridge who was with it over thirteen years. She first went east to a more responsible position in New Jersey. On her return to California she assumed the secretaryship of the State Conference of Social Work.

State institutions.

The responsibility of the board extends to a large and growing population in the state institutions. California through action of its suc-

cessive legislatures has assumed legal and financial responsibility for the care and custody of such persons as require more specialized care than the counties with their limited resources are equipped to provide. Therefore the county when the judge decides it is necessary, commits felons, the insane, the feebleminded, women misdemeanants, the adult blind and wayward boys and girls to the State for custody, treatment and training.

As a result of this legislation, the state had in custody, June 30, 1922, 17,722 wards segregated in its 15 state institutions as follows:

- 3,760 felons in its two penitentiaries.
- 11,291 patients so demented as to be a menace to the safety of the community, in its six state hospitals for the insane.
- 1,600 children and adults so mentally defective as to be a menace to the community or to be unable to care or protect themselves, in its two state homes for the feeble-minded.
- 133 blind persons who are capable of industrial training in the Industrial Home for the Adult Blind.
- 914 minors, boys and girls judged by the juvenile courts to be so wayward as to need special training, supervision and custody, in its three state schools.
- 24 women, misdemeanants deemed capable of reformation through industrial training, committed by the lower courts to the Industrial Farm for Women.

17,722

The administrative responsibility for these 17,722 wards of the state lies with the Director of Institutions; the financial responsibility with the Department of Finance and the responsibility for supervision with the State Board of Charities and Corrections.

This board has worked on most cordial terms of cooperation with the Directors of the Department of Institutions, Mr. Ralph T. Fisher, Dr. John A. Reily and Mr. E. G. Twogood.

Progress has been made in the institutions in the last two years. There are many new buildings and an improvement in equipment. Our state institutions compare favorably with the institutions of other states. We are one of the few states to have uniform records in state hospitals; the last years have shown gratifying accomplishment in recreational facilities, occupational therapy, a lessening of restraint, an increased medical service and educational training. See report of Institutions Committee, page 17. Children's Department, page 51.

Children's Department.

In 1911 the legislature made the State Board of Charities and Corrections a licensing body responsible for the care of dependent children in institutions and family boarding homes when the children were not with their parents or guardians.

On June 30, 1922, this board through its license was responsible for:

104 institutions for children caring for.....	6,603 children
1792 family boarding homes caring for.....	2,706 children
1199 of these hold individual licenses; 593 are supervised by the 8 licensed child placing agencies.	
8 child-placing agencies—adoption work (893 homes).....	896 children
296 maternity hospitals, departments and homes caring for.....	*1824 children
<hr/> 2200 institutions and homes caring for.....	<hr/> 12,029 children

*Estimated on bed capacity.

The number of homes and institutions, and the number of children in them, indicate the serious responsibility this board carries in licensing these institutions.

Legislation for the protection of children places California in the front rank of the states of the nation. As a result of this legislation, it has safeguarded the placing of children for adoption through its license of child-placing agencies; it has closed unfit boarding homes for children and the women illegally boarding the children have suffered court sentences in jail; through frequent inspections by board members and agents with consequent reports and conferences with directors, it has been successful in helping to bring many improvements in buildings, in equipment and in procedure into the children's institutions of California.

County Department.

The law makes this board responsible for the welfare of the dependent and the delinquent in the county. With the growth of the state, this is a rapidly increasing population. The reports from county officials show that at midnight on June 30, 1922, there were 8074 patients in county hospitals; during the year 56,111 patients passed through the hospitals. On that same date there were 1768 prisoners in the county jails; 32,812 passed through during the year. The auditors' reports (53 out of 58 counties) showed a total expenditure of \$2,265,984.02 for relief outside of institutions.

In order to provide for the intelligent expenditure of county funds and to insure proper care, custody and treatment for this large group, this board has stressed its county welfare department plan. This plan of organization is working successfully in twelve of the counties of California. It has attracted nation wide interest. (For report of County Committee, see page 111.)

The policy of this board is to help the local communities to carry their legal responsibilities and to conduct their welfare work at the highest standard. It keeps in touch with the counties in its inspections and through its "county letters." The board works with the organizations of the state. It has helped the institutions in their building plans by constructive criticism and suggestions.

Reviewing in its ten biennial reports the twenty years of service of this board we can see a record of accomplishment. Many of its legislative recommendations have been crystallized into legislative action. California has today such a solid basis of reasonable legislation for its social work that it is working its way towards a better protection of the children of the afflicted and of the aged.

The definite accomplishment of the board in the field of state institutions, of work for children and of county organization is best presented in the committee reports of the board which follow:

REPORT OF THE INSTITUTIONS COMMITTEE.

Chairman—Carrie Parsons Bryant.

Agent—Margaret F. Sirch, R.N.

I. GENERAL SUMMARY OF STATE INSTITUTIONS.

II. STATE HOSPITALS FOR THE INSANE.

Agnews State Hospital.....	Agnew
Mendocino State Hospital.....	Talmage
Napa State Hospital.....	Imola
Norwalk State Hospital.....	Norwalk
Stockton State Hospital.....	Stockton
Southern California State Hospital.....	Patton

III. STATE HOMES FOR MENTAL DEFECTIVES.

Sonoma State Home.....	Eldridge
Pacific Colony.....	Walnut

IV. STATE SCHOOLS.

Preston School of Industry.....	Waterman
Whittier State School.....	Whittier
California School for Girls.....	Ventura

V. BUREAU OF JUVENILE RESEARCH..... Whittier

VI. STATE PRISONS.

California State Prison.....	San Quentin
Folsom State Prison.....	Repres

VII. REFORMATORY INSTITUTIONS FOR ADULTS.

California Industrial Farm for Delinquent Women.....	Sonoma
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VIII. STATE INDUSTRIAL HOME FOR ADULT BLIND.

Industrial Home for the Adult Blind.....	Oakland
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IX. PAROLES FROM STATE INSTITUTIONS.

I. GENERAL SUMMARY OF STATE INSTITUTIONS.

An amendment of the Political Code relating to a Department of Institutions, effective July, 1921, gave administrative control and direction of state institutions which hitherto had rested with separate boards of managers, to a director of institutions. This position has been filled by Mr. Ralph T. Fisher, August 1, 1921, to April 11, 1922; Dr. John A. Reily, April 11, 1922, to September 12, 1922; Mr. E. G. Twogood, since September 12, 1922.

There has been close cooperation between this board and the Director of Institutions, without overlapping. The state prisons were not included under this directorate. The function of the State Board of Charities and Corrections on inspection and report remained as before (see page 12, Sec. 3, Powers and Duties.)

The work of the board in the state institutions during this biennial period has been as heretofore under the direction of the chairman of Institutions Committee.

The complaints received during this biennial period of lack of care or harsh treatment of patients or inmates have been few. Two major investigations were conducted by this board, one of which resulted in

publicity and an open hearing; this at Sonoma State Home in November, 1921.

Public hearings are to be regretted from every point of view. They are distressing to relatives and disturbing to the morale of the entire group in the institution itself. The press was fair, just and non-sensational in its handling of the publicity.

Every complaint received is carefully inquired into by the board and report of findings made to the complainant. The board has been able to make adjustments that forestalled difficulties and friction. It has worked closely with the director and the superintendents for the good of the institutions.

The institutions have gone steadily forward in many ways.

It is to be regretted that provision for social service for the state hospitals has not been made.

Supplies and equipment in the state institutions, greatly depleted during the war, have, in the main, been restored to a pre-war basis, with many additional improvements.

During this biennial period, this board has passed on plans for new state buildings. Numerous recommendations have been made and accepted. The plans endorsed have been:

1. Completion of cottage for male tuberculars, Mendocino.
2. Receiving building, Stockton.
3. Farm cottage, Norwalk.
4. Receiving and treatment building, Norwalk.
5. Two cottages for patients, Southern California State Hospital.
6. Nursery building for boys, Sonoma State Home.
7. Remodeled school building, Whittier State School.
8. Hospital building, Industrial Farm for Women.
9. Two cottages for male and female patients, Norwalk.
10. Cottages 4 and 5, Preston School of Industry.
11. Honor cottage for girls, Sonoma State Home.

Notwithstanding increased capacity in almost all of the state institutions, there is an acute condition of overcrowding, especially in hospitals for the insane.

A comparison of population in state institutions for 1912 and 1922 shows an increase in the state hospitals of 3362 patients. The total population in excess of the planned capacity in all state institutions on June 30, 1922, was 1537; of this number 1430 were patients in the state hospitals for the insane.

II. STATE HOSPITALS FOR THE INSANE.

The following recommendations and suggestions have been made to superintendents of state institutions and have formed the program for the past biennial period of the State Board of Charities and Corrections:

- a. The standardization of state hospital records.
- b. The expansion of occupational therapy in all state hospitals.
- c. The minimum use of restraint.
- d. Increased provision for recreation, library privilege and outdoor exercise for patients.
- e. Better physical care of patients—increased dental work.

- f.* Affiliation of state hospitals with accredited training schools for nurses.
- g.* Adequate provision for the care of the criminal insane.
- h.* Changes in the State Lunacy Law pertaining to the transfer of patients to state hospitals.
- i.* Psychiatric social service with increased supervision of paroled patients.
Establishment of psychiatric clinics.
- j.* Better provision for general care of psychopathic patients pending hearing as to their sanity.
- k.* Provision for segregation and treatment of drug addicts.

a. Standardization of state hospital records.

The state hospitals for the insane have been using uniform and standardized records for two years. These forms were presented to the superintendents in conference by the State Board of Charities and Corrections, and are proving satisfactory.

b. The expansion of occupational therapy in all state hospitals.

The board has urged occupational therapy and has had the privilege of witnessing excellent results. To see patients formerly known as most destructive, quietly engaged in creating instead of destroying is a never-to-be-forgotten sight. The work has grown in each state hospital to the full extent of its financial allowance and classroom capacity.

Agnews has introduced occupation in the wards, where the attendants instruct and supervise, this in addition to the regular class work in the industrial department.

Mendocino has enlarged its classroom for women workers. Machinery for the manufacture of shoes has been installed, and work will soon begin. An industrial building is greatly needed.

A school of occupational therapy for ex-service men is maintained in this institution by the U. S. Veterans' Bureau.

Napa has, during the past biennial period, instituted an industrial department for men patients, including brush, broom and rug making, toys and shoe manufacture. The art classes for the women patients have long ranked among the best in the state institutions. Plans for a building to house the industries are now being drawn. This will include: Shoe shop, tailor shop, sewing rooms, mattress shop, brush, broom and rug shop, print shop, toy shop, woodwork (making and repairing furniture) basketry, and textile department, hosiery and shoe string machines. A print shop is also included.

Norwalk has established occupational therapy during the past two years. A temporary industrial building has been erected in which brooms, brushes, mats, tables and many other useful articles used about the institution are manufactured. The art department for women patients has been very active.

Stockton, pioneer in occupational therapy, has increased the number of patients, both men and women, assigned to this department. Many new industries have been instituted. Four teachers are engaged by this institution in the reeducation of patients.

Southern California, also a pioneer in occupational therapy, has grown apace. The industrial building, opened in 1917, swarms with activities. Work therapy in the different cottages under the matrons is successfully featured for both men and women patients.

The money obtained from sale of articles, after deducting cost of materials, is used by the different hospitals for the amusement fund.

c. The minimum use of restraint.

A comparative study in all state hospitals shows a decrease in the use of mechanical restraint.

The increased use of occupational therapy, in conjunction with hydrotherapy, and increased hours out of doors as well as the provision of cottages with screen porch type of dormitories, have all been factors toward this reduction.

There has been an extension of the use of open wards in several of the hospitals.

d. Increased provision for recreation, library privilege and outdoor exercise for patients.

All of the hospitals have provided additional facilities for recreation and amusement. There has been a marked effort on the part of the superintendents to increase the hours out-of-doors, especially for the inert, low-grade patients and to stimulate them to some form of physical exercise.

Increased provision in the way of compounds, benches and summer houses has been made by the hospitals to provide greater time in the open air: swings, teeter boards, slides and rings have been added.

There is constant need of stimulating the attendants in charge of the outdoor groups in order to create activities for the patients. They as well as the patients become apathetic.

In several of the hospitals progress has been made in supplying active diversional amusements, baseball, basket ball, volley ball, medicine ball, croquet, quoits and indoor baseball. Instructors in physical culture are now employed by several institutions. Moving pictures have become of regular weekly or semi-weekly occurrence; several of the hospitals have instituted afternoon and evening showings. Player pianos and graphophones have been added to several of the wards in southern California State Hospital.

There has been little increase in circulating library equipment. Circulation in the wards of current, especially pictorial, magazines, has brought joy to many patients. We believe that a plan for the establishment of a weekly library day would be well received by patients capable of reading. The books should be brought into the wards in portable racks for weekly exchange.

e. Better physical care of patients—increased dental work.

Agents of the board during their residence in hospitals have given special attention to the physical care of patients.

There has been a noticeable improvement; we find better condition of beds, cleaner clothing and more frequent baths, and an effort to get helpless patients out of bed into wheel chairs. This is due in part to the release of nurses at the close of the war, and to the repeated recommendations of this board upon a standardized service in nursing and attendants.

There is an improved service of food, and a better tray service with greater care in the feeding of helpless patients.

The care of bed patients in our state hospitals is remarkably good. Only the unrelaxed watchfulness by day and night, with constant changing of the patients, prevents the occurrence of pressure sores formerly so common.

All able to be moved are put in wheel chairs daily. This class of patients receives daily baths and many stimulating rubbings of back and shoulders and other points of contact where pressure sores occur if uncared for.

During the war period the supplies and equipment for the care of patients became noticeably depleted, especially the linen supply. This lack has now been met.

Resident dentists are now on the staff of several hospitals. Many of the patients show remarkable nutritional gain after dental work has been completed.

f. Affiliation of state hospitals with accredited training schools for nurses.

It is to be regretted that little or no progress has been made in this direction.

There is no class of patient who can be benefited more by tactful and intelligent nursing than the mentally ill, or where greater possibilities are open for the nurse. Notwithstanding this, class after class of nurses is graduated from the training schools of our general hospitals, knowing little or nothing of psychopathic nursing. The training schools have been slow in affiliating with the state hospitals.

Several of our state hospitals meet the requirements of having specially-trained registered graduates in charge of the nursing.

The director of the State Bureau of Registration of Nurses is keenly alive to the need of the addition of psychiatric nursing to the curriculum of California training schools for nurses, and we have every reason to believe that during the coming biennial period this need will be met by an affiliation of the large training schools with the state hospitals; if not by affiliation, then by the institution of post-graduate classes in the state hospitals or an exchange affiliation between state hospitals and training schools.

g. Adequate provision for the care of the criminal insane.

The present system of caring for the criminal insane in our state hospitals is very unsatisfactory, for the reason that the buildings are not constructed so as to provide segregation, safe custody, and proper facilities for the exercise and outside life so necessary for the patient's health and mental welfare. Specially constructed buildings and grounds are necessary.

Escapes from state hospitals of criminal insane have been frequent; murders and maiming of innocent citizens have sometimes followed, because of the failure to provide the safeguarding necessary for this type. These patients should be segregated in a group by themselves in a separate building, thereby reducing the problem of caring for them in the state hospitals, where they are a menace to other patients and to the public by their frequent escapes from custody.

Inasmuch as the necessity of segregation of this type of patient has become apparent, a separate unit on or near the grounds of some one of the state hospitals seems to be the most practical means of meeting the need.

h. Changes in the state lunacy law pertaining to the transfer of patients to state hospitals.

Changes in the present law which prescribes that insane persons shall be conveyed to state hospitals by a sheriff, or his deputy, were advocated in the board's recommendation in the biennial report of 1914-1916, also 1916-1918, and again 1918-1920.

California's law reads: "It is further ordered and directed that -----, sheriff of the ----- county of -----, take, convey and deliver said ----- to the proper authorities of said hospital, to be held and confined therein as an insane person."

Restraint is left to the judgment of the deputy sheriff conveying the patient. To the average deputy all insane are potentially dangerous, therefore safer restrained.

This method of transferring the patient to the hospital, conveyed by the sheriff as a prisoner, restrained and excited, often because of the restraint, in itself creates fear and makes recovery more difficult. The patient should be conveyed as a sick person, by nurse or trained attendants, to the hospital to which he is assigned.

In order to bring about humane, modern methods of conveying these patients to the hospitals, a corrective measure prepared by the California Psychopathic Association and heartily endorsed by this board was presented to the legislature of 1921, but at that time failed of passage. It is the hope of this board that such a measure will be adopted in the near future.

If nurses or attendants can be furnished by the hospital to which the patient is committed, the measure will prove economical as well as humane.

i. Psychiatric social service with increased supervision of paroled patients.

California has made little progress in establishing an adequate parole system with provision of psychiatric social service workers in its state hospitals. The State Board of Charities and Corrections again urges the establishment of this most important feature of community welfare. (See Sec. IX of this report—Paroles from State Institutions, page 44.) The department would more than pay for itself.

Neuro-psychiatric clinics. Recent returns (see page 50) from questionnaires show promising growth in the establishment of these clinics. Many others are needed; these clinics should be as readily available as clinics for bodily ills.

This board recommends the establishment of neuro-psychiatric clinics for out patients in connection with all of the state hospitals.

j. Provision for care of psychopathic patients pending a hearing as to their sanity.

California counties, with few exceptions, are furnishing indifferent care to patients held on insanity charges, and to the indigent senile patients in their charge. Orange County has completed a psychiatric unit. In Los Angeles County, special attention is given to the care and treatment of persons under observation as to their sanity or awaiting hearing on a lunacy charge. The psychopathic hospital provides court rooms, separate rooms for patients, sitting rooms, outdoor courts,

medical service and hydrotherapy treatment for all patients either under observation or awaiting transfer to state hospitals. Observation and treatment for a period of not less than ten days, often for a much longer period, results in diminishing in a marked degree the number of patients committed to the state hospital, as the following table shows:

Los Angeles County Psychopathic Hospital.

	1920	1921	1922
Number admissions.....	1,665	1,897	2,254
Number committed to state hospitals.....	639	705	842
Number disposed of without commitment.....	977	1,147	1,380

Employment of county psychopathic probation officers. (Psychopathic Parole Act, Sec. 2167b, Lunacy Law, 1913.)

This office may be created in any county in this State by the board of supervisors thereof. The appointment is made by the judge of the Superior Court.

The psychopathic parole officer looks into the social history and environment of every alleged mentally sick or insane person prior to the court hearing. At the discretion of the judge, the patient may be paroled to this officer instead of being committed to one of the state hospitals, thus, not only effecting a saving of the taxpayers' money, but also enabling many persons to support themselves and their families.

The following report shows to what extent patients apprehended as insane may be provided for outside of the state hospitals. Out of 715 patients, only 41 were committed to state hospitals. The treatment of a patient frequently means the treatment of his whole domestic and economic situation.

Report of the Psychopathic Parole Officer of Los Angeles County for Year Ending December 31, 1921.

Insane patients paroled—Women.....	366
Men.....	295
Inebriates and narcotics—Women.....	20
Men.....	23
Feeble-minded—Girls.....	2
Boys.....	9
	715

First Disposition of Cases:

Sent to Rest Haven.....	80
Other homes and sanitariums.....	267
Home on parole.....	225
Sent east to friends.....	86
Sent to medical ward.....	20
Sent to county farm.....	25
Sent to Soldiers' Home.....	6
Sent to Sonoma State Home.....	3
Sent to county jail.....	1
Sent to Juvenile Hall.....	2
	715

Final Disposition of Cases:

Sent to Norwalk.....	11
Sent to Patton.....	29
Sent to county farm.....	19
Sent to Sonoma State Home.....	7
Sent to Pacific Colony.....	1
Sent to Mendocino.....	1
Died.....	38
Dismissed as recovered.....	223
Sent out of state and dismissed.....	116
Still on parole.....	270
	715

Visits paid to patients at their homes and at sanitariums.....	3,227
Interviews and reports at office by patients and relatives.....	3,318
Letters and telegrams.....	1,244
Written reports and court orders.....	801
Days spent in court.....	120
Total number of patients on parole.....	500

k. Drug Addicts and Alcoholics in State Hospitals.

On June 30, 1922, there were under custody 44 alcoholics and 88 drug addicts in the state hospitals and 4 alcoholics and 13 drug addicts at the Industrial Farm for Women. As a rule the care and treatment of these classes of patients is fraught with trouble and disturbance of other patients as no facilities exist for their segregation.

During the quarterly conference of the superintendents of state institutions, held during the state conference of social work in San Diego, April, 1922, it was the consensus of opinion, after full discussion of the problem of hospitalization of drug addicts, that the control of the situation lay, not in creating separate institutions for drug addicts, but in federal control of the manufacture and distribution of narcotic drugs; that it is more of a police than a medical problem in the state at this time; that short commitments were a waste of time and money; that with the exception of high-grade people with intellectual interests permanent cures are very few.

A study of the number of alcoholics in the state hospitals from 1915 to 1922 (see page 50) shows a marked decrease for men and women inebriates starting in 1918 and continuing through 1921 with a slight increase for 1922. In 1917 there were 306 inebriates in the six state hospitals, 151 or about one-half of those registered during the previous year, in 1918, 141 in 1919, 48 in 1920, 19 in 1921 and 44 in 1922.

The number of inebriates for the three years of 1915, 1916 and 1917 had varied only slightly: 337 in 1915, 334 in 1916 and 306 in 1917, so that the drop to 19 in 1921 is very marked.

The drug addicts show a fairly similar drop, although the figures for these cases are not as complete owing to the fact that the monthly census bulletins did not report them as a separate group until 1921.

However, a special inquiry made in 1920 showed that there were 96 drug addicts in the six state hospitals in 1918, 139 in 1919, 73 in 1920, 60 in 1921 and 88 in 1922. There were, however, 13 women drug addicts in 1922 in the Industrial Farm for Women.

Following is a summary of information concerning the several state hospitals for the insane:

AGNEWS STATE HOSPITAL.

Agnew, Santa Clara County, California

Date of opening, 1888.

Advisory Board.

T. S. Montgomery-----Garden City Bank, San Jose
 Dr. Wm. S. Van Dalsem-----Twohy Building, San Jose
 W. L. Biebrach-----40 W. San Antonio street, San Jose
 Frank S. Benson-----302 First National Bank, San Jose

Resident Officers.

Leonard Stocking, M.D.-----Superintendent
 E. W. Mullen, M.D.-----First Assistant
 Jas. A. Cutting, M.D.-----Assistant
 Effie A. Stevenson, M.D.-----Assistant
 Henry W. Whisman, M.D.-----Assistant
 M. C. Hawley, M.D.-----Assistant
 F. Proescher, M.D.-----Pathologist

Number of patients June 30, 1922-----Men 980 ; women 797 ; total 1777
 Capacity -----men 847 ; women 631 ; total 1478
 Number of employees-----men 127 ; women 80 ; total 207

Total acreage of ground, 320.87.

Hospital is located seven miles north of San Jose, forty miles south of San Francisco, and may be reached by Southern Pacific Railroad.

Telephone, San Jose No. 1728.

Visiting days: Every day. Hours: 9 a.m. to 4 p.m.

MENDOCINO STATE HOSPITAL.

Talmage, Mendocino County, California.

Date of opening, 1893.

Advisory Board.

Alfred Greenebaum-----15⁰ Stuart street, San Francisco
 Ralph Grover-----470 Thirteenth street, Oakland
 Thomas P. Boyd-----Freitas Building, San Rafael
 B. J. Patoecchi-----Petaluma
 P. I. Lancaster-----Los Altos

Resident Officers.

Donald R. Smith, M.D.-----Superintendent
 M. J. Rowe, M.D.-----First Assistant
 R. O. LeBaron, M.D.-----Assistant
 F. A. Irmen, M.D.-----Assistant
 Alice S. Cutler, M.D.-----Assistant

Number of patients June 30, 1922-----men 898 ; women 335 ; total 1233
 Capacity -----men 863 ; women 349 ; total 1212
 Number of employees-----men 118 ; women 54 ; total 172

Total acreage of grounds, 1022.32.

Hospital may be reached by Northwestern Pacific Railway from Sausalito to Ukiah, thence to Talmage by taxi.

Telephone No. 18.

Visiting days: Every day. Hours: 12.30 p.m. to 2.30 p.m.

NAPA STATE HOSPITAL.

Imola, Napa County, California.

Date of opening, November, 1875.

Advisory Board.

W. J. Lane.....543 Sixth street, Richmond
 C. G. McDaniel.....5660 College avenue, Oakland
 W. D. Pennycook.....Vallejo
 H. D. McCurry, Postmaster.....Sacramento
 (Vacancy)

Resident Officers.

*A. C. Matthews, M.D.....Superintendent
 G. W. Ogden, M.D.....First Assistant
 J. B. Rogers, M.D.....Assistant
 E. F. Donnelly, M.D.....Assistant
 Lena G. Miller, M.D.....Assistant
 Eva Rawlings, M.D.....Assistant
 W. F. Pritchard, M.D.....Assistant
 R. B. Kershaw, M.D.....Assistant
 N. T. McArthur.....Resident Pathologist

Number of patients June 30, 1922.....men 1,407; women 1,148; total 2,555
 Capacity.....men 1,070; women 871; total 1,941
 Number of employees.....men 240; women 131; total 371

Total acreage of grounds, 1906.

Hospital is one and one-half miles from the city of Napa, and may be reached by electric road from Vallejo to hospital, or by auto stage.

Telephone No. 249.

Visiting days: Every day in the year. Hours: 10 to 12 m., 2 to 4 p.m.

*Dr. J. M. Scanland was appointed superintendent December 1, 1922, to succeed Dr. Matthews.

NORWALK STATE HOSPITAL.

Norwalk, Los Angeles County, California.

Date of opening, February 15, 1916.

Advisory Board.

Dr. G. D. Jennings.....Covina
 John N. Anderson, Attorney.....Santa Ana
 W. S. James.....520 Shatto place, Los Angeles
 Dr. H. G. Brainerd.....Pacific Mutual Building, Los Angeles
 O. H. Barr.....Santa Ana

Resident Officers.

C. E. Applegate, M.D.....Superintendent
 C. E. Sisson, M.D.....First Assistant
 E. V. Emery, M.D.....Assistant
 Mary V. Church, M.D.....Assistant
 W. H. Worley, M.D.....Assistant

Number of patients June 30, 1922.....men 386; women 254; total 640
 Capacity.....men 294; women 229; total 523
 Number of employees.....men 78; women 60; total 138

Total acreage of grounds, 337.71.

The hospital is one and one-third miles north of Norwalk; four and one-half miles south of Whittier; fifteen miles from Los Angeles. It may be reached by Whittier boulevard and Telegraph road.

Telephone, Downey No. 1121.

Visiting days: Monday, Wednesday and Saturday. Hours: 2 to 4 p.m.

STOCKTON STATE HOSPITAL.

Stockton, San Joaquin County, California.

Date of opening, April 30, 1851.

Advisory Board.

W. B. Nutter	Stockton Savings and Loan Building, Stockton
F. J. Dietrich	26 South San Joaquin street, Stockton
Dr. Ellis Harbert	Hotel Stockton, Stockton
A. G. Keagle	446 West Magnolia street, Stockton
P. F. Paché	Aitaville

Resident Officers.

Fred P. Clark, M.D.	Superintendent
Margaret H. Smyth, M.D.	First Assistant
H. E. Sanderson, M.D.	Assistant
A. H. McLeish, M.D.	Assistant
F. S. Marnell, M.D.	Assistant
Grace McCoskey, M.D.	Assistant
F. J. Conzelmann, M.D.	Assistant
S. J. Tuggle, M.D.	Assistant
N. E. Williamson, M.D.	Assistant

Number of patients June 30, 1922	men 1,533; women 1,063; total 2,596
Capacity	men 1,567; women 998; total 2,565
Number of employees	men 212; women 150; total 362
Total acreage of ground, hospital property,	1,204.66
Sherman Island,	350.00
Total	1,554.66

The hospital may be reached by Southern Pacific, Santa Fe, and Western Pacific Railroads.

Telephone No. 2135.

Visiting days: Monday, Wednesday and Friday. Hours: 9 to 11.30 a.m., 2 to 4 p.m.

SOUTHERN CALIFORNIA STATE HOSPITAL.

Patton, San Bernardino County, California.

Date of opening, August 23, 1893.

Advisory Board.

H. McPhee	Santa Paula
W. C. Barth	Corona
Austin Park	Redlands
J. C. Jones	Etiwanda
W. B. Clancy	Riverside

Resident Officers.

Dr. Jno. A. Reily	Superintendent
Dr. Edwin Wayte	First Assistant
Dr. G. M. Webster	Assistant
Dr. S. E. Pond	Assistant
Dr. E. W. Meyer	Assistant
Dr. H. S. Blossom	Assistant
Dr. F. F. Williams	Assistant
Dr. Mary E. Reull	Assistant
Dr. Pearl S. Waters	Assistant

Number of patients June 30, 1922	men 1,344; women 1,146; total 2,490
Capacity	men 1,150; women 1,050; total 2,200
Number of employees	men 170; women 140; total 310
Total acreage of grounds,	456.08.

The hospital is six miles out of San Bernardino, and may be reached by Santa Fe and Pacific Electric trains, or by bus.

Telephone, San Bernardino No. 933.

Visiting days: To see patients, 9 a.m. to 4 p.m., every day. Sunday visiting limited to immediate relatives. To inspect wards each week day, 2 to 4 p.m.

Dr. John A. Reily on leave as Director of State Institutions, April 11 to September 12, 1922.

III. STATE HOMES FOR MENTAL DEFECTIVES.

The program of the State Board of Charities and Corrections in the state homes during the past biennium has featured:

- Increased housing facilities for defectives.
- Increased parole with provision for adequate supervision by field workers.
- The establishment of psychological clinics by educational centers, courts, and welfare agencies.
- Increased facilities in the state homes for recreation and physical education.
- Increased physical and surgical care; the removal, as far as possible, of physical handicaps.

Provision for additional inmates has been slight; a cottage for school girls was opened at Sonoma State Home during this biennial period.

Parole of wards industrially trained has been substantially increased under field workers who furnish outside supervision.

There has been steady progress in the establishment of psychological clinics. Recent questionnaires sent out by this board brought in total returns of 14 available clinics throughout the state. (See page 50 for list.)

Three Community Service Clinics are maintained by the Red Cross and staffed by the physicians of the Sonoma State Home at Santa Rosa, Petaluma, and Healdsburg. The development of clinics by educational centers is growing apace.

Early recognition in some of our city schools of mentally defective children, their segregation in small groups in special development rooms where tests are made to determine their social and vocational abilities, the further care and education according to each child's abilities furnish today the most hopeful note in planning state care of the feeble-minded.

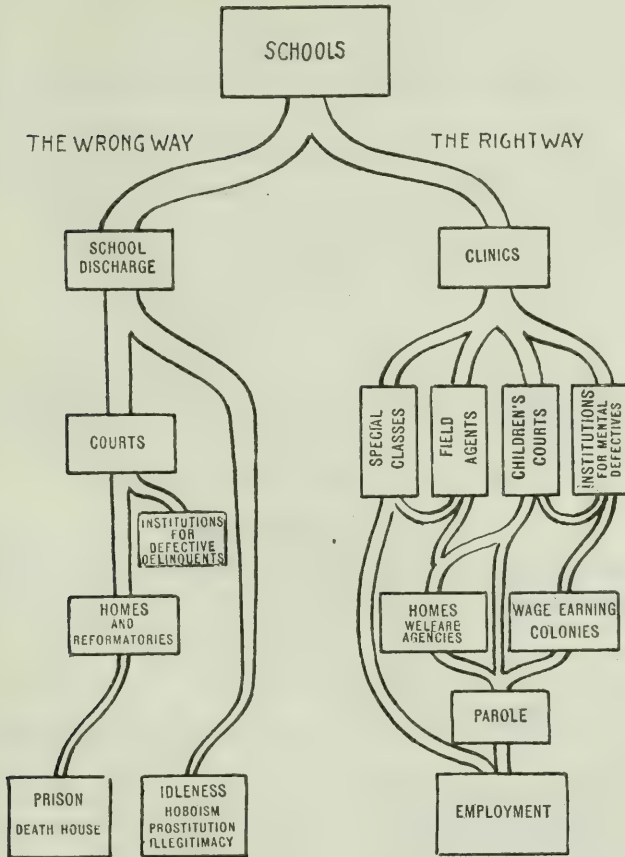
The following excerpts from "State Care, Training, and Education of Mental Defectives," by Pierce Bailey, M.D., chairman, New York State Commission for Mental Defectives, together with the graphic chart express most clearly the "wrong way" and the "right way" of planning for care, training and education of the mentally defective:

"The provisions for mental defectives, once the public grasps the importance of them, are destined to become an exclusive function of each individual state. The same reasons that have proved valid for the state care of the insane exist for the state care of defectives. The program is complicated, involving the cooperation of many different departments, such as various courts, boards of education, etc.; it is extended and is especially important in rural communities."

"The beginning, of course, is in the schools. It is in them that the mental defective inevitably comes to light, and it is during the school years alone that constructive efforts have some chance of being successful."

The chart follows:

PLAN OF CARE, TRAINING AND EDUCATION



Recreation and physical education have received strong stimulus by the employment of three recreational instructors at Sonoma State Home. Additional recreation yards and regular instruction have been provided for lower grade inmates.

A housed "merry-go-round," with musical attachment, has been one of the most popular amusements.

Sterilization of the mentally unfit is considered part of the welfare work at Sonoma. During the past two years, 241 operations for this purpose were performed.

Few, if any, paroles of adult inmates are granted without this measure of safeguarding.

Summary information and short reports on the two state institutions caring for the feeble-minded—Sonoma State Home and Pacific Colony—follow :

SONOMA STATE HOME.

Eldridge, Sonoma County, California.

Date of opening, 1886.

Advisory Board.

Robert A. Poppe.....	Sonoma
C. E. Haven.....	515 Mission street, San Francisco
C. A. Wright.....	515 McDonald avenue, Santa Rosa
C. O. Dunbar.....	Santa Rosa
(Vacancy)	

Resident Officers.

Dr. F. O. Butler.....	Superintendent
Dr. Herman W. Covey.....	First Assistant
Dr. Florence P. Chapman.....	Assistant
Dr. J. C. Johnstone.....	Assistant
Dr. George Ordahl.....	Psychologist

Number of patients June 30, 1922.....	men 791; women 779; total 1,570
Capacity.....	men 835; women 783; total 1,618
Number of employees.....	men 101; women 93; total 194

Total acreage of ground, 2740.

The home is located at Eldridge, Sonoma County, about fifty miles north of San Francisco. It can be reached by Southern Pacific Railroad from Oakland or Northwestern Pacific Railroad from Sausalito.

Telephone No. 29-F-2.

Visiting days: Saturday. Hours: 2 to 4 p.m.

SONOMA STATE HOME.

Under the immediate guidance of Dr. George Ordahl, psychologist and educational director, Sonoma has added materially to its educational facilities.

Placements in school and in institutional industries are based on the recommendations of the psychologists according to the inmate's ability to profit from the experience gained.

Under a principal there are now ten teachers conducting the following divisions:

Plain sewing and cooking department.

Weaving and simple handiwork and general fancy work department.
Band, orchestra and community singing department.

Kindergarten for inmates of intelligence level below chronological age of ten years. Special training for high grade idiots and low imbeciles.

Special training for paroles.

Systematic examination, psychological and educational, is made to determine the sort of training whereby each inmate may be developed.

Recent statistics show that at Sonoma the educable group is greatly in minority. A plan has been suggested by the chairman of the Institutions Committee whereby organized counties would provide the necessary care required by custodial cases, thus relieving the state school of at least a portion of the noneducable group and opening the way for its greater use as a training center for those who could later be returned under extra-institutional supervision, as useful members of their communities. With the completion of additional buildings at Pacific Colony this plan could well be carried out.

Sonoma State Home needs:

New hospital building with equipment.

Alterations to present hospital building so as to provide receiving and isolation departments.

Additional cottages for inmates.

Additional provision for housing employees.

Provision for industrial building (second floor Madrona Hall planned for this use).

Alterations in school room on ground floor.

Provision of shower baths and dressing rooms in gymnasium.

General repairs, new floors, in many places about the institution.

PACIFIC COLONY.

Walnut, Los Angeles County, California.

Date of opening, March 20, 1921.

Advisory Board.

Newton W. Thompson-----Title and Trust Building, Los Angeles
 Mrs. Herbert A. Cable-----Woman's Athletic Club, Los Angeles
 Mrs. Caroline Rice Dyer-----Claremont
 C. E. Sisson, M.D.-----Acting Superintendent.

Number of inmates-----men 30; women none; total 30
 Capacity-----men 35; women none; total 35
 Number of employees-----men 6; women 3; total 9

Total acreage of ground, 1012.

Institution is three miles northeast of Walnut, and seven miles west of Pomona, one and six-tenths miles off of main boulevard. May be reached by automobile.

Telephone, Suburban 48.

Visiting days: Every day. Hours: Every afternoon.

PACIFIC COLONY.

Purpose: For the care and training of the mentally defective and epileptic of Southern California.

The legislature of 1917 passed the enabling act for the creation of Pacific Colony for mental defectives and epileptics with an appropriation of \$250,000. Governor Stephens appointed as trustees, Mrs. J. Power Flint (since deceased), Mrs. Dane Coolidge (resigned), and Mr. Newton Thompson. Mrs. Caroline Rice Dyer of Pomona and Mrs. Herbert Cable were later appointed to the board.

In 1919 the land was secured. One tract of 800 acres is about four miles from Pomona near Spadra and Walnut stations on the Pacific Electric Railway, and another tract of 200 acres on the highway. The building site on the 800-acre tract is one and a quarter miles from the highway, entered by right of way through the farm land of which the colony is a part. The old Spanish name for this tract was "Villacita." The land slopes gently upward from the highway to the foothills which encircle it.

There is some question as to the adequacy of the water supply to be obtained on the 800-acre tract. It has been proved, however, that the 200-acre tract can furnish an abundant water supply. Much of this is fertile orchard land.

In 1920 Dr. George L. Wallace of Wrentham State School (Mass.), accepted the invitation of the trustees to visit California and consult with them regarding plans for the new institution. At this time the

building plans for the first unit were accepted by the board of trustees and later endorsed by the State Board of Charities and Corrections.

This unit includes administration and service buildings, dormitories and officers' quarters, connected so as to form a single structure 400 feet long. It is finished in plaster both inside and out. The wings extend so as to form a court which is used as a playground.

On March 20, 1921, Pacific Colony was opened. Nineteen grown boys who were chosen as workers from the moron and epileptic groups were vocationally trained and immediately became helpers in establishing the institution by building roads, planting orchards, truck gardens and assisting in domestic duties.

A small herd of seven milch cows, tuberculin tested, was added in 1921.

Pacific Colony has never had a permanent superintendent. In April, 1920, Dr. W. C. Rappleye of the University of California, assisted the trustees in directing the work, after which Mr. C. W. Peck, executive secretary to the board of trustees, served in the capacity of superintendent until July, 1921. Following this, Mr. Fred C. Nelles, superintendent of Whittier State School, acted in a supervisory capacity until June, 1922, when Director of Institutions Dr. John A. Reily gave Dr. C. E. Sisson, assistant superintendent of Norwalk State Hospital, the additional duty of supervising Pacific Colony.

The outstanding needs of the institution are:

1. A resident superintendent.
2. The development of a generous building program.
3. Provision for industrial training.
4. Provision of facilities for organized play.

IV. STATE SCHOOLS.

Programs pertaining to health, education and play have been stressed by the State Board of Charities and Corrections in their work in the state schools. Results of former recommendations are evidenced by the following:

Physicians and graduate nurses in residence.

Isolation of all newcomers until after complete physical examination and clinical tests.

Increased hospital equipment.

Increased provision for segregation and treatment of inmates with communicable diseases.

Provision for segregation of the mentally deficient and morally delinquent.

Largely increased facilities for recreation and competitive athletics.

The development of a better educational system, based on psychological and sociological findings.

The maintenance of adequate record system.

A recent study of the records of the Preston School of Industry and San Quentin made by this board gives the following facts: that there were 782 boys under twenty-one in custody in these two institutions; 426 in Preston, and 356 in San Quentin; that the ages were as follows:

	15 years	16 years	17 years	18 years	19 years	20 years	21 years	No record of age	Total
Number in Preston.....	15	75	99	79	81	18	1	58	426
Number in San Quentin....	0	1	9	18	78	130	120	0	356

That out of a total of 782 boys in both institutions, 609 were born in America and 173 were of foreign birth; that San Francisco and Alameda counties were relatively low in commitments as is shown in the following:

County	Population	In Preston	In San Quentin
Los Angeles-----	936,438	132	93
San Francisco-----	506,676	23	8
Alameda-----	344,127	33	11
*Solano-----	40,602	1	22
Imperial-----	43,383	7	22
Fresno-----	128,779	15	22
San Diego-----	112,248	24	26

That the previous occupations both in Preston and San Quentin were largely unskilled blind-alley trades; that 139 of the 426 boys in Preston have a record of previous institutional experience. We know from previous studies, based on interviews with the boys as well as upon a study of the case histories, that many more than the 139 recorded have been previously in other institutions; that a large percentage of the boys in Preston, as a group, show retarded mentality. The 356 boys under 21 in San Quentin, should be in a reformatory, and not with older felons; they might be placed together with many of the older boys in Preston who require the more rigid discipline of a reformatory. Their presence in Preston interferes with the possibilities for industrial training of the younger and more tractable boys.

By bringing the two groups at Preston and San Quentin together and by adding some of the men 22 and 23 years of age in San Quentin, the state could centralize its efforts on a constructive program for this most difficult group of offenders.

PRESTON SCHOOL OF INDUSTRY.

Waterman, Amador County, California.

Date of opening, 1893.

Advisory Board.

Laurence Edwards-----	Stockton
Wm. Snyder-----	Jackson
W. H. Chestnutwood-----	Stockton

Resident Staff.

O. H. Close-----	Superintendent
E. D. Smith-----	Educational Director
W. O. Solomon, M.D.-----	Physician and Surgeon
Herbert Papanoe-----	Psychologist

Seven teachers.

Number of boys in school June 30, 1922, 447; capacity, 400; number of employees: men 76; women 34; total 110.

Total acreage of grounds, 725.

School is reached via Galt from Sacramento and San Francisco.

Telephone, No. 17W.

Visiting days: Any day in the year at any reasonable hour.

*Due to Navy Yard.

PRESTON SCHOOL OF INDUSTRY.

Purpose: To re-educate boys from sixteen to twenty-one, who have been committed by the juvenile courts.

Progress during the past biennial period has included better facilities for hospital care; new operating room equipment; the segregation of all new comers until after complete medical examination, including laboratory tests; provision for isolation of boys with infectious diseases and for an increased amount of corrective surgical work.

The provision of an educational and occupational director makes it possible to place boys for trade instruction, according to mental capacity and physical fitness. Special attention is given to personality adjustment. Academic instruction is maintained by a corps of seven certified teachers under an educational director.

The development of the farm and improvement of the water system are worthy of note. Thirty acres of orchard land were planted last year. A good truck garden has been developed on the land purchased in 1921. It is now possible to supply in generous quantity fresh, green vegetables heretofore lacking in this institution's menus. The brick-kiln has been re-established in connection with the disciplinary department.

Recreation, under a full-time expert director, plays a strong part in the physical rehabilitation of the boy, and is also the "safety valve" for pent-up energy and emotion. Various competitive games are organized, especially football and baseball. Moving pictures are shown weekly and special entertainments are given by outside talent. The school library facilities have been increased—one of the teachers serves half time as librarian.

Provision has been made for a new laundry building; a machine shop is planned. There has been reconstruction of the kitchen and dining-rooms.

The present needs are:

General repair of buildings.

New shop equipment, motors, machinery, etc.

New school building.

Provision for separate reformatory department for segregation and employment of irresponsive and incorrigible wards.

Building for sewing rooms and tailor shop.

WHITTIER STATE SCHOOL.

Whittier, Los Angeles County, California.

Date of opening, July 1, 1891.

Advisory Board.

B. F. Pearson-----Southern California Edison Company, Los Angeles
 P. E. Cogswell-----County Board of Supervisors, Los Angeles
 K. B. Kennedy-----Whittier News, Whittier

Resident Officers.

Fred C. Nelles.....	Superintendent
Herbert E. Tebbetts, M.D.	Physician (Resident of Whittier)
J. H. Williams, Ph.D.	Psychologist
Julia Matthews, A.M.	Psychologist
K. M. Cowdery, A.M.	Occupational Director
Lowry S. Howard.....	Assistant to Superintendent

Number of inmates: Boys 305; capacity, boys 250; number of employees, men 72; women 25 (includes personnel of Research Staff, 2 men, 6 women).

Total acreage of ground, 264.

School is located 14 miles from Los Angeles on county highway. May be reached by Pacific Electric Railway or Motor Transit Company bus.

Telephone: Nos. 12 and 984.

Visiting days: For public Thursday, Hours: 1 to 4 p.m. For relatives of boys, Saturday, Hours: 1 to 4 p.m., Sunday, 9 to 4.30 p.m.

WHITTIER STATE SCHOOL.

Purpose: An educational institution for boys committed by the juvenile court between the ages of 8 and 16 years. It provides custody and vocational, social, and moral training for their ultimate readjustment to social life. It maintains the California Bureau of Juvenile Research for "the scientific study of juvenile delinquency, mental deficiency and related problems."

Under the guidance of the superintendent, a new spirit has been developed in the school, with a complete change of attitude of the boys toward the school and the state, and of the employees toward the boys. A spirit of confidence, friendship, cooperation supplants fear and distrust. Repression has been displaced by opportunity for expression. Supervision is supplanting guarding; opportunity is replacing punishment.

Provision at the Research Department for segregation of the mentally defective boy, for special study and possible transfer to another institution is of distinct value to the boy as well as to the general school classes.

The congregate system of housing is being gradually eliminated by the building of cottage homes for boys, with house fathers and mothers who endeavor to fill each boy's need of parental supervision and affection.

Life in cottages and dormitories is made attractive by reading aloud, story telling, and, at times, by competitive games—checkers, dominoes, crokinole. Boys may usually read in cottage social halls and in dormitories from 7 to 9 p.m. Phonographs, with selected records, are provided on weekly schedule, to the dormitories.

Medical care and treatment is maintained at standard by a physician and two graduate nurses. All new comers are isolated in a receiving ward at the hospital until all physical examinations and clinical tests are completed. Necessary corrective work is done in the hospital, which has a modern, fully equipped operating, sterilizing and anesthetic room.

The foundation of all of the educational work is based on research findings, psychological and sociological. The educational facilities are

of the best. The curriculum includes grammar school and junior high school. The teaching staff consists of fully accredited teachers. The new school building is pleasing to the eye, modern in arrangement, ventilation and equipment.

The trades building combines paint and carpenter shop, plumbing, blacksmith, machine and automotive shop. The laundry, tailor shop, paint shop, shoe shop, bake shop, mattress making and farm work furnish additional training and employment outside of school hours.

In recreation a strong school spirit exists; Whittier boys compete with high schools, grammar schools, and other organizations in athletic contests, often victoriously, as evidenced by cups and other trophies of prowess. Boys attend outside athletic contests.

Greater opportunity is being allowed for play time. An outdoor gymnasium, a swimming pool, an athletic field, separate from playground, are in process of construction. The playgrounds are provided with athletic equipment.

A boy scout troop has been organized. Hikes are taken. A summer camp has been maintained at Catalina Island.

In addition to the school library, a branch public free library has been established, where boys act as librarians.

Disciplinary measures are deprivation of privileges, a lost place "on the team," or a sojourn in Company H on bread and milk diet, or demotion from a cottage to a congregate hall; corporal punishment, formerly of frequent use, was abolished by the present superintendent.

The school is endeavoring to turn out American citizens, trained to support themselves.

The outstanding needs of the school are:

Increased housing facilities for boys;

Better housing facilities for officers;

Affiliation with other state educational organizations;

Better understanding by the public of the relation of this school to the "boy problem."

CALIFORNIA SCHOOL FOR GIRLS.

Ventura, Ventura County, California.

Date of opening, June 25, 1916.

Advisory Board.

Mrs. D. W. Mott, Chairman.....	115 South Mill street, Santa Paula
Mrs. Chas. H. Toll.....	1635 Kenneth road, North Glendale
Mrs. F. A. Conant.....	14 East Valeria street, Santa Barbara
Mrs. Beryl B. Bard.....	"Berylwood," Hueneme
*Mrs. Paul Downing (resigned).....	2153 Sacramento street, San Francisco

Resident Officers.

Olive P. Walton, M.D.....Superintendent

Mabel I. Bell, M.D.....Resident Physician

Number of inmates: Girls 160; capacity, girls 195; number of employees, men 9; women 56; total 65.

Total acreage of ground, 125.625.

School is two and one-half miles north of Ventura, and may be reached by auto from Ventura, out Ventura avenue.

Telephone No. Ventura 135.

Visiting days: General public may visit the institution any day. Hours: 1 to 5 p.m.
Sunday is visitors' day for relatives.

*Succeeded by Mrs. Ida H. Leonard.

CALIFORNIA SCHOOL FOR GIRLS.

Purpose: Re-education of girls committed by the Juvenile Courts.

The school cottages, each one a separate home unit, stand on a hillside in full view of the ocean and the channel islands.

The past biennial period has been one of stabilization. Every effort is made to secure emotional adjustment; to restore the self respect of the girls committed to the school by surrounding them with the usual provisions of normal life, which are forfeited only by the girl herself.

First of all come health measures; treatment of venereal infections, correction of remediable physical defects. A resident woman physician, assisted by a graduate nurse, has charge of the hospital department. Four pupil nurses are assigned as aides. Mental tests are made of all girls upon admission.

Congenial occupation plays a vital part in the process of adjustment. The superintendent says: "Occupation in this institution is used to prepare the girls to make their living outside and to keep them happy inside the school." All who are physically able are assigned to regular work in their own cottages or on special detail in the garden or fields. The dahlia gardens are unusually beautiful; the young orchards are in flourishing condition.

The modern, well equipped school house has grammar school, and commercial work on a high school basis. The eighth grade graduates received Ventura County diplomas last year. There is regular instruction in weaving, basketry, domestic service, sewing and gardening.

A director of physical education has classes five times a week in the gymnasium or out-of-doors—special attention is given corrective postural training.

Tennis and basket ball courts, baseball fields, croquet grounds and other playgrounds have been developed on the hillside between the buildings. There are picnics in the cañons or at the beach. Indoors, there are moving pictures weekly, plays by "home talent" and musicales by people of the community.

Today the outstanding need is a realization on the part of the public that this is an educational institution with special problems of discipline conducted in such a way that the girls who are sent to it are fitted to go out and lead decent, self-respecting lives. Every possible help is given them in education, self-discipline, medical attention, recreation, and an opportunity for creative outlet.

V. STATE BUREAU OF JUVENILE RESEARCH.

The Bureau of Juvenile Research of Whittier State School is launched on its eighth year of work. It performs the dual function of immediate service to the institution and the carrying on of research into the causes of juvenile delinquency. The present organization centralizes the psychological and sociological work of all state institutions, thereby eliminating the necessity for separate laboratories, reducing the expense of investigation, and providing for uniform procedure throughout the state. The importance of delinquency as a social problem is such that the uniformity of study and standardization of procedure are self-evident.

Every boy entering Whittier State School for the past eight years has been given a careful psychological examination according to the most

approved method in order that his intelligence might be determined. The boy of inferior intelligence is thus not urged into work requiring more than his mental capacity, but is directed into vocational avenues where he may succeed and which will be in accord with trades into which his home environment will force him.

Supplementing this examination, is the gathering of all available data on the boy, his court and school records, home and family conditions and information on special aptitudes. The collection of all these data into a four or five-page folder constitutes a report made on every boy entering the school. It is on the basis of this information that trade, school and supervisory-group assignments are made.

A fuller and more exhaustive study is made after the boy has been in the school about one year. This study constitutes a social case history and is worked up on the basis of visits to the boy's home and local environment as well as of a much more detailed study of the boy himself, his responses to supervision and his possibilities for future development.

Social case histories are prepared on about fifty per cent of the school population. The sparsely settled areas of the state make some investigating trips impracticable and the limited number of workers prevent the covering of all cases in this thorough manner. Cases so studied enable the school to make the most of the boy's potentialities. The home visit is of inestimable value in understanding the boy since we can never fully know him until we are familiar at first hand with his family and neighborhood background. Furthermore, these home visits result in suggestions for the reconstruction of the home. In short, the work of this Bureau of Research, besides studying the problem and working out constructive programs for juvenile difficulties, is furnishing the school with carefully prepared information on the material with which it has to work. The trial and error method is abandoned for definite knowledge and waste effort is eliminated.

In addition to the study of individual cases, the bureau has training classes for university students in psychological and social investigation. Also, the bureau publishes the *Journal of Delinquency*. This magazine is devoted to the scientific study of problems related to social conduct. It is the only journal of its kind in America and provides an opportunity for an exchange of ideas among workers with delinquent children.

In addition to the work at the central laboratory at Whittier State School, the bureau has developed work in other institutions as follows: At the California School for Girls, psychological examinations are made of all entering girls; at Preston School of Industry, a psychological examiner and one assistant devote full time to supplementary examinations; at Sonoma State Home, two social case investigators, trained at the Whittier laboratory, devote full time to investigative and parole work; at Pacific Colony, examinations were made preparatory to the admission of new cases; at the Industrial Farm for Women, examinations were made of a special group of recent commitments.

VI. STATE PRISONS.

During this period, members and agents of the State Board of Charities and Corrections have made frequent visits to the prisons. One agent was in residence a week at San Quentin. His study had special

reference to physical welfare, education, moral and recreational activities, and effect on prisoners of such activities.

Special studies have also been made of women prisoners in San Quentin, from sociological, industrial and housing viewpoints. A definite conclusion stressed in our biennial report of 1918-20, pressed for solution during the past two years and repeated here, is the dire need of other provision for these women prisoners. Recent action of the Prison Board shows their recognition of this need. The following resolution was passed by the Prison Board on August 20, 1922:

Be It Resolved, That we respectfully direct the attention of the Governor, the legislature, the State Board of Control and the Budget Board to the overcrowded condition of the Women's Department of San Quentin Prison, due to the great number of women offenders convicted of crime and committed to prison since January 1, 1921, and to relieve this overcrowded condition, we recommend that provisions be made for sufficient appropriations to construct a suitable building or buildings, for female prisoners either on the prison grounds or elsewhere.

The personnel of the Board of Prison Directors is as follows:

Chas. L. Neumiller, President.....Commercial and Savings Bank Building, Stockton.
 C. E. McLaughlin.....Forum Building, Sacramento.
 B. B. Meek.....Oroville.
 Albert E. Boynton.....Insurance Exchange, San Francisco
 John G. Mattos, Jr.....Centerville.

Following are brief data and reports carrying recommendations on San Quentin (now known as California State Prison) and Folsom:

CALIFORNIA STATE PRISON.

San Quentin, Marin County, California.

Date of opening, 1851.

Resident Officers.

J. A. Johnston.....	Warden
L. L. Stanley, M.D.....	Head Physician
Benj. H. Pratt, M.D.....	First Assistant Physician
L. A. Hewitt.....	Resident Dentist
Number of inmates June 30, 1922.....	men 2,569; women 47; total 2,616
Capacity.....	(difficult to state. Over-crowded.)
Number of employees.....	men 128; women 2; total 130

Total acreage of ground, 195,105 acres, with 135.35 acres tideland survey.

Prison is located at San Quentin, Marin County, California, and can be reached via San Francisco—Sausalito ferry, train via Green Brae, bus from Green Brae to prison, or via Richmond ferry.

Telephone No, San Rafael 623.

Visiting days: Saturday and Sunday to see prisoners. Thursday to go through institution. Hours: 8 a.m. to 1.30 p.m.

CALIFORNIA STATE PRISON.

(Formerly known as San Quentin Prison.)

No new buildings for inmates have been erected at San Quentin since 1913. Extensions and improvements have been made in the hospital and the industrial buildings.

Upon arrival, all men prisoners are thoroughly examined mentally and physically. Corrective surgical work, including dentistry, is performed whenever required. There is segregation and treatment of those with communicable diseases.

All men prisoners are, upon commitment, graded by the educational director. An opportunity for instruction is given all according to individual needs, from the elementary grades, taught by inmate instructors in night classes, to university extension correspondence courses. Special instruction is given foreigners. There is a library available to all.

Placement in industries is based on mental and physical findings.

Under existing conditions, it is not possible to meet these needs for all of the women prisoners. Especially lacking are facilities for occupation, hospitalization and segregation.

The chief manufacturing products for State use are furniture, clothing, shoes and tinware. The output of the largest and most profitable industry, where unskilled labor may be utilized—the manufacture of jute bags—is by special agreement disposed of directly from the prison to user without a middleman's profit.

Honor camps of prisoners for construction work on the state highway have been established with splendid results.

The warden has found a growing willingness on the part of corporations and individuals to cooperate with his endeavors to furnish suitable employment to prisoners upon their discharge.

Athletic games are encouraged, especially baseball with intercompetitive games; handball is permitted and extensively enjoyed.

Deprivation of privileges is chiefly used in maintaining discipline. When extreme measures can not be avoided, solitary confinement in the dungeon is prescribed.

An opportunity is given to earn credits which are taken into consideration by the parole board.

The chief needs are:

Separate quarters for women prisoners with adequate facilities for medical care and treatment, segregation, recreation, vocational training, and provision of employment for all.

Fit provision for care of the criminal insane.

Completion of building program in order to relieve present congestion.

We repeat the recommendations previously made, that every possible assistance be given the prison administration:

To secure facilities for the proper treatment and housing of the criminal insane, now confined in San Quentin.

To provide better housing, recreational and industrial quarters for the women prisoners, now confined at San Quentin.

To complete and further enlarge the cell buildings with adequate toilet facilities in order to abolish the unsanitary bucket system and to relieve overcrowding.

FOLSOM STATE PRISON.

Represa, Sacramento County, California.

Date of enabling act, 1873.

Resident Officers.

J. J. Smith-----Warden
 John Dale Rogers, M.D.-----Resident Physician
 M. E. Nesbitt-----Resident Dentist

Number of inmates: men only 1,114; capacity, prison 906; hospital 50. Number employees, men 102.

Total acreage of ground, 1,410.53.

Prison is two miles northeast of Folsom city. May be reached via Sacramento to Folsom, thence to Represa.

Telephone Nos. 26 and 2.

Visiting days: Saturday and Sunday. Hours: 9.00 a.m. to 3.00 p.m.

FOLSOM STATE PRISON.

Since 1914, a new cell building of reinforced concrete construction with 512 single rooms has been provided. Each cell is equipped with toilet, lavatory, spring bed and mattress. Individual towels are provided for each inmate.

School attendance is optional. The chapel is used for classes. One-hour classes are held in the afternoon as follows: English, penmanship, elementary and advanced arithmetic, elementary and advanced Spanish, typewriting, elementary grammar, drawing and gas engine construction. The average attendance is 91. Three hundred twenty-one inmates are taking correspondence courses with the Extension Division of the University of California.

Saturdays are set aside for contests between inside ball teams; on Sunday different teams visit the prison to meet the organized prison team. One handball court recently built is, by mutual agreement, used in rotation so that all may benefit. Checkers, chess, dominoes, and other games are played on Saturdays and Sundays. These must be provided by the inmates themselves.

All inmates are seen twice daily by the resident physician at 9 and again at 11.30 a.m., when the "medicine line" is formed. All who wish to consult the physician or who are in need of medical attention drop out of regular formation and march to the examination room, where they are either treated or kept for hospital care. The hospital has both surgical and medical wards. A male graduate nurse, a prisoner, has charge of the surgical ward and the pharmacy under Dr. Rogers.

The hospital diet is supervised by Dr. Rogers.

The prison ranch has been brought up to a very high standard, employing about fifty men during the busy season. This furnishes fresh garden products to the general mess, officers' and guards' mess. The dairy furnishes milk and butter for the hospital and for officers' and guards' mess, the surplus being sold to the families of the prison employees.

The occupations in Folsom are apprenticeship in the trades, blacksmithing, painting, plastering, carpentering, tinsmith work, horse-shoeing, gardening, ranch work, and general construction and stone cutting. All dimensional rock used in construction work about the prison is cut in the prison stone yard by inmates.

The outstanding needs at Folsom are:

1. The abolition of the bucket system in the old cell building. There should be a modern toilet and lavatory installed in each cell.
2. The introduction of some additional facilities for modern industrial training so that men may be better prepared to meet labor conditions after discharge.
3. Increased library and recreational facilities.

VII. REFORMATORY INSTITUTION FOR ADULTS.

INDUSTRIAL FARM FOR WOMEN.

Sonoma, Sonoma County, California.

Date of opening, January 1, 1922.

Advisory Board.

Dr. Emma K. Willits	Heine Building, San Francisco
Mrs. James E. Hume	32 Sequoia Apartments, Berkeley
Mrs. Maudie B. Sibley	1906 Cordova street, Los Angeles
Captain Duncan Matheson	Hall of Justice, San Francisco
Dr. E. P. Ryland	4609 Prospect avenue, Los Angeles

Resident Officers.

Miss Blanche Morse	Superintendent
Dr. Chapman	Physician (Sonoma State Home)
Miss Jessie Whalen	Occupational Director

Number of inmates June 30, 1922, women 24; capacity, women 36 (increased to 70 in a month's time); number of employees, women 7, men 1, total 8.

Total acreage of ground, 680.

The institution is located one and one-quarter miles northeast of Sonoma city and may be reached by Southern Pacific or Northwestern Pacific railroads.

Telephone S42.

Visiting days: Wednesday and Sunday. Hours: 11.00 a.m. to 3.00 p.m.

INDUSTRIAL FARM FOR WOMEN.

Purpose: "To provide custody, care, protection, industrial and other training and reformatory help for delinquent women."

Provided for by the legislature of 1919. A site of 680 acres of land in the heart of fertile Sonoma County was secured in September, 1919.

The approach to the building is unusually beautiful; 38 acres of improved land surround the building, 17 acres of bearing orchards, 4 acres of heavily laden vineyards, 3 acres of vegetable gardens. The balance is wooded hillside which preserves the water supply.

There is an abundance of water for irrigation, and household use.

On January 1, 1922, the home building, a mid-Victorian residence of thirty rooms, was, by proclamation of Governor Stephens, opened for delinquent women wards of the state.

The third floor of the building has been remodeled for use as dormitories and rooms for inmates. On the second floor are officers' quarters, work rooms, sleeping porch and temporary hospital treatment rooms. The first floor has dining rooms and reception hall. Modern plumbing and sewage disposal, lighting and heating facilities have been installed.

Two substantial stone buildings remain, one of which, with minor repairs, is now utilized as a cannery. An old, well built tunnel extends into the hillside underneath one building. This seems well adapted for a mushroom industry on a large scale.

On September 30, 1922, the receiving and hospital building was near completion. This building, of mission type, without a foot of waste space, is unusually well thought out for beauty and efficiency and is greatly needed for purposes of segregation.

There have been thirty-five commitments since January, mainly drug addicts; thirty-one in residence on September 30, 1922. These women have a large share in the upkeep of the Farm. All have their regular duties in housework, laundering, cooking, dining-room service, nursing, small animal husbandry, goat dairying, truck gardening, fruit picking and preserving, berry culture, care of the two acres of lawn and ornamental gardens, sewing, weaving, needle craft and embroidery.

The spirit of the place is excellent. It is the purpose and the hope of the superintendent that through wholesome living and thinking these women may be returned as self-respecting members of normal society.

There are three types of delinquent women to be cared for as state wards:

1. Delinquent women convicted of felony, now sentenced to San Quentin women's prison.
2. Drug addicts who may, as such, be sentenced by superior courts to state hospitals, or drug addicts who may be sentenced as vagrants to the Industrial Farm for Women.
3. Delinquent women sentenced as vagrants to the Industrial Farm.

The above group should include the incorrigible and irresponsible girl who is a "misfit" in the State School for Girls at Ventura.

Given adequate provision for segregation and safeguarding, together with the necessary equipment for care, treatment and industrial occupation, it would be possible to house and care for under one overhead management all of these types now scattered throughout our state institutions, thereby securing fit environment for all at lessened per capita cost of maintenance.

VIII. INDUSTRIAL HOME FOR ADULT BLIND.

3601 Telegraph avenue

Oakland, Alameda County, California.

Date of opening, March, 1888.

Advisory Board.

John P. Trish.....	1904 Adeline street, Oakland
Geo. E. Randolph.....	Cor. Second and Jefferson streets, Oakland
W. H. Spaulding.....	625 El Dorado street, Oakland
Walter Bakewell.....	2831 Telegraph avenue, Oakland
C. D. Gilman.....	345 Hillside avenue, Oakland

Resident Officers.

Mr. Douglass Keith.....	Superintendent
Residents June 30, 1922.....	men 99; women 34; total 133
Capacity.....	men 104; women 36; total 140
Number of employees.....	men 18; women 12; total 30

Total acreage of ground, 6.

Institution is located in residence district of Oakland, and may be reached by Telegraph Ave. street car.

Telephone, Piedmont 275.

Visiting days: Every day. Hours: 9.00 a.m. to 1.30 p.m.

INDUSTRIAL HOME FOR ADULT BLIND.

Purpose: To train and care for the adult blind so that they may become self-supporting.

A majority of the residents are aged blind for whom custodial care only is required. There is a long waiting list.

The chief industries are broom making, chair caning, weaving, basketry and cord netting. All workers are paid for their labor.

Classes for instruction in Braille system are held.

Facilities for recreation are, reading (books in Braille are received from the circulating library for the blind at State Library, Sacramento) and occasional musical concerts by outside talent.

Needs: The need of another dormitory for the segregation of the industrial group still exists.

In order that the blind admitted to the home as well as other blind persons in the community may be taught trades which will enable them to contribute to their own support, the creation at the home of an industrial training center under a vocational advisor is recommended, for nonresident as well as resident pupils.

A modern shop building and equipment are required.

Living quarters outside of the home are recommended for those who are now self-supporting.

There is need of a building for general assembly, smoking room for men, and for entertainments.

The commissary department is in need of reconstruction, with adequate refrigerating plant and store rooms. A central heating plant is to be installed.

IX. PAROLES FROM STATE INSTITUTIONS.

The number of patients paroled from the state institutions on June 30, 1922, was 2644. Of this number 792 were from the state hospitals.

With the exception of the bay district where 202 paroled patients from state hospitals fall under the supervision of Dr. Eva C. Reid of the after-care department, the state is without organized psychiatric social service for paroled patients.

Dr. Thos. Salmon of the National Committee for Mental Hygiene writes:

"Those who had to deal with mental disorders in the communities were learning more and more what could and what could not be expected of institutions, and those whose work lay chiefly within institutions were realizing more and more that mental disorders constitute a problem in the school, home and factory, as well as in the hospital. The great agency for leveling these barriers has been the social service department, which has its roots planted in the institution and its branches reaching in every direction to the community where persons with mental disorders are struggling to re-establish themselves economically or socially or to maintain themselves during the early phases of their disorders. Too much has been said on the subject of psychiatric social service in connection with the work at State institutions to make it necessary for me to add anything except to invite attention again to the fact that the highest type of economy is accomplished by the support of such an agency. In New York State recently, after a period of demonstration that was largely financed independently of State aid, the value of social service has been fully recognized by the State authorities and one trained social worker allowed for every two hundred patients on parole. This has resulted in so large a number of persons being cared for after a period of hospital observation and

training that at the present time if all patients on parole were gathered together, a new hospital of very large size would have to be constructed to house them. It has been estimated that the annual cost of maintaining a trained psychiatric social worker in the field is less than that of maintaining ten patients in the hospital for the same period. It is not only economy, however, that impresses one in witnessing the conduct of this experiment upon a large scale, but the fact that those who are maintained outside of hospitals live with greater safety and comfort to themselves and those around them if the families in which they dwell have the benefit of the sympathetic advice of a trained social worker who calls periodically and is available at almost any time in dealing with some special and emergent problem.

I believe that with the rapid extension of community contacts with psychiatric social service and mental hygiene clinics, a brighter and more useful period of activity is opening before the State institutions for the treatment of mental diseases, and, of no small importance to human beings who require the approval of their fellow men in conducting their life work, there will come a measure of public appreciation which has only been denied up to the present time through ignorance of the real problems with which the institutional men have to deal and of the real contribution that they make to the safety, health and welfare of the communities in which they work."

There follows a comparative table of enrollment and paroles of state institutions for June 30, 1912, and June 30, 1922, also the names and addresses of the parole officers of California state institutions:

Comparative Table of the Number in State Institutions and of the Number on Parole From State Institutions, June 30, 1912, and June 30, 1922.

(Compiled from monthly census bulletins of State Board of Charities and Corrections.)

	Number in institution, June 30		Number on parole		Increase in number in institution	Increase or decrease in number on parole
	1912	1922	1912	1922		
Home for Adult Blind.....	113	133	-----	-----	20	-----
Industrial Farm for Women	-----	24	-----	-----	24	-----
State Homes for Delinquent	-----	-----	-----	-----	-----	-----
California School for Girls	-----	162	-----	85	162	+85
Priston School of Industry	370	447	336	322	77	-14
Whittier State School.....	285	305	327	157	20	-170
Totals.....	655	914	663	564	259	-99
State Hospitals						
Agnews.....	950	1,777	61	103	827	+42
Mendocino.....	1,028	1,233	60	77	205	+17
Napa.....	2,040	2,555	160	159	515	-10
Norwalk.....	Non-exist.	640	-----	140	640	+140
Southern California.....	1,730	2,490	131	148	760	+17
Stockton.....	2,181	2,596	159	165	415	+6
Totals.....	7,929	11,291	580	792	3,362	+212
Institutions for Feeble- minded						
Sonoma State Home.....	946	1,570	19	238	624	+219
Pacific Colony.....	Non-exist.	30	-----	11	30	+11
Totals.....	946	1,600	19	249	654	+230
State Prisons						
Folsom.....	1,163	1,144	159	200	-19	+41
San Quentin.....	1,937	2,616	402	839	679	+437
Totals.....	3,100	3,760	561	1,039	620	+478
Grand totals.....	12,743	17,722	1,823	2,644	4,979	+821

+Increase.
-Decrease.

NAMES AND ADDRESSES OF PAROLE OFFICERS FOR STATE INSTITUTIONS.

STATE HOSPITALS: (including Sonoma State Home.)

Dr. Eva C. Reid, University of California Hospital, San Francisco.
Telephone, Sunset 3600.

Margaretha Suermondt, Assistant, University of California Hospital, San Francisco.
Telephone, Sunset 3600.

WHITTIER STATE SCHOOL:

C. K. Berger, Whittier State School, Whittier, California.
Telephone, Whittier 984.

PRESTON SCHOOL OF INDUSTRY:

R. A. Lang, 995 Market street, San Francisco.
L. M. Corbell, 1004 Hall of Records, Los Angeles.

CALIFORNIA SCHOOL FOR GIRLS:

Southern District: Mrs. Alice T. Weed, 309 Columbia Building, 313 West Third street, Los Angeles. Telephone 15950.
Northern district: Dr. Eva C. Reid of out-patient department, state hospitals, assigned by Dr. Reily, director.

STATE PRISON PAROLE OFFICERS:

Ed. H. Whyte, 6 Ferry Building, San Francisco.
Roy E. Langworthy, 325 Union League Building, Los Angeles.

This seems the proper place to recognize the work being carried on by the Jewish Committee for Personal Service in the State Institutions. Unique in its humanitarian services, it owes its inception mainly to Dr. Martin A. Meyer, former president of the State Board of Charities and Corrections, who began the work in San Quentin Prison several years ago.

The organization is exceptionally fortunate in having secured Mr. Blumenthal as executive secretary. His earnest, untiring work meets quick response from all other social workers.

The organization is sustained by the Federations of Jewish Charities in San Francisco, Los Angeles, and Oakland.

Sustaining and cooperating communities have been developed in the vicinity of the state institutions and other welfare centers.

The plan of activity is:

1. To visit regularly the Jewish wards of the state institutions.
2. To assist the institution in rendering remedial and constructive personal service.
3. To conduct religious services and provide additional education and recreational opportunities.
4. To cooperate with officials, relatives and friends in the transfer and parole of inmates.
5. To assist in the rehabilitation of discharged patients.
6. To study the causes of mental and moral deviation and suggest preventive measures.
7. To educate the public as to the nature of mental diseases, that insanity is not a crime, and that the sufferers should receive the attention due the sick.

The first annual report presented April 30, 1922, shows that in addition to regular monthly visits to all of the 404 Jewish inmates of the state institutions, there have been developed valuable services in after-care of paroled and discharged persons. After-care has been given thirty-five former patients, members of Jewish faith. In addition, ser-

VICES were rendered to sixty-two non-Jews in the state institutions who were unaffiliated with other denominations. Another forward step is the provision of a woman visitor to assist in the following:

1. Paying special attention to the more than 200 women in the state correctional institutions and the fifty or more in the city institutions. (The extended work includes the organization in different counties of local voluntary groups who will carry the work into the county institutions.)
2. Visiting the homes of friends and relatives.
3. Developing the follow-up and after-care work.
4. Giving more attention to the problem of the juvenile delinquent.
5. Engaging in the work of prevention.

The work of this society in placing on parole 35 Jewish patients out of a total of 404 (8.6 per cent of the population) points the way to what could be done through the establishment of a state-wide parole system. The expense of caring for 10 patients within an institution would pay the salary and traveling expenses of one psychiatric social worker.

Next steps in state institutions.

Provision for the segregation of criminal insane.

Provision of psychopathic hospitals in order to provide expert diagnosis and thereby relieve overcrowding in state hospitals.

Increased provision by counties of psychopathic parole officers.

Increase in establishment of neuro-psychiatric clinics throughout the state.

Provision for segregation and treatment of drug addicts and alcoholics.

Adequate psychiatric social service so that supervised parole may be increased. Provision of after-care homes for the insane.

Increased remedial measures for patients in state hospitals; eye, ear, nose and throat and orthopedic treatment.

Affiliation of accredited hospital training schools for nurses with state hospitals.

Change of Lunacy Law so as to permit transfer of patients to state hospitals by trained attendants instead of by deputy sheriffs.

Further development of occupational therapy in state hospitals.

More general use of sterilization law.

Additional cottage buildings for patients.

Additional provision for housing employees.

Increased facilities for recreation: The organization of physical activities as a therapeutic measure.

Increased facilities for recreation of employees in state institutions.

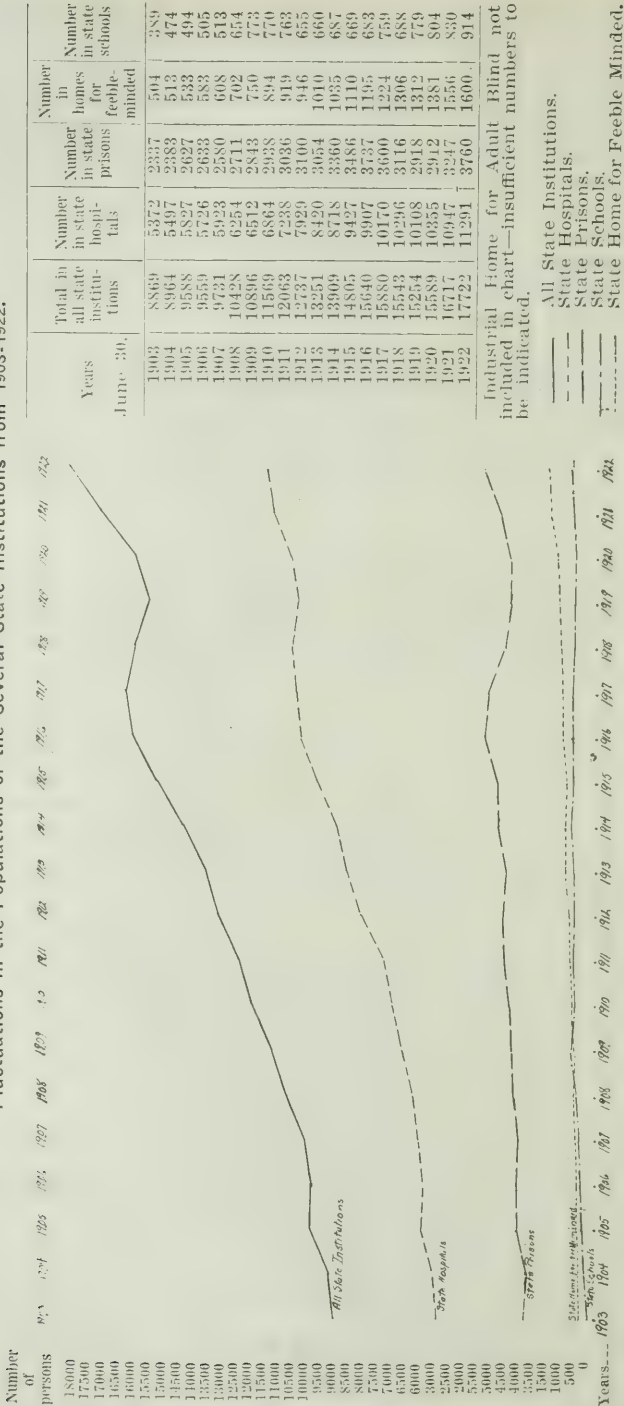
Increased buildings for care of the feeble-minded.

Provision for increased parole of the feeble-minded vocationally trained, into industrial colony groups.

Provision for the construction of suitable buildings for women prisoners now in San Quentin Prison.

Increased provision for industrial training of adult blind.

CHART I.
Fluctuations in the Populations of the Several State Institutions from 1903-1922.



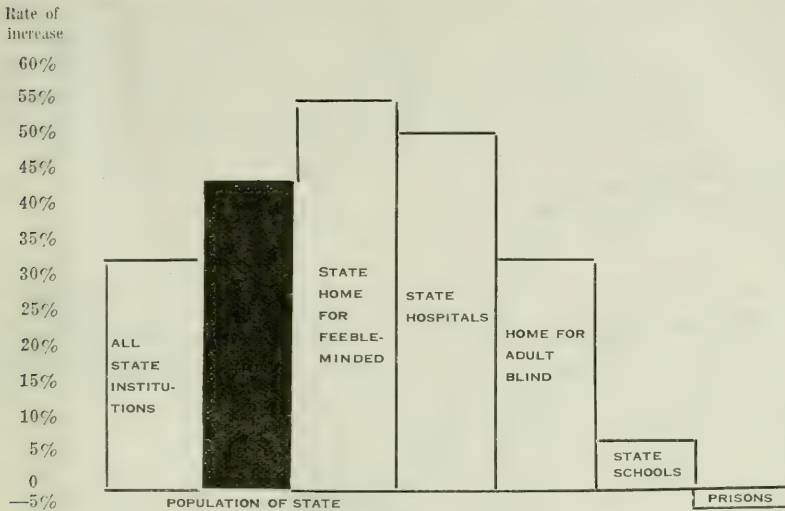
Number of persons

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Years—1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922

CHART II.

Comparison of Rate of Increase of Population of Several State Institutions with Rate of Increase in State for 10-Year Period 1910-1920.



	Population		Rate of increase
	1910	1920	
State of California	2,377,549	3,426,861	43.6%
All state institutions	June 30, 11,569	15,589	34.7%
State hospitals	June 30, 6,864	10,355	50.8%
State prisons	June 30, 2,938	2,912	-9%
State schools	June 30, 770	804	4.0%
State Home for Feeble-Minded	June 30, 894	1,381	54.5%
Industrial Home for Adult Blind	June 30, 103	137	33.0%
Ratio of population in institutions to 100,000 of state population	486	454	

Figures based on reports submitted by the institutions to the State Board of Charities and Corrections.

While the population of the state increased 43.6 per cent in the ten-year period from 1910 to 1920, the population in the state institutions increased only 34.7 per cent; or, expressed in terms of ratio, there were 486 persons in state institutions to every 100,000 of the population in 1910, while there were 454 in 1920.

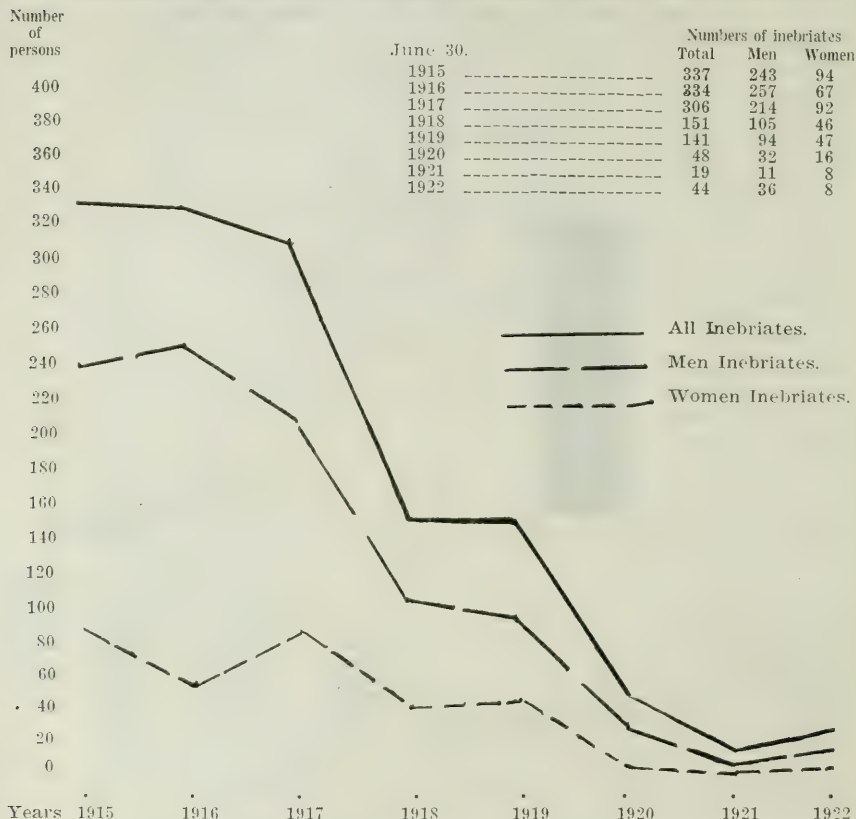
The variation in the rate of increase in the different institutions is of significance, for in two instances—the State Home for Feeble-Minded and the state hospitals—the rate of increase was greater than that of the state; while in one instance—the state prisons—there was a decrease.

The rate of increase in the numbers in the home for the feeble-minded may be ascribed as much to the increased recognition of feeble-mindedness and of the necessity for institutional care for such cases as to any actual increase in the proportionate number of feeble-minded persons. A similar situation exists in the state hospitals; the increase in the numbers in the hospitals is due in part to the realization in the community that the state hospitals are offering opportunities for treatment and that incipient cases are best cared for in the hospitals.

The number in the state prisons was less in 1920 than in 1910. This may be partly accounted for by the fact that 1920 was a period of prosperity, high wages and no lack of employment. The establishment of the adult probation system, whereby men convicted of their first penitentiary offense are put on probation and not committed to the penitentiary, has been another factor in the decrease in the numbers of prisoners. It may be noted, however, that 1921 and 1922 brought a marked increase again in the number of prisoners. In 1920 there were 2912 prisoners, while in 1921 there were 3247 and in 1922 there were 3760.

CHART III.

Fluctuations in Numbers of Inebriates in State Hospitals from 1915-1922.



The division of the inmates of the state hospitals into insane and inebriate was not made in the reports of the hospitals to the state board until 1915, so that it was not possible to make any count of the number of inebriates before that time. A further division into insane, inebriates and drug addicts was made in 1921.

The number of inebriates remained about the same for 1915 and 1916; but in 1918, with the prohibition act, the number decreased and continued to decrease until 1921. There was a slight increase in 1922 over 1921, but the numbers are still only a fraction of the numbers of inebriates in the state hospitals in 1915 and 1916—44 in 1922 to 337 in 1915.

PSYCHOLOGICAL CLINICS IN CALIFORNIA.

(Compiled by the State Board of Charities and Corrections.)

January, 1923.

County	Name	Location	Auspices	Support	Hours	Pay or Free	Name of Psychologist	Name of Social Worker in Charge
Alameda	Psychological Clinic	Public Health Center, 31st and Grove Sts., Oakland	County Medical Association, University of California	Alameda Co. Board of Supervisors, Private Subscriptions	Wednesday, 10 a. m.	Charge, depending on Family Income	Mrs. Hunt	Mrs. Eva Niel
1	Neurological and Psychiatric Clinic (includes psychological examinations)	Alameda Health Center, 1312 Oak St., Alameda	Alameda City Health Center	City, County, Private Funds	Friday Afternoon by Appointment	Free	Dr. J. D. Ball	Mrs. H. F. Sams, Director, Start-ups
2	Bureau of Research and Guidance	Room 1106, City Hall, Oakland	City Board of Education	Public School Funds	By Appointment for School Children	Free	Virgil E. Dickson	
3	Children's Hospital Clinic	404 Sunset Blvd., Los Angeles	Children's Hospital	Children's Hospital	Friday, 9 a. m.	Free	Dr. H. Eaton	Emma Vandy
1	Orthopedic Hospital School	2422 Palm Drive, Los Angeles	Orthopedic Hospital School	Popular Subscription	Tuesday and Friday a. m., by Appointment	Free	Mrs. Evelyn Tripbett	Mrs. M. R. Hatch
2	Santa Rita Clinic	1411 Main St., Los Angeles	Bureau of Catholic Charities	Bureau of Catholic Charities	Monday and Thursday, 9:15 a. m.	Free and Charge	Dr. Kate Gordon, Miss H. Sullivan, Mrs. E. Earle	Chara K. Isaacs
3	California Bureau of Juvenile Research	Whittier State School	State of California	State	By Appointment for Outside Cases	Free	J. H. Williams, Ph. D., Miss Matthews, M. A.	Miss Matthews
4	Good Cheer Club	Room 50, Porter Bldg., San Jose	Good Cheer Club	Good Cheer Club, Private Subscriptions	Tuesday and Saturday, 10 a. m.	Nothing up to 50c	Miss Merrill	Miss Pittinboff
Santa Clara	Stanford Psychological Clinic	Sacramento and Webster Sts., San Francisco	Stanford Univ. Medical School	Stanford University	Daily, 9:11 a. m.	Free	Miss E. D. Whitcomb	Miss Wages
1	Mental Hygiene Clinic	Mt. Zion Dispensary, Scott and Sutter Sts., San Francisco	Mt. Zion Dispensary	Federation of Jewish Charities	Wednesday	Free	Dr. Lillian C. Martin	Miss Crosby
2	Juvenile Detention Home Psychological Clinic	150 01st St., San Francisco	City and County of San Francisco, University of California	City and County of San Francisco, University of California	Monday, Wednesday, Friday, a. m., Friday p. m.	Free and Charge	Dr. Olga Bridgman	Probation Officers, Juvenile Detention Home Staff
3	Children's Hospital, Dept. of Neuro-Psychiatry	Children's Hospital, 3700 Calif. St., San Francisco	Children's Hospital, University of California	Outpatient Department, Children's Hospital	Wednesday, 9 a. m.	Free and Charge	Margaret H. Russell	Ella Shaffer
4	State Community Service Clinic	Red Cross Rooms, Santa Rosa, Healdsburg, Petaluma	Red Cross and Sonoma State Home	Red Cross	First and Third Friday Afternoons	Free	Dr. Geo. Ordahl	Mrs. Seery, Mrs. Gerald, Miss Manning
Sonoma	Children's Clinic	Health Center, Court House, Woodland	Board of Health	Board of Health	Four Times a Year	Free	Dr. Colby, of State Home for Feebleminded	Henrietta Koch
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Total Number of Clinics, 14.

PSYCHIATRIC CLINICS IN CALIFORNIA.

(Compiled by the State Board of Charities and Corrections.)

January, 1923.

County	Name	Location	Auspices	Support	Hours	Pay or Free	Name of Psychiatrist	Name of Social Worker in Charge
Alameda	Neurological and Psychiatric Clinic	1812 Oak St., Alameda	Alameda City Health Center	City, County, Private Funds	Friday, p. m.	Free	Dr. J. D. Ball	Mrs. H. Sams, C. S. Sharpstein
1	Psychiatric and Neurological Clinic	Oakland Public Health Center, 31st and Grove Sts.	County Medical Association and University of California	Alameda County Board of Supervisors	Wednesday, 10 a. m.	Free and Charge	Dr. E. Va Eder	Mrs. Eva Niel
2	Psychopathic Clinic	Berkeley Dispensary	Berkeley Dispensary	City, County, Private Funds	Tuesday, 8:30-10:30	Free	Dr. R. L. Richards	Mrs. E. C. Anderson
3	Behavior Clinic	711 S. Eastlake Ave., Los Angeles	Los Angeles Co. Juvenile Court	County Funds	Mon., Wed., Fri., Sat., a. m.	Free	Dr. Carolyn S. Fisher	No Nurse; Mental Examination Only
Los Angeles	Parrot Teachers' Clinic	926 Yale St., Los Angeles	Parrot Teachers' Association	Parrot Teachers' Association	Tuesday, 9:10 a. m.	Free	Dr. A. J. Rosnoff	Charge Nurses
1	Children's Hospital, Psychiatric Clinic	404 Sunset Blvd., Los Angeles	Children's Hospital	Children's Hospital	Friday, 9 a. m.	Free	Dr. H. D. Eaton	Charge Nurses
2	Santa Rita Clinic	1411 N. Main St., Los Angeles	Bureau of Catholic Charities	Bureau of Catholic Charities	Monday and Thursday, 8:30-9 a. m.	Free and Charge	Dr. A. C. Resnais, Dr. E. V. Emory	Miss C. K. Becker
3	Neurological Clinic	County Hospital, 1000 Mission Rd.	County Department of Charities	County Funds	Monday, Tuesday, Thursday, Friday, 9 a. m.	Free	Dr. R. M. Ritchie, Dr. Paul E. Bowers, Dr. A. J. Rosnoff	Mrs. L. James
4	California Bureau of Juvenile Research	Whittier State School	Whittier State School	State Funds	Weekly or Special Appointments	Free	Dr. P. Bowers	J. H. Williams, Ph. D., Julia Watson, M. A.
5	Psychiatric Clinic	245 N. Bunker Hill, Los Angeles	Federation of Jewish Charities	Federation of Jewish Charities	First and Fourth Wednesdays 8 a. m.	Free or Free if Needed	Dr. A. J. Rosnoff	Miss Lillian Lubin
6	Psychiatric Clinic under School Health Department	538 S. Broadway, Los Angeles	Board of Education	Board of Education	Monday, 9-4	Free	Dr. Don P. Flagg	
7	Psychiatric County Clinic	Riverside and San Bernardino	County Welfare Departments	County Welfare Departments	Riverside, Mon. and Wed., 9 a. m.; San Bernardino, every other Thursday, p. m.	Free	Dr. E. W. Meyer	Mrs. Mand Bell
Riverside and San Bernardino	Good Cheer Club Health Center, Psychiatric Clinic	24 and Santa Clara Sts., San Jose	Good Cheer Club	Private Subscriptions	Tuesday, p. m.	Free and Charge	Dr. Margaret Cutting	Miss Pittinboff and Nurses
1	County Hospital, Psychiatric Clinic	County Hospital, Santa Clara	Agnes State Hospital	State Funds	Tuesday Night	Free	Dr. H. W. Whismom	Miss Wittner
2	Psychiatric Clinic, Univ. of Cal. Hospital	University of California, Parnassus Ave., San Francisco	Department of Institutions, University of California	State Funds, Univ. of California	Daily, 9:12 a. m.	Free	Dr. Eva Reid	Margaretha Surmond
San Francisco	Neuro-Psychiatric Clinic, Stanford University	Stanford Univ. Medical School, Sacramento St., San Francisco	Stanford Univ. Medical School	Stanford University	Daily, 9:11 a. m.	Free	Dr. Catton	Margaret Wages
1	Psychiatric Clinic	St. Luke's Hospital, 27th and Valencia Sts., S. F.	St. Luke's Health Center, Outpatient Department	St. Luke's Hospital	Thursday, 5-6 p. m.	Free	Dr. Herold Wright	Mrs. W. Miss McBurnett
2	Neurological Clinic	Mt. Zion Dispensary, 2900 Scott St., San Francisco	Federation of Jewish Charities	Federation of Jewish Charities	Wednesday, a. m.	Free	Dr. Wm. Isaacson, Dr. Hirschfeld	Josephine Abraham
3	Psychiatric Clinic	San Francisco County Jail	City Physician, San Francisco County	Volunteer	Monday, Thursday, 9 a. m.	Free	Dr. Capron, Mrs. Levy	Miss Greenbaum
4	State Community Service Clinic	Red Cross Headquarters, Santa Rosa, Healdsburg, Petaluma	Red Cross Chapter, Sonoma County	State Funds	Weekly	Free	Dr. H. W. Cowey	Mrs. Gerald, Miss Manning
5	Psychiatric Clinic	Woodland	Board of Health	Board of Health and Stat.	Hope to Hold Clinics Four Times a Year	Free	Dr. Ordahl, State Home for Feebleminded	Henrietta Koch
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Total Number of Psychiatric Clinics, 21.

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- 400
- 380
- 360
- 340
- 320
- 300
- 280
- 260
- 240
- 220
- 200
- 180
- 160
- 140
- 120
- 100
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REPORT OF CHILDREN'S COMMITTEE.

Chairman, Hattie Hecht Sloss.

Chief Agent, Mabel Weed.

- I. Children's work over which the State Board of Charities and Corrections has supervision.
- II. Institutions for the care of needy children.
 1. Introductory.
 - a. Meetings with boards of directors.
 - b. Institutional records.
 - c. Admissions and dismissals.
 - d. Aftercare for children's institutions.
 - e. Responsibility of directors.
 - f. Studies of children's institutions.
 2. New institutions licensed.
 3. Improvements in old institutions.
 4. Vacation camps used by children's institutions.
 5. List of institutions for needy children.
 6. Institutions providing special medical and preventive care for children.
 7. Institutions for wayward children. (See page 71.)
 8. State schools (see report on state institutions).
 9. Rescue homes.
 10. Fire standards.
 11. Cooperation with the State Board of Control.
- III. Family boarding homes.
 1. Introductory.
 2. Homes holding individual license.
 - a. County organization.
 - b. Court action.
 - c. Newspaper cooperation.
 - d. Chart showing location, number and supervision of individual licensed homes.
 - e. Discussion of ordinance for municipal control of boarding homes.
 3. Homes used by licensed child-placing agencies.
 - a. Standards for supervision of children in foster homes.
 - b. Chart showing location, number and supervision of homes used by licensed agencies.
- IV. Adoption work by child-placing agencies.
- V. Day nurseries.
- VI. Maternity hospitals and homes.
 1. Relation of maternity hospital and home capacity to births and population.
 2. Maternity standards.
 3. Agreement with the State Board of Health.
 4. Disposal of infants.
 5. Prenatal clinics.
- VII. Working girls' clubs.

I. CHILDREN'S WORK OVER WHICH THE STATE BOARD OF CHARITIES AND CORRECTIONS HAS SUPERVISION.

The laws of California place upon the State Board of Charities and Corrections the responsibility, through license, for proper living conditions for all children not with their parents or legal guardians, and for the inspection and licensing of maternity hospitals and homes. This work falls into the following five (5) divisions. These tables represent institutions now licensed by the State Board and those pending license, also the state schools for wayward children which do not require license.

CHILDREN IN INSTITUTIONS.

Type of institution	Number	June 30, 1922. Population
Institutions for needy children-----	60	4,802
Preventoria-----	5	125
Homes for convalescent children-----	6	360
Homes for crippled children-----	2	28
Training homes for wayward children-----	7	471
State schools for wayward children-----	3	912
Rescue homes-----	7	} 131*
		} 65††
Totals-----	90	6,894

*Girls.
††Babies

CHILDREN IN FAMILY BOARDING HOMES.

Type of home	Number	Population
For normal children-----	1,779	2,554
For feeble-minded children-----	13	152
Totals-----	1,792	2,706

CHILDREN PENDING ADOPTION OR IN PERMANENT FREE HOMES.

Type of home	Number	Population
Receiving homes-----	2	46
Boarding homes-----	55	61
Adoptive homes-----	602	609
Free homes-----	180	180
Totals-----	839	896

CHILDREN IN DAY NURSERIES.

	Number	Population
Day nurseries-----	24	930*

*Average daily attendance.

MATERNITY HOSPITALS AND HOMES.

Type of hospital	Number	Capacity
Maternity hospitals and maternity departments-----	77	1,083
General hospitals-----	117	464
Maternity homes-----	102	277
Totals-----	296	1,824

SUMMARY.

	Number	Population
Children in institutions-----	90	6,894
Children in family boarding homes-----	1,792	2,706
Children with child-placing agencies (adoptive)-----	839	896
Children in day nurseries-----	24	*930
Capacity of maternity hospitals and homes-----	296	1,824
Totals-----	3,041	13,250

*Average daily attendance.

II. INSTITUTIONS FOR THE CARE OF NEEDY CHILDREN.

1. *Introductory.* In various ways during the last two years the State Board has helped the children's institutions to meet and solve their problems.

a. Meetings with boards of directors.

Meetings have been held with the following boards of directors, or special committees, to discuss the work and plans of the institution under their direction:

Oriental Methodist Episcopal Home for Chinese Girls, San Francisco.
 California Rescue Home, Oakland.
 Faith Home for Children, Ceres, Stanislaus County.
 Youth's Directory, San Francisco.
 Monte Vista Lodge, Sunland, Los Angeles County.
 California Girls' Training Home, Alameda, Alameda County.
 Ellen Stark Ford Home, San Francisco.
 Woman's Day Nursery, Los Angeles.
 Colored Day Nursery, Oakland.
 Ebell Day Nursery, Santa Ana, Orange County.
 Saint Elizabeth's Infant Hospital, San Francisco.
 Stockton Day Nursery, Stockton.
 Children's Home of Stockton.
 California Home for Crippled Children, Los Angeles.
 California Junior Republic, Chino, San Bernardino County.
 Imperial Valley Children's Home, San Diego.
 Helping Hand Home for Children, San Diego.
 McKinley Industrial Home, Gardena, Los Angeles County.
 Lark Ellen Home for News and Working Boys, Los Angeles.
 Kiddie Koop, Los Angeles.
 Masonic Home for Children, Covina.
 Jewish Orphans' Home, Los Angeles.

b. Institutional records.

A system of financial accounting approved by the State Board of Control has been installed in all nonstate-aid institutions. Uniform medical and social history records have been distributed and their use explained.

c. Admissions and dismissals.

This board has emphasized the need in most of our children's institutions for more trained service in the admission and dismissal of children. The importance of definite information and complete understanding of the social and financial conditions surrounding each child which make it necessary to remove the child from its home or immediate care of parents can not be over-estimated. The desirability of keeping the child in the environment of normal family life can not be questioned. Having, however, once accepted the child, the responsibility of the institution should not cease until the child is satisfactorily and permanently placed or has become of age, unless it is returned to its parents or legal guardians, in which case there may be a question as to whether the child should have been admitted in the first instance. The disastrous

effect of lack of after care has been forcibly brought to the attention of the state board during the past year by a number of appeals for assistance in finding children who had been entirely lost after passing out of institutions.

Institutional children are in the main the defenseless victims of broken homes and they need the most careful safeguarding and guidance to ensure their development into useful men and women. More than half of the boys in the Whittier State School in June, 1921, had been previously in some children's institution and many had been in more than one. With few exceptions they came from broken homes. Some of these children could not perhaps have been saved from the juvenile court and the state school but there can be no doubt but that many might have escaped this stigma if it had been possible to give each child more individual guidance and sympathetic understanding.

d. After care for children dismissed from institutions.

This board has urged as the next step on the part of our children's institutions toward meeting the problem of after care the employment of trained social workers whose business it shall be to know the background and peculiar needs of each child so that all children will be cared for in the way best suited to their needs whether in institutions or otherwise and so that children leaving the institution will be watched and guided until their permanent place in some family group is assured or they are of age and self-supporting.

This board has urged all children's institutions to add to their staff a social worker having charge of admissions and dismissals. The obstacle in the way of carrying out this program is usually a lack of funds and an absence of conviction on the part of the institutions as to the necessity of this additional service.

We believe, as boards of directors realize more fully their responsibility for the lives of children entrusted to their care and what can be accomplished by intensive work of this kind, there will be no difficulty in securing the necessary funds. The giving public responds generously to an appeal which can show accomplishment in the lives and character building of children. See pages 104-110.

e. Responsibilities of directors.

There are on the boards of directors of our children's institutions in California seven hundred and fifty-one men and women of high purpose and sympathetic interest in the problems of childhood. These men and women are directly responsible for the lives of children cared for by the children's institutions in this state. Notwithstanding, it frequently happens that the trained executive is allowed to carry the greater part of the responsibility. He has the confidence of his directors and the experience upon which to base his judgments. Superintendents, however, need the active and understanding support of their directors and the public has the right to demand devotion and thought from a group of people to whom they entrust not only large sums of money but the future of thousands of children.

With a view to securing for these children in institutions the entire value of the services of these men and women a plan is being worked

out, with the official leaders of the larger religious denominations, to discuss with directors, through the medium of their various faiths, the duties, responsibility and importance of the positions they hold.

f. *Studies of children's institutions.*

Special studies have been made of the following institutions:

- Bothin Convalescent Home for Women and Children, Manor.
- Vallejo Industrial and Normal Institute for Colored Boys and Girls.
- St. Francis School for Boys, Watsonville.
- Oriental M. E. Home for Chinese Girls, San Francisco.
- Children's Home of Stockton.
- Stockton Day Nursery.
- California Junior Republic, Chino.
- McKinley Industrial Home, Gardena.
- St. Vincent's Orphan Asylum, St. Vincents.
- Ellen Stark Ford Home, San Francisco.
- Grace Day Home, Sacramento.
- California Rescue Home, Oakland.
- Youth's Directory, San Francisco.
- California Training Home for Girls, Alameda.
- Castelar Creche, Los Angeles.
- Catholic Children's Home, San Diego.
- Madam J. C. Walker Club for Working Girls, San Francisco.
- Mother Cabrini Preventorium, Burbank.
- Tooker School for Chinese Girls, Oakland.
- St. Dorothy's Rest, Camp Meeker.
- Sharon Home, Escalon.
- Colored Children's Home and Day Nursery, Oakland.

2. *New Institutions Licensed.*

It is the policy of the state board to discourage the establishment of new children's institutions unless they are intended to meet the need of children who are not placeable in family boarding homes, or who require such specialized care as can best be provided by an institution. The board advocates the use of family boarding homes for the care of normal children who for any reason can not remain with their parents.

There have been many projects presented to the board during the past two years looking toward institutional care of children. Of the number only the following seven were licensed. They are all small and were established to provide care for distinctive groups of children. None of them is duplicating the work of any of the older institutions.

1. *The Castelar Creche, Los Angeles.*

This institution is licensed to care for 24 babies under a year old who are undernourished or are feeding cases or who for any similar reason require constant and expert medical care which their parents are not able to provide. The building and its appointments are in excellent taste and the equipment is the best. A trained nurse is in charge and the children are under the immediate care of a staff of physicians. As soon as a baby is in normal condition it is returned to its home.

2. The Catholic Children's Home, San Diego.

This institution was licensed for 15 boys and girls between the ages of 4 and 10 years. A residence has been remodeled for this home. There is a good-sized yard and an isolation cottage separated from the house. The purpose of the institution is to serve as a clearing center and as a place for observation and correction of physical defects for homeless dependent Catholic children. It is the policy to place them as rapidly as possible in foster homes or other institutions for permanent care.

3. The Ione Indian Home.

This home is licensed to care for 10 Indian boys and 10 Indian girls. It is located just out of the town of Ione on twenty acres of land which the Free Methodist Home Missionary Board of North America has bought for that purpose. There is no question but that many of the Indian children in this part of the state have been suffering for lack of proper food and clothing, especially since the Federal School at Greenville was burned. There is great difficulty in providing family boarding homes for Indian children.

The house on the place has been remodeled and enlarged so that it makes a pleasant and comfortable home.

The federal government is allowing the institutions 60 cents per day per child for each school day, and the county and state are granting aid for the care of the children eligible to state aid. In addition to this the Free Methodist Home Missionary Board of North America has undertaken the financial responsibility of the home.

4. The Sharon Home for Children at Escalon—Stanislaus County.

This institution was licensed to care for children belonging to the Swedish Evangelical Lutheran faith. The home is located just out of Escalon. There are thirty acres of farming land and a comfortable dwelling. Although it has the organization of an institution it is in fact a boarding home, licensed for 4 children and has never cared for more than two children at a time.

5. The Japanese Children's Home, Guadalupe, Santa Barbara County.

The purpose of this institution is to provide a home during the school year for the children of school age of Japanese ranchers who live in the vicinity of Guadalupe, Santa Maria and Lompoc, but who are too far away for the daily trip to and from school.

The parents of the children also wish them instructed in Buddhism, and the Japanese language.

The home is closed during school vacation. It is licensed for 30 children, boys and girls.

6. The Eastside Mother's Home for Friendless Girls, Los Angeles.

This home was established to care for negro girls between the ages of 12 and 18 years who are in need of special opportunities for the development of character and of schooling or vocational training. The institution is licensed to care for 11 girls.

7. The Monte Vista Lodge, Sunland.

This institution was licensed for 40 boys and girls between the ages of 5 and 12 years. It was originally planned as a vacation or convalescent home during the summer months for children who needed a vacation or would be benefited by the country life and healing quality of the air in that region. The building chosen was unfortunately not well adapted for the care of children and was especially difficult to make satisfactory for a year-round institution which was later contemplated. Adequate medical supervision was another difficulty and the percentage of sickness among the children was large.

For these reasons the state board has withdrawn its license, pending more satisfactory equipment and provision for medical supervision.

3. Improvements in Old Institutions.

This board recognizes the excellent work of many of our children's institutions. It realizes the almost insurmountable difficulty of caring for certain types of children outside of institutions. It believes, however, that the best interests of all normal children removed from their own homes are best served by an environment approaching as nearly as possible that of the family group. For this reason this board advocates the use of licensed family boarding homes rather than institutions for the care of homeless children.

While not fostering the establishment of new institutions or the increase in institutional capacity, it is the policy of the state board to encourage in every way possible the improvement of equipment and service in children's institutions already existing. In this respect the children's institutions of California have a record of achievement for the past two years as shown by the following list of the more notable changes and improvements:

Improvements in children's institutions in the past two years.

ALAMEDA COUNTY.

The *California Girls' Training Home*, Alameda, has added a new school building. It has in part redecorated and refurnished its main building and is planning improvements in its grounds.

The *Tooker School for Chinese Girls*, Oakland, is planning a new home near Mills College.

The *Fred Finch Orphanage* has built a new kitchen and a commodious dining room.

KERN COUNTY.

The *Kern County Children's Shelter* has converted a laundry building on the premises into an infirmary, with a capacity of eight or ten. There are two small wards each equipped with a diet kitchen and separate entrance.

LOS ANGELES COUNTY.

The *Church Home for Children* plans a new administration building. The first wing, which contains an auditorium and library, matrons' rooms and isolation facilities for entrants and cases of sickness is just completed.

The *Frances M. DePauw Industrial School* has erected a new building, which contains three dormitories and eight small rooms for older girls. There is a hospital wing with separate outside entrance.

The *Jewish Orphans' Home of Southern California* has sold its property in Huntington Park and rented temporary quarters in Los Angeles. This institution is developing a foster-home system. Its policy hereafter will be to give permanent institutional care only to non-placeable children.

The *Lark Ellen Home for News and Working Boys* has acquired property in Sawtelle and is planning to build a new and model home for boys.

The *Masonic Home for Children* at Covina has added to its plant a modern bungalow, where the older girls live in rotation for a period of two or three months and make practical application of domestic science teaching. A work shop has been added for the boys, where they have training in the manual arts.

The *McKinley Industrial School* is planning to build a new home on a larger tract of land at Van Nuys, which the directors of the school are now developing.

The *Pasadena Children's Training Home* has added an attractive nursery building which will accommodate twenty children.

The *Maud B. Booth Home for Children* completed within the past biennial a new laundry in a separate building. The equipment is new, modern and complete.

The *Los Angeles Orphan Asylum* has remodeled and improved its operating room and infirmary and new appliances for dental and surgical work have been provided. Rooms formerly used by employees have been converted into isolation quarters for cases of communicable diseases.

The *Kiddie Koop* has provided isolation facilities. It has added a sleeping porch, 20x18 feet, as a dormitory for girls.

The *Mission Home for Mexican Girls at Whittier* has cemented its cellar and walks.

The *Japanese Children's Home of Southern California* has glassed in a porch for a winter-play space, and improvements have been made in the out-of-door play space.

The *Japanese Sisters' Home*, Los Angeles, has had a change of management. It is now in charge of the Catholic Foreign Mission Society of America, and is known as the Maryknoll Home for Japanese Children. It has made improvements in toilet facilities and in fire protection.

MARIN COUNTY.

The *Presbyterian Orphanage and Farm*, at San Anselmo, was destroyed by fire. The directors plan to rebuild on a modified cottage plan. A building for twenty of the older girls is under construction.

St. Vincent's Orphan Asylum has changed management and is now in charge of the Dominican Sisters. It is making extensive plans for

reconstruction on the cottage plan. The concrete dormitory building will be remodeled for a school building.

MENDOCINO COUNTY.

The *Albertinum Orphanage of Ukiah* has added a building on the first floor of which is a new chapel. The Sisters' quarters are on the second floor. Through the effort of the people of Ukiah a swimming pool has been constructed for the use of the children.

ORANGE COUNTY.

The *St. Catherine's Orphanage*, Anaheim, has purchased a five-room house adjoining their property, which is to be used for isolation and infirmary quarters.

SACRAMENTO COUNTY.

The *Sacramento Orphanage* has partitioned the living and dining rooms of the Stork's Nest. A cottage has been renovated and refurnished by the Tuesday Club.

The *Helping Hand Children's Home* has acquired by gift five acres of land on the edge of San Diego, where they plan to build a model home for forty children.

SAN FRANCISCO COUNTY.

The *Maria Kip Orphanage and Alfred Nuttall Nelson Memorial Home* has greatly reduced the number of children in the institution. The home has moved to a smaller house where they are caring for about twenty girls. This change in plan is in line with the policy of this board in caring for children in small groups.

The *Pacific Hebrew Orphan Asylum* has moved into its new home at Homewood Terrace. This home is built on the cottage plan with a central administration building and power plant. There are nine cottages, each accommodating ten boys and ten girls. Each cottage has its own kitchen and dining room. It is the purpose of the home to approximate as nearly as possible in each cottage the life of a normal family group. A gymnasium for the use of all the children is at present under construction.

The *San Francisco Ladies' Protection and Relief Society* has sold its property and bought land near the Marina in San Francisco. The society plans to confine its work to the care of old ladies and older convalescent girls from the hospitals. This is a distinct change in policy directly in line with the effort to eliminate normal children from institutions.

San Francisco Nursery for Homeless Children and the *San Francisco Infant Shelter* have combined in employing a social worker for study of admissions and after care. It is planned that these institutions shall give in the main emergency care only. Children needing permanent care will be placed in foster-homes.

The *San Francisco Protestant Orphan Asylum* has sold its property on Haight street and is housed at present in the old Maria Kip Orphanage. The directors will build on the cottage plan as soon as a site is secured.

SANTA BARBARA COUNTY.

The *St. Vincent's Institution* has sold its property in Santa Barbara and is building a new country home at Goleta.

SANTA CLARA COUNTY.

The *Home of Benevolence*, at San Jose, is planning a new home for the children under its care.

The *Independent Order of Odd Fellows Orphan Home* is occupying its beautiful new home at Gilroy.

SANTA CRUZ COUNTY.

St. Francis School for Boys, Watsonville, has reconstructed some of the old dormitory buildings and is abandoning the cottage system.

SONOMA COUNTY.

The *Boys' and Girls' Industrial Home and Farm*, at Lytton Springs, lost its main building by fire. This has been greatly improved in the rebuilding. A fine enclosed swimming pool and a well-equipped athletic field have been constructed.

4. *Vacation Camps Used by Licensed Institutions.*

Following a decision of the Attorney General, placing upon this board responsibility for license of vacation camps for children, a special study was made of the vacation camps and homes used by our children's institutions during the summer school vacation. As the accompanying table will show, some of these summer homes are owned by the institutions, in some instances are rented from other organizations, and in others are established on land leased by the institution for the season.

These homes or camps present great divergence in the matter of equipment, degree of permanence and purpose. They present specially difficult problems in sanitation, supervision, occupation and recreation, medical care and provision for isolation in cases of sickness. With a view to helping the institutions, the State Board of Charities and Corrections is cooperating with them in preparing minimum requirements for the equipment, maintenance and operation of vacation homes or camps for children.



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INSTITUTIONS FOR NEEDY

Name	Address	Superintendent	Location	Auspices
<i>Alameda County.</i>				
Fred Finch Orphanage.....	3670 Peralta avenue, Oakland.	Mr. John W. Hagan...	Suburban.	Methodist Episcopal Church.....
Ladies Relief Society of Oakland.	393 Forty-fifth street, Oakland.	.....	Urban.....	Board of directors.....
Mary R. Smith's Trusts.....	Park boulevard and Cottage avenue, Oakland	Mrs. J. W. Green (clerk)	Urban.....	Trustees of Mary R. Smith Trust.....
Saint Mary's Orphanage.....	Mission San Jose.....	Sister M. Marcoline ...	Rural.....	Dominican Sisters..
Tooker Memorial School.....	953 East Eleventh street, Oakland.	Miss Donaldina Cameron.	Urban.....	Women's Occidental Board of Foreign Missions of Presbyterian Church.....
West Oakland Home.....	907 Campbell street, Oakland.	Mrs. Martha Lawrence.	Urban.....	Board of directors... ..
<i>Kern County.</i>				
Kern County Children's Shelter.	920 Twentieth street, Bakersfield.	Mrs. Elizabeth Coolbaugh.	Urban.....	Board of directors... ..
<i>Los Angeles County.</i>				
Castelar Creche.....	818 Castelar street, Los Angeles.	Miss Mary Pickrell....	Urban.....	Board of directors... ..
Boys' and Girls' Aid Society of Los Angeles County.	815 Mission street, South Pasadena.	Mrs. M. E. Grimes....	Suburban.	Board of directors... ..
Church Home for Children.....	940 North avenue Sixty-four, Los Angeles.	Deaconess Evelyn Wile	Suburban.	Protestant Episcopal Church.....
David and Margaret Home.....	La Verne.....	Miss Flora A. Rice....	Rural.....	Women's Home Missionary Society of the Methodist Episcopal Church.....
Frances M. DePauw Spanish School.	4970 Sunset boulevard, Los Angeles.	Miss Jennie Mathias...	Urban.....	Women's Home Missionary Society of the Methodist Episcopal Church.....
Japanese Children's Home of Southern California.	1841 Redcliff street, Los Angeles.	Mrs. M. Mukacida.....	Urban.....	Board of directors... ..
Japanese Sisters' Home (Mary Knoll Mission).	425 South Boyle avenue, Los Angeles.	Sister Mary Veronica...	Urban.....	Catholic Church.....
Jewish Orphans' Home of Southern California.	632 Irvington avenue, Huntington Park.	Dr. Armand Wyle.....	Suburban.	Federation of Jewish Charities.
Kiddie Koop.....	641 East Twenty-eighth street, Los Angeles.	Miss Eula L. Wilson....	Urban.....	Board of directors... ..
Lark Ellen Home for News and Working Boys.	1941 Isabel street, Los Angeles.	Miss Jessie White.....	Suburban.	Board of directors... ..
Los Angeles Orphan Asylum....	917 South Boyle avenue, Los Angeles.	Sister Cecilia Craine....	Urban.....	Sisters of Charity... ..
Los Angeles Orphan Home Society.	815 El Centro avenue, Los Angeles.	Mrs. Charlotte V. V. Fisher.	Urban.....	Board of directors... ..
Masonic Home of California....	Covina.....	Mr. L. S. Drew.....	Rural.....	Masonic Grand Lodge of California.....
Maud B. Booth Home for Boys and Girls.	451 South Boyle avenue, Los Angeles.	Colonel Wm. Hughes... ..	Urban.....	Volunteers of America
McKinley Industrial School.....	Gardena.....	Dr. Franklin Jones.....	Rural.....	Board of directors... ..
Mission Home for Mexican Girls	545 Pasadena street, Whittier.	Mrs. C. E. Johnson.....	Suburban.	Friends' Church.....
Pasadena Children's Training Home.	Wilson avenue and Delmar street, Pasadena.	Miss Emma M. Conley... ..	Urban.....	Board of directors... ..
Regina Coeli Orphan Asylum...	610 North Hill street, Los Angeles.	Mother Cherubina Botti	Urban.....	Missionary Sisters of the Sacred Heart..
<i>Marin County.</i>				
Presbyterian Orphanage and Farm.	San Anselmo.....	Dr. Andrew Beattie....	Suburban.	Presbyterian Church
Saint Vincent's Orphan Asylum.	Saint Vincent's.....	Father McElroy.....	Rural.....	Arch-diocese of San Francisco.....
<i>Mendocino County.</i>				
Albertinum Orphanage.....	Ukiah.....	Sister Aecidia.....	Suburban.	Dominican Sisters... ..
<i>Nevada County.</i>				
Grass Valley Orphan Asylum....	Grass Valley.....	Sister M. Stanislaus....	Suburban.	Sisters of Mercy.....

CHILDREN, LISTED BY COUNTIES.

Plan	Capacity	Admission requirements			Monthly rate of charge	Education
		Type of children admitted	Sex	Age limits		
Congregate	116	Needy	Both	5 to 13 years	\$20.00	Public grammar school.
Congregate	110	Needy	Both	Infancy to 14	\$5.00 to \$17.50	Public grammar and high school.
Cottage	72	Needy orphans and half orphans.	Girls	Infancy to 18 years.	No charge	Public grammar and high schools. Advanced ed. Grammar school in institution.
Congregate	173	Needy	Girls	2 to 16 years	\$20.00	
Congregate	54	Chinese	Girls Boys	2 to 12 years 2 to 5 years	Varies	Public grammar schools. Chinese taught in institution.
Congregate	79	Needy	Both	1 to 10 years	\$12.00	Public grammar school.
Congregate	51	Needy	Boys Girls	3 to 12 years 3 to 18 years	\$15.00	Public grammar and high schools.
Congregate	24	Needy	Both	To 1 year	\$10.00	
Congregate, cottage.	125	Needy	Both	2 to 15 years.	\$20.00 to \$40.00 \$12.50	Public grammar and high schools.
Cottage	33	Needy	Both	None	\$20.00	Public grammar and high schools.
Congregate	87	Needy	Both	2 to 12 years.	\$11.00 to \$15.00	Public grammar school.
Congregate	59	Mexican and Spanish American.	Girls	6 and over	\$8.00	Grammar school in institution.
Congregate	40	Japanese	Both	None	\$20.00 to \$30.00	Public grammar school.
Congregate	*30	Japanese	Both	2 to 4 years	\$20.00	Parochial grammar school.
Congregate	105	Needy Jewish	Boys Girls	2½ to 15 years 2½ and over	Not fixed	Public grammar and high schools.
Congregate	25	Needy	Boys Girls	1 to 6 years 1 to 14 years	\$32.00	Public grammar and high schools.
Congregate	20	Needy	Boys	8 to 14 years	\$20.00	Public grammar and high schools.
Congregate	400	Needy	Girls	2 to 14 years.	0 to \$20.00	Grammar school in institution.
Congregate	105	Needy	Boys Girls	2 to 12 years 2 to 14 years	\$15.00	Public high and grammar schools.
Congregate	132	Orphans and half orphans of Masons.	Both	None	None	Public high and grammar schools.
Congregate	119	Needy	Both	2 to 16 years.	Not fixed	Public grammar and high schools.
Congregate	128	Needy	Boys	7 to 16 years.	\$12.50	Public high and grammar schools.
Congregate	20	Mexican	Girls	6 to 12 years.	\$5.00	Public grammar school.
Cottage	69	Needy	Boys Girls	2 to 10 years 2 to 12 years	\$12.50	Public grammar school.
Congregate	172	Needy	Girls	3 to 11 years.	0 to \$15.00	Grammar school in institution.
Congregate	130	Needy	Both	2 to 15 years.	Not fixed	Public grammar and high schools. Primary on premises.
Congregate	525	Needy and wayward.	Boys	7 to 15 years.	\$15.00 to \$20.00	Grammar school in institution.
Congregate	170	Needy	Boys	4 to 14 years	\$20.00	Grammar school in institution.
Congregate	188	Needy	Both	18 months to 15 years	\$10.00 to \$20.00	Grammar and high schools in institution.

INSTITUTIONS FOR NEEDY CHILDREN.

Name	Address	Superintendent	Location	Auspices
<i>Orange County.</i> Saint Catherine's Orphanage	Anaheim	Sister M. Hedwig	Suburban	Dominican Sisters
<i>Sacramento County.</i> Sacramento Orphanage and Children's Home.	3800 Franklin boulevard, Sacramento.	Miss Lillian Loranger	Suburban	Board of directors
Stanford - Lathrop Memorial Home.	800 N street	Sister Mary Theresa	Urban	Sisters of Mercy
<i>San Diego County.</i> Boys' and Girls' Aid Society	4285 Third street, San Diego.	Mrs. Florence A. Rood	Suburban	Board of directors
Helping Hand Children's Home	2245 G street, San Diego.	Mrs. P. E. Dodson	Urban	Board of directors
San Diego Children's Home	Sixteenth and Ash streets, San Diego.	Mrs. Genevieve B. Miles.	Urban	Board of directors
Imperial Children's Home	3674 Villa Terrace, San Diego.	Mr. J. M. Ray	Urban	Board of directors
Catholic Children's Home	3779 Georgia street, San Diego.	Mrs. Osterman	Urban	Catholic Charities
<i>San Francisco County.</i> Ellen Stark Ford Home	2025 Pine street, San Francisco.	Mrs. H. E. Lincoln	Urban	Women's Home Missionary Society of the Methodist Episcopal Church
Infant Shelter	1025 Shotwell street, San Francisco.	Miss Elizabeth Clark	Urban	Board of directors
Maria Kip Orphanage and Alfred Nuttal Nelson Memorial Home	720 Forty-first avenue, San Francisco.	Mother Gertrude Paul	Urban	Episcopal Church
McKinley Orphanage	3841 Nineteenth street, San Francisco.	Mrs. L. R. Courneen	Urban	Methodist Episcopal Church
Oriental Methodist Episcopal Home.	940 Washington street, San Francisco.	Mrs. Ida Merritt	Urban	Women's Home Missionary Society of the Methodist Episcopal Church
Pacific Hebrew Orphan Asylum.	11 Homeward Terrace, San Francisco.	Dr. Samuel Langer	Urban	Federation of Jewish Charities
Presbyterian Mission Home	920 Sacramento street, San Francisco.	Miss Donaldina Cameron.	Urban	Woman's Occidental Board Foreign Missions of Presbyterian Church
Roman Catholic Orphan Asylum	Bayview and Newhall streets, San Francisco	Sister Helena	Urban	Sisters of Charity
Saint Andrew's Inn	2840 Twenty-fifth street, San Francisco.	Rev. George Maxwell	Urban	Episcopal Church
San Francisco Ladies' Protection and Relief Society's Home.	1200 Franklin street, San Francisco.	Miss Ida V. Graham	Urban	Board of directors
San Francisco Nursery for Homeless Children.	Fourteenth avenue and Lake street, San Francisco.	Mrs. D. Duff	Urban	Board of directors
San Francisco Protestant Orphan Asylum.	520 Lake street, San Francisco.	Mr. C. W. Mark	Urban	Board of directors
Youth's Directory	Nineteenth and Church streets, San Francisco.	Rev. D. O. Crowley	Urban	Catholic Church.
<i>San Joaquin County.</i> Children's Home of Stockton	340 North Pilgrim street, Stockton.	Miss C. G. Patterson	Urban	Board of directors
<i>Santa Barbara County.</i> Saint Vincent's Institution	925 De la Vina street, Santa Barbara.	Sister Vincent	Urban	Sisters of Charity
<i>Santa Clara County.</i> Home of Benevolence	Eleventh and Martha streets, San Jose.	Mrs. A. M. Skidmore.	Suburban	Board of directors
Independent Order Odd Fellows Orphans' Home.	Gilroy	Mrs. Susie J. Harris	Suburban	Independent Order Odd Fellows

LISTED BY COUNTIES—Continued.

Plan	Capacity	Admission requirements			Monthly rate of charge	Education
		Type of children admitted	Sex	Age limits		
Congregate.....	176	Needy.....	Boys...	6 to 12 years..	\$20.00 to \$25.00	Grammar school in institution.
Cottage-congregate.	30	Needy.....	Both...	Infancy to 15	\$20.00	Public grammar school on prem.
Congregate.....	48	Needy.....	Girls...	5 to 16 years..	Not fixed	Private grammar and high schools.
Congregate.....	38	Needy and wayward.	Both...	3 to 14 years..	\$17.50	Public grammar school.
Congregate.....	52	Needy.....	Both...	Infancy to 16 years.	\$12.50	Public grammar school.
Congregate.....	104	Needy.....	Both...	3 months to 14 years.	Varies	Public grammar school.
Congregate.....	24	Needy.....	Both...	2 to 13 years..	\$15.00	Public grammar school.
Congregate.....	24	Needy.....	Both...	12 years.....	\$20.00	Public grammar school.
Congregate.....	46	Needy Japanese and Korean.	Boys... Girls...	Infancy to 5 years. Infancy to 18 years.	\$20.00	Public grammar and high schools.
Congregate.....	46	Needy.....	Both...	Infancy to 6 years.	\$20.00	-----
Congregate.....	22	Needy.....	Girls...	Over 6 years..	\$30.00	Public grammar and high schools. Higher education.
Congregate.....	40	Needy.....	Both...	3 to 14 years..	\$17.50	Public grammar and high schools.
Congregate.....	50	Needy Chinese....	Girls...	None.....	\$20.00	Public grammar and high schools. Higher education.
Congregate.....	200	Needy.....	Both...	4 to 13 years..	Not fixed	Public grammar and high schools.
Congregate.....	50	Needy Chinese....	Boys... Girls...	To 7 years... No age limits.	Not fixed	Public high and grammar schools.
Congregate.....	500	Needy.....	Girls...	4 to 15 years..	\$15.00	Grammar school on premises. Private high school.
Congregate.....	52	Needy.....	Boys...	8 to 18 years..	\$24.00	Public high and grammar schools.
Congregate.....	120	Needy.....	Both...	3 to 8 years..	Varies	Public grammar school.
Congregate.....	90	Needy.....	Both...	3 to 14 years..	\$22.50	Public grammar and high schools.
Congregate.....	124	Needy orphans and half orphans.	Both...	2 to 10 years..	Not fixed	Public grammar and high schools.
Congregate.....	67	Needy and wayward.	Boys...	7 to 18 years..	Not fixed	Public grammar school.
Congregate.....	54	Needy.....	Both...	4 to 12 years..	\$15.00	Public grammar school.
Congregate.....	125	Needy.....	Boys... Girls...	2 to 6 years... 2 years and over.	\$15.00	Grammar school in institution. Public high school.
Congregate.....	84	Needy.....	Both...	3 to 14 years..	\$5.00 to \$20.00	Public grammar and high school.
Congregate.....	100	Needy orphans and half orphans of members of Independent Order Odd Fellows.	Both...	Infancy to 14 years.	None	Public grammar and high school.

INSTITUTIONS FOR NEEDY CHILDREN.

Name	Address	Superintendent	Location	Auspices
<i>Santa Cruz County.</i>				
Santa Cruz Female Orphan Asylum.	Santa Cruz	Sister Mary Michael....	Urban....	Sisters of Charity....
Saint Francis Orphan Asylum....	Watsonville.....	Rev. P. Beccario.....	Rural.....	Salesian Fathers.....
<i>Sonoma County.</i>				
Boys' and Girls' Industrial Home and Farm.	Lytton.....	Lieut. Col. A. Smeeton.	Rural....	Salvation Army.....

LISTED BY COUNTIES—Continued.

Plan	Capacity	Admission requirements			Monthly rate of charge	Education
		Type of children admitted	Sex	Age limits		
Congregate.....	125	Needy.....	Girls...	5 to 17 years..	\$22.50	Grammar and high schools in institution.
Cottage-congregate.	150	Needy.....	Boys...	7 to 14 years..	\$20.00 to \$25.00	Grammar school in institution.
Congregate.....	200	Needy and wayward.	Boys... Girls...	6 to 14 years.. 6 to 12 years..	\$20.00	Public grammar school on premises.

6. INSTITUTIONS PROVIDING SPECIAL MEDICAL AND PREVENTIVE CARE FOR CHILDREN.**Care for crippled children.**

There has been in California during the past two years a notable awakening of interest and activity in behalf of children handicapped by sickness or physical defects. In particular the appeals of needy crippled children have met with gratifying response. Two institutions in Los Angeles, exclusively for corrective treatment of crippled children, have been established within the biennial period. The Shriners' Hospital for Crippled Children, located in San Francisco, will be opened early in 1923.

There is a growing recognition of the fact that health is perhaps the most basic factor making for the happiness, normal development and future usefulness of the child. It is to be hoped that the public appreciation of the distressing condition of many crippled children in this state and of their need for skilled treatment will result in still further opportunities for their relief.

Care for convalescents.

There is likewise great need for convalescent care for dependent children upon their discharge from hospitals. Their homes too frequently offer no opportunity for necessary rest and after care, the lack of which often nullifies the benefits of hospital treatment.

As noted elsewhere in this report, the San Francisco Ladies' Protective and Relief Society has changed its policy concerning its children's work, so that in the future only girls needing after care following hospital treatment will be admitted. A new unit of twenty beds has been donated recently to the Stanford Home for Convalescent Children, at Stanford University.

Preventoria care.

There are five preventoria in California with a capacity of 125 children. Three of these are licensed and two are pending license. Two new preventoria are under construction. One of these is at Livermore, Alameda County, under the auspices of the Alameda County Tuberculosis Association. The other is in Pasadena in connection with the Pasadena Day Dispensary. This board has made a study of this important field of children's work and has adopted the following standards as the basis upon which license is granted:

STANDARDS FOR PREVENTORIA.

Definition.

A preventorium shall be defined as a place for the reception and full time care of children who come under the following classification:

1. Children from tuberculous homes.
2. Children who are markedly undernourished and especially those who have a tendency to, or are recovering from diseases involving the respiratory tract.
3. Children who give a positive Von Pirquet reaction and have non-surgical involvement of the glandular system. No child with tuberculosis in a communicable form shall be admitted.

Building and equipment.

1. All rooms shall be outside rooms. Ample sun porches shall be provided.
2. The rooms shall be of sufficient size to allow at least three feet floor space between the beds and 1000 cubic feet air space for each child.
3. The flooring and walls shall be of a character to permit of easy cleaning.
4. The water supply shall be pure and adequate. It is recommended that the drinking water be tested at intervals. Tests will be made free of charge upon application to the Board of Health.
5. The plumbing shall be in accordance with the rules and regulations of the local board of health or city ordinance.
6. The heating of all rooms shall be safe and adequate.
7. Separate sanitary bathing and toilet facilities shall be provided for boys and girls. There shall be not less than one toilet for every ten children and one tub for every fifteen children. In addition to tubs, shower baths are recommended.
8. A separate bed equipped with standard mattress and bedding shall be provided for each child.
9. Each child must be provided with individual towels, comb and brush and tooth brush. These articles must be used individually and so placed that they will not come in contact with the toilet articles of any other child.
10. Isolation quarters must be provided.
11. Fire protection shall be according to the rules and regulations of the local fire commission or city ordinance and regulations and the rules of the State Board of Charities and Corrections.

Diet.

The dietary shall be up to the standard approved by the State Board of Charities and Corrections and shall include at least one quart of whole milk daily for each child. This in addition to milk used for cooking purposes.

Certified milk is preferable. When it is not used, milk must be pasteurized in accordance to the pure milk law, Statutes 1917, page 803, and amended by Statutes 1919, page 326, or from tuberculosis free cows as determined by the tuberculin tests. Tests will be made free of charge on application to the State Department of Agriculture, Sacramento.

Admission and discharge.

1. All cases shall be recommended by a physician, general clinic, or a tuberculosis clinic.
2. All correctional work such as may be necessary on teeth, tonsils, adenoids or other defects should be done before admission to preventorium.
3. Upon admission each child shall be isolated for a period of one week for observation. The first three days in residence shall be a period of rest. Temperature shall be taken and recorded every four hours. If there has been no marked elevation of temperature and there are no signs of contagious disease child may be admitted to preventorium proper. This preliminary rest period may be omitted with children coming from hospitals or institutions where temperature chart for the previous week has been kept and the child has been under observation, if this is accepted by the physician in charge.

4. Length of residence shall be determined by the progress of the individual case and the decision of the attending physician.

5. Children shall be discharged by order of attending physician only.

6. The physician, clinic or association referring case shall be notified at least one week in advance of child's discharge so that proper care can be taken of child. This notification shall give the condition of child on discharge and shall include any suggestions made by the physician.

Health supervision.

1. If there is no resident physician a visiting physician shall visit the preventorium at least every two weeks on regular appointed days.

2. There shall be at least one graduate nurse in every preventorium.

3. All children shall be examined at least once a month.

4. If possible a teacher of postural correction should be provided.

5. Daily rest periods must be observed.

Education and recreation.

1. Provision shall be made to give children of school age such periods of class work as attending physician recommends.

2. Where religious instruction is given the children it shall be in the faith of their parents or guardians.

3. A library of books suitable for the use of children shall be provided and shall be continuously accessible to them.

4. Playground and playroom shall be provided.

5. It should be the duty of some one officer of the preventorium to supervise and encourage such play activities as meet the approval of the medical director.

Discipline.

There shall be no corporal punishment.

Supervision.

The superintendent shall be a person of good moral character and shall guarantee to the children control and companionship.

Boys and girls shall be segregated according to age and sex.

Records.

Records must be kept which are acceptable to the State Board of Charities and Corrections. Sample record forms approved by the State Board will be sent upon request. At the time of admission, the preventorium must require of the physician or the clinic referring the case a complete physical and social history of the child.

This history shall include:

1. The social history of the family, especially with reference to presence of tuberculosis.

2. The history giving all previous diseases of the child.

3. A record of the last physical examination of the child.

A weekly weight chart and a bi-monthly height chart shall be kept.

Complete medical record shall be kept of any child placed in isolation or infirmary.

Plans.

All plans for building or alterations must be submitted to the State Board of Charities and Corrections for approval.

It is difficult to draw a clear line between the work of preventoria, homes for convalescent children and institutions for the care of crippled children. Preventoria are primarily for the care of undernourished children and those predisposed to tuberculosis. The institutions for

crippled children limit their admissions to children needing orthopedic or other correctional treatment. Homes for convalescent children receive children both for preventive and corrective care as well as for convalescence.

The following tables show the principal opportunities now available in California for dependent children in need of such specialized medical attention:

HOSPITALS AND HOMES OFFERING SPECIA

Name	Address	Auspices	Name of superintendent	Age limit
Children's Hospital.....	4614 Sunset boulevard, Los Angeles.	Board of directors.....	Miss L. Smith.....	To 21 years..
Orthopedic Hospital School	2400 1/2 South Flower street, Los Angeles.	Board of directors.....	Miss Bingen.....	To 20 years..
California Home for Crip- pled Children.	200 South Bonnie Brae street, Los Angeles.	Board of directors and California School of Physical Education.	Dr. Everett O. Beach..	To 21 years..
Children's Hospital.....	3700 California street, San Francisco.	Board of managers.....	Dr. J. B. Cutter, Medi- cal Director.	Wards to 12 years.....
Baby Hospital.....	Fifty-first and Dover streets, Oakland.	Board of directors.....	Miss Ruth Hartnell...	To 7 years..
*Shriners Hospital.....	Nineteenth avenue and Taraval street, San Francisco.	Board of trustees of Shriners' Hospital.		

*To be opened early in the year.

Additional features for the care of crippled children are available in general hospitals and clinics. The Anita M. Baldwin Hospital for Babies connected with the California Lutheran Hospital, Los Angeles, does corrective work for infants. San Francisco, and Los Angeles hospitals, conducting clinics, have specialists in charge of this important branch. Physiotherapy treatments are given and some make posture classes a feature. Many beds in every children's ward are always occupied by crippled children. In all the larger centers throughout the state, orthopedic work is being done. Children are accepted as patients in private hospitals with local organizations sometimes aiding in their care. Ten county hospitals are provided with children's wards. Mention should be made of the educational work in progress among the children in the San Francisco Hospital. Recently a regular teacher has been installed.

PREVENTORIA FOR UNDERNOURISHED

Name	Address	Auspices	Location	Name of superintendent
San Mateo Preventorium..	418 North C street, San Mateo.	San Mateo County T. B. Association.	City.....	Miss Lucy E. Pyle..
Sunshine Preventorium...	Manor, Marin County...	California T. B. Association	Country	Miss R. Jones.....
Parlor Lecture Club Pre- ventorium.	White Bridge Road at Shasta, Fresno.	Parlor Lecture Club.....	Country	Victoria Vincent....
Mother Cabrini Preven- torium.	Burbank, Los Angeles County.	Bureau of Catholic Church and Missionary Sisters of Sacred Heart.	Country	Mother Cherubini- Botti resident superintendent, Mother Angelica
Resthaven Preventorium ..	East San Diego.....	San Diego T. B. Association	City.....	Mrs. York.....

Organizations planning to open Preventoria during the coming year:
Pasadena Dispensary, Pasadena, Los Angeles County.
Alameda Tuberculosis Association Livermore, Alameda County.

OPPORTUNITIES FOR CRIPPLED CHILDREN

Rate	Capacity	Requirements for admission	Education and recreation	Physician
Varies according to ability.	32	Need of orthopedic care	Instruction in grade work. One teacher.	Dr. Guy Cochran and Chief of Staff.
Varies	30	Corrective muscular and bone cases	Teacher employed at school in grammar grades	Dr. C. L. Lowman and Chief of Staff.
Varies	14	Condition to be bettered by orthopedic care.	Public grammar school	Dr. Everett O. Beach.
Varies to \$2.50 per day.	50	Residence in San Francisco. Diagnosis throughout Out Patient Department.	Miss Wade, teacher, 9 to 2 p. m.	Dr. Geo. McChesney.
Varies to \$5 per week.	28	Residents in Alameda County. Unable to pay private physician.	.....	Dr. Austin Cary; Dr. O. P. Stowe, Dr. Kate Gompertz.
Free	50	Parents unable to pay .....	.....	Dr. Walter I. Baldwin...

AND PRETUBERCULAR CHILDREN

Children		Capacity	Rate per month	Requirements for admission	Education and recreation	Physician
Sex	Age					
Boys...	3 to 14.	14	\$45.00	Malnourished or contact T. B. Physical examination through Stanford Clinic..	School at Preventorium two hours per day. Garden recreation.	Dr. Alan Benner.
Girls...	4 to 12	15	\$45.00	Same as at San Mateo Preventorium.	School	Dr. P. K. Brown
Girls...	5 to 12.	12	\$35.00	Social history, physician's examination; X-ray plate.	Board of Education to supply teacher one-half day. Books. Large grounds.	Dr. A. B. Cowan.
Boys...	5, 6, 7					
Girls...	3 to 16	50	\$25.00	Predisposed T. B. girls	Sisters at Home	Dr. Marcia Patrick
Girls...	5 to 12.	50	Varies to \$45.00	Physically undeveloped, aemic or predisposed to T. B.	Instructed at home	Dr. Andrew Thornton.

HOMES AND VACATION CAMPS

Name	Address	Capacity	Admission is arranged by
Stanford Home for Convalescent Children.	Box 115, Stanford University.	15	Stanford Medical Clinics.
Drexler Hall.	Woodside, San Mateo County.	14	Mrs. Elise Drexler.
Bothin Convalescent Home.	Manor, Marin County.	Winter, 30 Summer, 40	Telegraph Hill Settlement, 1736 Stockton street, San Francisco.
*California Home for Crippled Children.	2000 Bonnie Brae street, Los Angeles.	14	School for Physical Education, Los Angeles.
St. Dorothy's Rest.	Camp Meeker, Sonoma County.	35	Mrs. J. O. Lincoln, 2434 Jackson street, San Francisco.
Salvation Army Vacation Camp.	Third and Hermosa avenue, Redondo Beach.	130	Salvation Army Relief Offices, 815 Crocker street, Los Angeles.
Neighborhood Settlement Camp.	631 Gertrude street, Redondo Beach.	50	Neighborhood Settlement, 1320 Wilson street, Los Angeles.
Children's Open Air Camp.	San Gabriel Canyon, Azusa, Los Angeles County.	100	Los Angeles Tuberculosis Association, Chamber of Commerce Bldg., Los Angeles.

*Included in tables for Hospitals and Homes offering special opportunities to crippled children also.

7. INSTITUTIONS FOR WAYWARD

Name	Address	Superintendent	Auspices
<i>Alameda County.</i> California Girls' Training School.	520 Lincoln avenue, Alameda.	Mrs. A. G. Douglas.	Board of directors.
<i>San Francisco County.</i> Saint Catherine's Home and Training School.	901 Potrero avenue, San Francisco.	Sister Mary Emmanuel.	Sisters of Mercy.
<i>Los Angeles County.</i> Convent of the Good Shepherd.	1312 Arlington avenue, Los Angeles.	Mother M. of St. Francis de Sales.	Sisters of the Good Shepherd.
<i>Ventura County.</i> California School for Girls.	Ventura.	Dr. Olive P. Walton.	State of California.

INSTITUTIONS FOR WAYWARD

Name	Address	Superintendent	Auspices
<i>San Bernardino County.</i> California Junior Republic.	Chino.	Mr. Homer W. Charles.	Board of directors.
<i>San Francisco County.</i> Boys' Aid Society.	460 Baker street, San Francisco.	Mr. George C. Turner.	Board of directors.
<i>Los Angeles County.</i> Strickland Home for Boys.	716 Eagle Rock avenue, Los Angeles.	Mr. F. J. King.	Board of directors.
Whittier State School.	Whittier.	Mr. Fred C. Nelles.	State of California.
<i>Amador County.</i> Preston School of Industry.	Waterman (Railroad station Ione).	Mr. O. H. Close.	State of California.

FOR CONVALESCENT CHILDREN.

Rate	Remarks
Free	Open entire year for convalescent children.
Free	Open entire year for convalescent crippled children.
Varies to \$40.00 per month	Open entire year—especially designed for undernourished children, those predisposed to tuberculosis and convalescent children needing country air.
Varies	Open entire year for orthopedic corrective, muscular and bone cases.
Varies; some children free	Open for Summer months as vacation home for children in need of upbuilding by means of good food and country air.
Free for 2 weeks' stay with mothers	Open July 1st to September 1st for undernourished children with mothers.
\$1.00 per child if possible	Open July 1st to September 1st for undernourished children, both sexes, 5 to 15 years.
Free to 60 cents per day	Open June 14 to October 1st for children undernourished and predisposed to tuberculosis. Both sexes, 7 to 15. Children remain six weeks.

GIRLS, LISTED BY COUNTIES.

Location	Capacity	Admission requirements		Monthly rate of charge	Education
		Age limits	Other		
Urban	50	10 to 18 years	On commitment or from parents. Must have clean bill of health.	\$17.50 or \$20.00	Public grammar school in institution. Commercial and vocational.
Urban	93	14 to 21 years	On commitment or from parents.	\$17.50	Grammar school in institution. Commercial and vocational. Music.
Urban	121	8 to 21 years	On commitment or from parents.	\$15.00	Grammar school in institution. Commercial and vocational. Music.
Rural	160	8 to 21 years	On commitment	\$20.00	Grammar and high schools in institution. Vocational.

BOYS, LISTED BY COUNTIES.

Location	Capacity	Admission requirements		Monthly rate of charge	Education
		Age limits	Other		
Rural	85	14 to 18 years	On commitment or from parents. Must be of normal mentality. White race. Finished sixth grade.	\$20.00 \$25.00	Public grammar and high schools on premises. Vocational.
Urban	150	10 to 14 years	On commitment	\$20.00	Public grammar school in institution.
Suburban	55	7 to 14 years	On commitment or from parents.	\$20.00	Public grammar school.
Rural	275	8 to 16 years	On commitment	\$20.00	Grammar school in institution. Vocational.
Rural	375	16 to 21 years	On commitment	\$20.00	Grammar and high schools. Vocational.

9. Rescue homes.

The work of the rescue homes licensed by this board is confined in the main to the care and protection of unmarried pregnant girls before and after confinement. One home provides care and treatment also for girls who are sex delinquents, but who are not pregnant, or for girls who have a venereal disease in communicable form. One home provides outside hospital care during confinement. The others have maternity equipment or complete maternity department in the home. The serious problem of the rescue home, as touched by this board, is as much a child problem as a girl problem.

The girl is usually the victim of a bad home environment. She has already demonstrated her inability to protect herself. The type of unfortunate girl who seeks refuge in the rescue home is frequently of low mentality and unable to care properly for her child. She needs most careful guidance after her return to the community and only too often should have permanent custodial care. The future life of the baby is dependent upon the decision of this mother. Our study shows clearly that the disposition of the child is the most important responsi-

RESCUE

Name	Address	Superintendent	President of board of directors
<i>Alameda County.</i> California Rescue Home.....	2107 Thirteenth avenue, Oakland.	Miss Beatrice Prosser....	Mr. Elmer Nichols.....
Evangeline Booth Home, Salvation Army Rescue and Maternity.	Twenty-eighth and Gar- den streets, Oakland.	Commandant Nora Hud- speth.	Commissioner Adam Gif- ford (Western territory)
<i>Los Angeles County.</i> Florence Crittenton Home.....	234 East avenue Thirty- three, Los Angeles.	Mrs. Mary B. Whirlow ..	Mrs. H. M. Hare.....
Salvation Army Truelove Home....	2670 North Griffin ave- nue, Los Angeles.	Major M. Louise Cogge- shall.	Commissioner Adam Gif- ford (Western territory)
<i>Sacramento County.</i> Peniel Rescue Home.....	Route 4, box 290, Sacra- mento.	Mrs. M. L. Richardson ..	Mrs. M. P. Ferguson....
<i>San Diego County.</i> Girls' Home of San Diego.....	729 Twentieth street, San Diego	Mrs. C. C. Shearer.....	Mrs. M. E. Armstrong...
<i>San Francisco County.</i> Florence Crittenton Home.....	376 Twentieth avenue, San Francisco.	Miss Mary L. Mullen....	Mrs. Charles Wright....
St. Elizabeth's Infant Hospital....	2530 Van Ness avenue, San Francisco.	Sister Fidelis.....	.....

bility of these Rescue Homes. The girl is weak and suggestible. The fate of the child is determined in the institution under the advice of the superintendent and board of directors.

Whether the mother shall keep her baby or relinquish it for adoption can be wisely determined only by most careful consideration of the opportunity for the best development of the child.

There are seven licensed rescue homes and one application pending license, as shown in the table on pages 78 and 79.

Early in the year 1922, the Salvation Army opened its new class A building for rescue and maternity work in the city of Oakland.

The California Rescue Home of Oakland accepts and treats venereal cases.

St. Elizabeth's Infant Hospital of San Francisco has been recently licensed to do rescue work. It has a fully equipped maternity department. Special care is given to the feeding of infants up to the age of six months.

Last year the Florence Crittenton Home at San Jose sold its property and discontinued the home.

HOMES.

Auspices	Location	Capacity	Admission requirements		Monthly rate of charge
			Age limits	Other	
Pacific Coast Rescue and Protective Association.	Suburban ..	17 girls...	None	Sex delinquent, venereal delinquent, maternity venereal.	Varies.
Salvation Army	Suburban ..	50 girls...	To 25 years....	Venereal cases not accepted.	Varies.
National Florence Crittenton Mission.	Urban	30 girls... 25 babies.	None	White race, clean bill of health.	Varies.
Salvation Army	Urban	30 girls... 15 babies.	None	Must promise to remain 3 months.	Varies.
Peniel Rescue Association	Rural	30 girls... 20 babies.	None	Wish girls to promise to remain 3 months.	Varies.
Door of Hope.....	Suburban ..	25 girls... 10 babies.	14 to 35	White race, including Mexicans. Clean bill of health.	Varies.
National Florence Crittenton Mission.	Urban	14 girls... 14 babies.	To 30 years....	Not feeble-minded or venereal. Confinement at U. C. Hospital.	Varies.
Sisters of Charity of St. Vincent de Paul.	Urban	15 girls... 36 babies.	None	Pregnant girls; babies born in hospital. Babies requiring medical care from birth to 6 months.	Varies.

10. Fire standards.

During this biennial period there have been a number of fires in our children's institutions, in several instances disastrous to property, but happily in no instance was there loss of life. Many of the buildings are old and built entirely of wood. Many are located outside of an incorporated town or city and have not the protection afforded by an organized fire department. Legal requirements for fire protection outside of municipalities are in the main negligible.

To meet this situation the state board has adopted the following minimum requirements regarding fire protection. These regulations apply to all children's institutions or boarding homes and to maternity hospitals and homes holding the license of the State Board of Charities and Corrections. In their preparation the state board has had the benefit of expert opinion.

REQUIREMENTS REGARDING FIRE PROTECTION.

The following rules set forth the essential points with which the management of an institution must comply regarding fire protection. All rules marked with a star apply to homes boarding children or caring for maternity patients.

Exits.

*1. There must be at least two means of egress, leading to the outside from the building. Stairways shall be at least thirty feet apart and handrails shall be provided. All doors must open outwardly.

*2. Any three-story building must have iron fire escape stairways with side railings. Any basement seven feet or more shall be considered a story.

*3. All ladders of fire escapes must reach the ground and extend to the roof of building.

*4. Doors of fire escapes shall lead into hall and open outwardly, but shall not obstruct the fire escapes.

*5. Fire escapes must be kept unobstructed at all times.

*6. Where any hospital, sanitarium or children's institution is built on the pavilion system, consisting of two or more buildings connected by corridors, there shall be fire doors at each end of every corridor connecting such buildings.

Signs.

1. Signs must be posted in conspicuous places to give information as to location and operation of fire alarm boxes, extinguishers and fire escapes. Lettering on signs shall not be less than three inches.

2. All buildings occupied by patients or children shall have exits designated by red lights.

Alarms.

*1. Persons turning in alarm must wait the arrival of fire department to point out location of fire.

2. When an institution is located outside the range of public fire protection, arrangement must be made to have the fire department respond in cases of fire. Report of this arrangement must be made to the State Board of Charities and Corrections.

Extinguishers.

1. Portable soda-acid fire extinguishers must be provided.

2. There must be one extinguisher to every 500 square feet of floor space in the building, or one extinguisher for each floor if floor space is less than 500 square feet.

3. Extinguishers shall be placed in prominent and accessible places throughout the buildings.

4. Extinguishers must be hung with the tops not more than five feet above the floor.

5. Extinguishers must be recharged semi-annually, the date of recharging being recorded on a tag attached to each extinguisher.

6. All extinguishers must be inspected by local fire department every three months and records of inspection kept in the institution.

7. All employees must be instructed in the handling of fire extinguishers and hose.

Heating.

1. Furnace and boilers must be located in a fireproof room, if not in a detached building.

*2. All flues and ducts, including foul air ducts must be of metal or other non-combustible material and be carried through the roof.

*3. Kerosene heaters must be kept clean, filled outside the buildings, and used only when absolutely necessary. Kerosene oil must be of the highest grade commercially obtainable.

*4. Electric bed warmers shall not be used.

*5. Fire places shall be provided with close-fitting screens.

*6. When gas stoves are provided, they must be carefully installed. Rubber tubing as a connection for gas stoves is prohibited.

*7. Whenever necessary to build fires on the premises outside the building, they must be watched while burning and thoroughly extinguished before being left. Fires should always be at a considerable distance from the house.

Lighting.

1. All electrical installation shall be installed to comply with the National Electric Code.

2. Hallways, if not sufficiently illuminated by natural light in the daytime, shall be illuminated by a bright light capable of furnishing enough light to enable any person to see stairways and exits from said hall, night and day.

*3. Electric lamps shall be protected by wire guards, if near woodwork, paper or other inflammable material.

*4. Lamps hung on drop cords must not be tied or twisted or allowed to come into contact with gas pipes, nails or other metal.

*5. Gas fixtures are not allowed where flames can come in contact with curtains, woodwork or other combustible material.

*6. Where clearance over gas lights is less than two feet, bells or other special protection shall be provided.

*7. Portable gas lamps must not be used.

*8. Safety matches only shall be used.

Chimneys.

*1. Chimneys and stove pipes must be thoroughly cleaned once a year.

*2. Protection by metal or asbestos must be provided for all steam pipes and hot water pipes when placed nearer than two inches to woodwork.

*3. Where stove pipes pass through closets or concealed places, pipes must be protected by a metal shield.

*4. All joints must be securely riveted and properly supported.

Hose protection.

1. Outside hose protection shall be installed for institutions outside of public fire protection zones.

2. Fire hose must be provided inside the buildings on every floor. (The saving in insurance will pay the cost of installation.) Apparatus must be frequently tested to make certain the hose is in good condition.

Miscellaneous Requirements.

*1. Basements and attics shall not be used as a place for storage of combustible materials.

*2. Metal cans with covers must be provided for rubbish.

*3. Care must be taken in handling gasoline, oils, paints, varnishes and all cloths or waste used for polishing floors, furniture, etc. All such supplies and working materials must be kept in an isolated building provided with proper ventilation.

*4. All lockers and closets must be kept free from an accumulation of old cloths and other combustible materials.

- *5. Doors must be kept unlocked whenever possible.
- *6. Windows shall be of ample size to permit of their use as exits.
- *7. Corridors must be kept absolutely clear at all times, especial attention being given to the removal of wheel chairs, etc.
- *8. Every elevator and stairway leading to a basement must be enclosed with a door and tight partition. This door shall be of the construction required for a building of the class in which it is placed.

The details of the drills will vary with each institution, but shall be carefully worked out to meet all possible emergencies. They must include the following matters:

1. All employees shall be assigned to certain stations in connection with the drills and carefully instructed as to their duties in emergencies.
2. All employees shall be instructed in the use of all fire-fighting apparatus.
3. Drills must be held at least once a month, at various times of day and night, and without notice. Record must be kept in institution of date and time taken to empty building of occupants.

September 28, 1922.

11. Cooperation with State Board of Control.

In the supervision of certain children's institutions this Board, as heretofore, has cooperated with the State Board of Control. Eight joint meetings of representatives of the two boards have been held.

There are 37 of the 104 children's institutions in California which must be licensed by this Board, to which state aid is granted and which are known as state aid institutions. These 37 institutions are under the immediate supervision of the State Board of Control whose agents send reports of their inspections to the State Board of Charities and Corrections. The State Board of Control holds the responsibility for a children's institution so long as state aid is granted it. If state aid is withdrawn the responsibility reverts to this Board. This division of work eliminates duplication in the supervision of state aid institutions.

III. FAMILY BOARDING HOMES.

1. *Introductory.*

All homes where children are boarded or placed for custodial care away from their parents or legal guardians must be licensed by the State Board of Charities and Corrections. There were in California on June 30, 1922, 2706 children being cared for in 1792 family boarding homes. The investigation, standardizing, and supervision of these homes is an important responsibility of this board. This work is accomplished in several ways.

All children's boarding homes must either hold the license of this board or must be supervised and used exclusively by a child-placing agency licensed by this board to place children in foster homes. This board has adopted standards for boarding homes and for child-placing agencies which must be met before license can be granted to either.

2. *Homes Holding Individual Licenses.*

The inspection and supervision of family boarding homes individually licensed by this board can be most successfully accomplished through cooperation in each county with a local agency doing children's work at a satisfactory standard. It is therefore the policy of the state board as rapidly as possible to delegate to qualified local organizations the authority to investigate applications for license for boarding homes; to make recommendation to the board concerning the granting or denial of such license and subsequently to supervise the licensed homes in the

county. Every license must be granted by action of the state board. The board assumes responsibility for all denials, revocations and problem cases. The recommendation of the local agent is considered in every instance but the final responsibility lies with the state board.

The local agent has the cooperation of the local health officer in making the initial inspection. The health officer's approval of the sanitary condition of any premises is necessary before further consideration will be given an application for license.

The importance of high and uniform standards for the safeguarding of children separated from their natural guardians and protectors makes it necessary to centralize the work in a board with statewide activities. Experience has shown that the family boarding home is frequently migratory. This is especially true of the undesirable homes which are in one county today and another tomorrow. A state board has final legal authority over the entire state, which enables it to cope with such situations. It has a comparative knowledge of the methods by which the different counties are working out their children's problems. The local agent may at any time call upon the State Board for assistance in handling troublesome problems.

On the other hand the individual boarding home is a local problem. It belongs to the intimate life of the locality and in the great majority of cases the children it cares for belong to the community. The local agent has at her hand many avenues of information concerning applicants which are closed to the occasional visitor.

It is only through the understanding and constant cooperation of local organizations that the state board has been able to carry on this ever increasing volume of work.

a. County organization.

In order to make this work less burdensome to local agencies and at the same time more effective, it has been the policy of the board to make special studies as rapidly as possible of the boarding home situation in all counties where there is reason to believe the organization and standard of social work would warrant the delegation in some degree of responsibility for the inspection and supervision of boarding homes. During this biennial period studies have been made in Santa Clara, Marin, Merced and Tulare counties.

To meet the needs of this growing work the following records for the use of local agencies and this board have been prepared and are being installed in the various counties as they assume this responsibility.

FOLDER No.

NAME OF FOSTER MOTHER

ADDRESS		TOWN	TELEPHONE	
NATIONALITY		RELIGION	AGE OF FOSTER MOTHER	
Application sent		DATE	STATE BOARD ACTION	DATE
Application returned			License granted for children	
Approved by Health Officer	{ Yes No }		License No. issued	
Inspection made			License denied	
Referred to State Board			Reason for denial	
REFERENCES				
SATIS.	UNSATIS.	BY LETTER	BY WHOM INTERVIEWED	SUBSEQUENT BOARD ACTION
1				
2				
3				
Recommended for		children		
Infants (children under 3 years)				
Boys (state ages)		Girls (state ages)	Boarding home card for	County

b. Court action.

Several times during this period this board has found it necessary to swear out warrants for the arrest of women boarding children in violation of the law. It has been our experience that the majority of women boarding children without a license are ignorant of the law. When informed of the necessity for license they make application and conform to the requirements of this board. This, however, does not apply in all cases. Some women defy the law by refusing to apply for license or to discontinue the care of children if license is denied. These homes are uniformly poor and frequently fraught with danger for the children. The women in charge are usually boarding children for commercial reasons only and have not the requisites of character and interest in childhood necessary for this most important and difficult service. In homes of this type there is constant danger of cruelty, abuse and neglect. Two women have been convicted and given jail and fine sentences for boarding children without a license. In both instances neglect and cruelty were also proved. Court action has been brought against several other cases before offenders would comply with the law.

c. Newspaper cooperation.

No social agency or person informed of the necessity for license would use homes operating in violation of the law. These violators therefore have depended upon advertising in the daily press, which is the medium used by the uninformed to secure boarding homes for their children. In one instance of most flagrant violation of the law and abuse of the children eight babies were found in a home denied license and subsequently closed by court action. The mothers of five of these infants testified they had learned of the home through newspaper advertisements. The state board appealed to the Publishers' Association of San Francisco for help in meeting this situation. The association gave the matter careful consideration and adopted the following resolution:

TO THE PUBLISHERS' ASSOCIATION:

Whereas, The most dependent and helpless human being in the world is the child without the protection of a good home, and

Whereas, The law has made the State Board of Charities and Corrections responsible for licensing all good homes without cost to the applicant and further has made the State Board of Charities and Corrections responsible for denying licenses to all unfit homes and revoking licenses for cause, and

Whereas, Though excellent homes through ignorance of the law are found from time to time to be operating without a license, the homes that are unsafe and sometimes dangerous for children are the homes unlicensed and therefore unsupervised operating in violation of the law for commercial purposes, and further as these homes are never recommended by child-caring social agencies, they depend upon alluring advertisements in the press for the children who too frequently become their victims, and

Whereas, The daily press is the most important agency for educating public opinion in the knowledge and observance of the law; therefore be it

Resolved, That each newspaper in California require that any person who proposes to conduct a boarding home for children shall hold the license of the State Board of Charities and Corrections as required by law before any advertisement of such home be accepted by the paper, and further that we request that the representative of the paper responsible for accepting advertisements shall assure himself that the person advertising has such a license.

Through the courtesy of the San Francisco Association the matter was presented to the Los Angeles and Alameda County Publishers' Associations. They took similar action. The state board circularized the newspapers throughout the state, asking their cooperation in safeguarding children living away from their parents or legal guardians by refusing to accept advertisements for any homes but those holding the license of the State Board of Charities and Corrections.

A sample copy of the following new form of boarding home license issued by this board has been sent to all the newspapers in the state. The newspaper managers require that this license shall be presented at the office of the paper before a children's boarding home advertisement will be accepted. The board feels that this agreement with the press marks a long step forward in our state program for better care for defenseless children.

License No.-----

*The State Board of Charities and Corrections of the State of California
licenses*

-----Name

-----Street

-----Town

-----County

To conduct -----

with a capacity of-----, in accordance with
page 73, Statutes of 1913, and with the rules and standards prescribed
by the Board.

Dated at San Francisco this-----day of-----, 19 .

STATE BOARD OF CHARITIES AND CORRECTIONS.

CHAS. A. RAMM, *President.*

CORNELIA MCKINNE STANWOOD, *Secretary.*

d. TABLE SHOWING LOCATION, NUMBER AND SUPERVISION OF INDIVIDUAL LICENSED BOARDING HOMES.

Local supervising agency	District covered	Number of licensed homes under local supervision	Number of licensed homes with no local supervision	Number of homes boarding children	Number of children in homes under local supervision	Number of children in homes with no local supervision
Alameda County:						
Oakland City Health Dept.	City of Oakland	73	38	56	113	26
Butte County			1	1		2
Contra Costa County			4	3		4
Del Norte County			1			
El Dorado County			1			
Fresno County:						
County Dept. of Public Welfare	Entire county	60		24	62	
Humboldt County:						
County Dept. of Public Welfare	Entire county	39		9	18	
Inyo County			2			
Kern County:						
County Dept. of Public Welfare	Entire county	11		10	15	
Los Angeles County:						
City Board of Health	Los Angeles	221		151	360	
County Public Welfare Com.	Los Angeles County	368		300	520	
Madera County			1			
Marin County:						
County Chapter Am. Red Cross	Entire county	9		4	18	
Merced County:						
County Welfare Department	Entire county	9		4	6	
Monterey County			4	3		19
Napa County			13	8		20
Nevada County			1			
Orange County			2			
Placer County			1			
Riverside County			2			
Sacramento County:						
Sacramento City Board of Health	City of Sacramento	26	2	14	33	6
San Bernardino County:						
County Public Welfare Com.	Entire county	17		5	13	
San Diego County:						
County Welfare Department	Entire county	38		44	81	
San Francisco County:						
City Board of Health	Entire county	220		150	191	
San Joaquin County			2	2		6
San Mateo County:						
County Welfare Commission	Homes used by department and probation officer	17	21	24	17	20
Santa Barbara County:						
Associated Charities	City of Santa Barbara	3		1	3	
Santa Clara County			36	22		59
Santa Cruz County			2			
Shasta County			1			
Solano County			3	1		1
Sonoma County:						
County Welfare Commission	Entire county	24		21	43	
Stanislaus County:						
County Welfare Department	Entire county	1		1	1	
Tehama County			2	2		3
Tulare County			2	2		9
Ventura County			1	1		22
Totals		1,056	143	863	1,494	197

e. LOCAL BOARDING HOME ORDINANCES.

A number of the larger cities in the state, notably Los Angeles, San Francisco and Oakland, have supplemented the state supervision of children's boarding homes by passing ordinances requiring permits from their local health departments in order to board children.

These ordinances are in line with the policy of the State Board to make the local community, whether it is a municipality or a county, responsible for the control of its own children's boarding home problem.

The possible confusion arising from the issuing of a state license and a local permit in these cities has been eliminated between the local health boards and the State Board of Charities and Corrections by the following agreement: Applications for city permits and state license are given to applicants at the same time. Permits and licenses to operate boarding homes are mailed to applicants at the same time. All applications for permits and licenses are made through the board of health. If the application is made to the State Board it is referred to the local health department. The health board is responsible for the supervision and enforcement of standards and the state board license is automatically renewed or discontinued with the renewal or withdrawal of the health board permit.

The State Board of Charities and Corrections approves of this form of local supervision whenever the ordinance is satisfactorily drawn and sufficient funds are made available for the employment of enough trained workers to investigate and supervise the homes.

As stated elsewhere in this report, this work is essentially a local problem and can be handled most satisfactorily by properly equipped local agencies. Cooperation with health departments is especially desirable. The health of the child is safeguarded and there is a constant check on the sanitary condition of the home.

The city of Oakland is at the present time re-writing its ordinance requiring local permits for boarding homes for children. In the new draft an especial effort has been made to avoid conflict with the state law, so that any court action brought under its provisions cannot be nullified because the ordinance is unconstitutional.

This plan of cooperation has been tested as satisfactory through an experience of years. This has been brought about by conferences with the local health departments on matters of policy and through joint action of the state and local agencies in court.

3. Homes used by licensed child-placing agencies.

There were 593 boarding homes on June 30, 1922, under the supervision of eight licensed child-placing agencies. These homes are caring for 1015 children. The location of these homes and the agencies responsible for their supervision are shown by the accompanying chart.

The licensing of agencies to supervise homes in which they place children is in line with the policy of this board to delegate the immediate responsibility of children's boarding homes to local organizations prepared to do this work at a satisfactory standard. As provided by law, these agencies must be licensed and supervised by this board and their license may be withdrawn if its standards are not maintained.

The relation of the licensed child-placing agencies to the homes they supervise is somewhat different from that of the welfare department or Board of Health which supervises the individual licensed boarding homes. The latter are primarily interested in guaranteeing safe living conditions for all children who have not the protection of a licensed agency but who, for any reason, are living apart from their parents or legal guardians. Many children are placed in boarding homes by unlicensed agencies by parents and by relatives.

The licensed child-placing agency is responsible for the proper living conditions of a definite group of children and they develop boarding homes to serve their peculiar needs. These homes also must meet the standards of this board and they may be used only by the agency responsible. Any home which an agency has discontinued using must secure an individual license from this board and be under its direct or delegated supervision before it can again care for children.

The fact that these licensed agencies are responsible for the individual children they place in homes, guarantees trained and constant supervi-

sion for the foster homes they use. Only such child-placing agencies are licensed to develop their own boarding homes as meet the requirements of this board for this type of work.

Following eight years experience in the supervision of these agencies and a series of conferences with those now licensed to place children in boarding homes, the following minimum standards were agreed upon and adopted by this board:

a. Minimum standards for the supervision of children in foster homes by child-placing agencies.

Infants in foster homes.

There shall be one full-time nurse or equivalent for every fifty babies under three years of age. In determining this standard of one nurse to fifty babies the following points were agreed upon:

First. That the nurse should be responsible only for the physical condition of the babies.

Second. That the nurse should not have any social work to do in connection with the babies.

Third. That all sick babies are to be placed in a hospital for care.

Fourth. That the nurse shall not be required to keep any records except the health records of the child.

Older children in foster homes.

There shall be one full-time social worker or the equivalent for every fifty foster homes. This standard is established on the basis that there shall not be more than 100 children in the fifty homes under one worker's supervision.

Children boarded with their parents or legal guardians.

There shall be one full-time social worker or the equivalent for every fifty families where children are boarded with their parents or legal guardians.

Note. It has been demonstrated that when field workers depend for transportation on street cars between fifty and sixty per cent of the time is spent in waiting for cars, transferring and riding. This fact has been taken into consideration in determining these standards and they are based on the use of automobiles as follows:

One automobile for every nurse supervising infants.

One automobile for the use of other social workers supervising children in agencies which have 200 or more children in foster homes.

b. CHART SHOWING LOCATION, NUMBER AND SUPERVISION OF HOMES USED BY LICENSED AGENCIES.

County	Agency	June 30, 1922	
		No. of homes	No. of children
Alameda	(Oakland Associated Charities.....	120	165
	(Catholic Ladies' Aid Society of California.....	26	64
	(Berkeley Welfare Society.....	31	56
	(Little Children's Aid.....	1	1
Contra Costa	(Children's Agency of the San Francisco Associated Charities.....	11	21
	(Berkeley Welfare Society.....	1	1
Kern	(Children's Agency of the San Francisco Associated Charities.....	4	5
El Dorado	(Children's Agency of the San Francisco Associated Charities.....	1	1
Marin	(Little Children's Aid.....	1	3
Mendocino	(Children's Agency of the San Francisco Associated Charities.....	6	10
	(Children's Agency of the San Francisco Associated Charities.....	1	1
San Francisco	(Oakland Associated Charities.....	1	1
	(Children's Welfare Bureau of Federation of Jewish Charities.....	28	42
	(Little Children's Aid.....	99	206
	(Children's Agency of the San Francisco Associated Charities.....	221	379
San Joaquin	(Oakland Associated Charities.....	1	2
San Luis Obispo	(Berkeley Welfare Society.....	1	1
	(Berkeley Welfare Society.....	1	1
San Mateo	(Little Children's Aid.....	5	8
Santa Cruz	(Children's Agency of the San Francisco Associated Charities.....	4	5
	(Children's Agency of the San Francisco Associated Charities.....	4	5
Santa Clara	(Berkeley Welfare Society.....	1	1
Shasta	(Children's Agency of the San Francisco Associated Charities.....	11	20
	(Children's Agency of the San Francisco Associated Charities.....	1	1
Solano	(Children's Agency of the San Francisco Associated Charities.....	1	3
Sonoma	(Berkeley Welfare Society.....	1	1
	(Children's Agency of the San Francisco Associated Charities.....	7	12
Tulare	(Little Children's Aid.....	2	3
	(Children's Agency of the San Francisco Associated Charities.....	1	1
Totals.....		593	1,015

IV. ADOPTION WORK BY CHILD-PLACING AGENCIES.

There are eight agencies in California licensed by this board to place and supervise children in boarding, free and adoptive homes. This work falls naturally into two parts: first, the placing of children in homes for adoption or permanent free care; second, the placing of children in foster or boarding homes for more or less temporary care. By far the major part of the work of six of the eight licensed agencies consists of placing children, not eligible for adoption, in foster or boarding homes. These agencies are:

- The Children's Agency of the San Francisco Associated Charities.
- The Little Children's Aid of San Francisco.
- The Eureka Benevolent Society of San Francisco.
- The Associated Charities of Oakland.
- The Catholic Ladies' Aid Society of Oakland.
- The Berkeley Welfare Society.

These six agencies may and do, as the accompanying chart shows, place children for adoption and in free homes. However, with the exception of the Children's Agency of the San Francisco Associated Charities, the number so placed is negligible compared with the work of the Native Sons and Daughters Central Committee on Homeless Children and the Children's Home Society of California, which specialize in permanent placements.

These six agencies in their relation to the foster-home problem have been discussed in this report under family boarding homes. This section of the report deals with these eight agencies in their relation to the adoptive child.

The following chart shows that on June 30, 1922, there were in the care of these agencies 896 children who were pending adoption or who were in permanent free homes under supervision.

It should be noted that it is the policy of these licensed child-placing agencies to place in free homes only such children as are not eligible for adoption or who, owing to some irremediable defect, are not adoptable children.

The successful placing of children in permanent homes is recognized as a most important and difficult service. It is a highly specialized kind of work. We believe the best results for the child are obtained by close cooperation between specialized agencies rather than by each agency doing several kinds of work. In the main, organizations specializing in foster-home care, use the agencies specializing in permanent homes for the placement of such children in their care as are eligible for adoption or free homes. On the other hand, the agencies placing children in adoptive homes frequently need to use foster homes for temporary care for children awaiting placement.

It is the policy of this board to encourage these licensed agencies to specialize in this division of their work and which their own experience in dealing with the problems of the homeless child has demonstrated as most satisfactory. This board will in the future follow the policy of indicating the type of work to be done when granting new licenses to organizations wishing to place children. We believe the agencies now holding our license will welcome this decision as a forward step for California's homeless children.

Table Showing Children Under the Supervision of Licensed Child-Placing Agencies, June 30, 1922, Pending Adoption or Being Supervised in Permanent Free Homes.

	Native Sons and Daughters Central Homeless Children	Children's Home Society of California	Children's Agency of San Francisco Associated Charities	Little Children's Aid, San Francisco	Eureka Benevolent Society, San Francisco	Oakland Agency of Charities	Catholic Ladies' Aid Society, Oakland	Berkley Welfare Society	Total
In adoptive homes pending legal proceedings	304	207	70	11		11	2	4	609
In boarding homes pending permanent placement	17		24	14		2	2	2	61
In receiving homes pending disposition	6	40							46
In permanent free homes	32	70	61	6		5		6	180
Totals	359	317	155	31		18	4	12	896

*The Eureka Benevolent Society has centered its efforts entirely on the work of placing children in family boarding homes, leaving the adoptive work to organizations specializing in that line.

V. DAY NURSERIES.

Two new day nurseries have been licensed within this biennial period. The *Colored Children's Home and Day Nursery* in Oakland was licensed to care for 12 children. The *Grace Day Home* at Sacramento, conducted by the Franciscan Sisters, has been licensed to care for 100 children. It has a new building and large playground especially planned for use as a day nursery.

Industrial Day Nurseries.

During the past three years this board has been working on a program for the standardization of Industrial Day Nurseries. A study has been made of thirty-six day nurseries operated in connection with canneries in the San Joaquin Valley. A survey of the industrial nursery situation in Santa Clara County has been made. Many conferences north and south in this state have been held with individual employers, industrial associations and with local social workers and school authorities for the discussion of this problem.

Following an agreement with the Cannery Association this board is now cooperating with that group with a view to adopting workable standards for equipment and service. It is hoped that with the help of the Cannery Association progress can be made toward a solution of this difficult and involved problem.

Name	Address	Superintendent	President of board of directors
<i>Alameda County.</i>			
Berkeley Day Nursery.....	Seventh and Addison streets, Berkeley.	Mrs. Gertrude B. Middleton.	Mrs. Rose Woolsey.....
St. Vincent's Day Home.....	1086 Eighth street, Oakland.	Sister M. de Sales.....	Mother Theresa.....
Fanny Wall Children's Home.....	1215 Peralta street, Oakland.	Mrs. M. Burrows.....	Mrs. Fanny Wall.....
<i>Fresno County.</i>			
Fresno Day Nursery.....	502 "D" street, Fresno..	Mrs. M. Howe.....	Mrs. Wm. Glass.....
<i>Los Angeles County.</i>			
Boss Overall Factory Day Nursery.....	1142 San Julian street, Los Angeles.	Mrs. Martin.....	Mr. L. Goldwater (treasurer)
King's Daughters' Day Nursery.....	132 North Clarence street, Los Angeles.	Mrs. Jennie C. Harrison.	Mrs. H. Leithead.....
Long Beach Day Nursery.....	805 Alamitos avenue, Long Beach.	Miss Florence E. Fisher..	Mrs. Fred Bixby.....
Mother Cabrini Day Home.....	1412 Mateo street, Los Angeles.	Sister Eufemia.....	Mother Cnerubina Botti.
Pasadena Day Nursery.....	88 Garfield avenue, Pasadena.	Mrs. Adelaide McKinlock	Mrs. Mary Mason.....
Salvation Army Day Nursery.....	815 Crocker street, Los Angeles.	Adjutant Lillie M. Rogers	Commissioner Adam Gifford (for western territory)
Saint Elizabeth Day Nursery.....	135 North Anderson street, Los Angeles.	Mrs. Nellie C. Peyton....	Mrs. J. P. Farrell.....
Woman's Day Nursery.....	1373 East Eighteenth street, Los Angeles.	Mrs. Cora Cranshaw.....	Mrs. S. Jones.....
<i>Orange County.</i>			
Ebell Day Nursery.....	311 East Fifth street, Santa Ana.	Mrs. Paul Wright.....	Mrs. Arthur Lyon.....
<i>Riverside County.</i>			
City Home League Day Nursery.....	177 West Fourteenth street, Riverside.	Mrs. Bettison.....	Mrs. A. N. Wheelock....
<i>Sacramento County.</i>			
Grace Day Home.....	Seventh and "S" streets, Sacramento.	Sister Pacifica.....	.....
<i>San Bernardino County.</i>			
Redlands Day Nursery.....	626 Orange street, Redlands.	Mrs. Grace Argatt.....	Mrs. Halsey W. Allen....
<i>San Francisco County.</i>			
Canon Kip Memorial Mission Day Nursery.....	246 Second street, San Francisco.	Miss Edith Fox.....	Mrs. E. L. Griffith.....
Community Day Nursery.....	1015 Shotwell street, San Francisco.	Miss Katnerine Anderson	Dr. A. C. Stevens.....
Holy Family Day Home.....	299 Dolores street, San Francisco.	Sister M. Philemena.....	Mother Theresa.....
Saint Francis Day Home.....	1441 Powell street, San Francisco.	Sister M. Aloysius.....	Mother Theresa.....
<i>San Joaquin County.</i>			
Stockton Day Nursery.....	15 South Sierra Nevada street, Stockton.	Mrs. E. Young.....	Mrs. Edward S. Munford.
<i>Santa Clara County.</i>			
Saint Elizabeth's Day Home.....	136 Vine street, San Jose.	Sister M. Clare.....	Sister Theresa.....
San Jose Children's Day Nursery.....	165 Devine street, San Jose.	Nettie Pew.....	Mrs. J. V. Haley.....
<i>Ventura County.</i>			
Santa Paula Day Nursery.....	Santa Paula.....	Mrs. E. Cooper.....	Mrs. F. A. Shipley.....

NURSERIES.

Auspices	Capacity	Daily rate of charge	Admission requirements		
			Sex	Age limits	Race
Board of directors.....	75	\$0.15	Both...	6 months to 11 years	All except Japanese.
Sisters of the Holy Family.....	100	Not fixed	Both...	1½ to 10 years (boys) 1½ to 14 years (girls)	White and black.
Board of directors.....	12	\$3.50 week	Both...	2 to 12 years.....	Black.
Board of directors.....	45	\$0.25	Both...	3 months to 7 years	All.
Cohn-Goldwater Company.....	40	None	Both...	Must be able to walk	White.
King's Daughters.....	60	\$0.10	Both...	3 months to 9 years	All.
Board of directors.....	50	\$0.15 for infant \$0.10	Both...	1 to 10 years.....	All.
Missionary Sisters of the Sacred Heart.....	45	\$0.20	Both...	40 days to 6 years.....	White, including Mexican.
Board of directors.....	75	\$0.05 to \$0.50	Both...	4 month to 12 years	All.
Salvation Army.....	15	\$0.10	Both...	2 to 12 years.....	White.
Affiliated with Bureau of Catholic Charities.....	100	\$0.10 for 1 \$0.25 for 3 or 4	Both...	3 months to 10 years	White.
Board of directors.....	12	\$0.25	Both...	7 months to 7 years	Colored.
Ebell Club of Santa Ana.....	10	\$0.25	Both...	1 to 10 years.....	White.
City Home League.....	14	\$0.15 to \$0.30	Boys... Girls...	1 to 6 years..... 1 to 10 years.....	All. All.
Franciscan Sisters.....	100	\$0.25	Both...	2 to 7 years.....	All.
Board of directors.....	40	\$0.10 to \$0.25	Both...	1 to 12 years.....	All.
Episcopal Church.....	75	\$0.10 to \$0.15	Both...	3 months to 8 years	All.
Protestant Churches of Mission District.....	60	\$0.50 to \$1.00 weekly	Both...	14 months to 6 years	All.
Sisters of the Holy Family.....	200	Not fixed	Both...	1½ to 10 years (boys)	White.
Sisters of the Holy Family.....	200	Not fixed	Both...	1½ to 14 years (girls) 1½ to 10 years (boys) 1½ to 14 years (girls)	White. White and black.
Board of directors.....	25	\$0.20 to \$0.50	Both...	2 to 10 years.....	White.
Sisters of the Holy Family.....	100	Not fixed	Both...	1½ to 10 years (boys)	White.
Board of directors.....	40	\$0.10 to \$0.25	Both...	1½ to 14 years (girls) 6 months to 12 years	White. All.
Board of directors.....	20	\$0.10	Both...	6 months to 10 years	All.

VI. MATERNITY HOSPITALS AND HOMES.

1. *Relation of maternity hospital and home capacity to births and population.*

There are in California 194 licensed maternity departments and general hospitals doing maternity work, and 102 maternity homes. There are available in the State, exclusive of county hospitals, 1824 beds for maternity cases. There were 74,000 reported births in California in the year 1921.

The following table shows the location of licensed hospitals and homes and the distribution of births by counties:

Counties	Hospitals and homes	Capacity (number of beds)	Births	Still births	Total births	Population
Alameda	20	65	6,537	203	6,740	344,177
Alpine						243
Amador			93		93	7,793
Butte	4	10	608	26	636	30,030
Calaveras			78	4	82	6,133
Colusa	1	4	166	6	172	9,290
Contra Costa	2	7	1,088	51	1,139	53,889
Del Norte	1	4	45	3	48	2,759
El Dorado			89	2	91	6,426
Fresno	8	65	3,640	93	3,733	128,779
Glenn	3	6	194	6	200	11,853
Humboldt	5	36	723	15	738	37,413
Imperial	2	12	986	28	1,014	43,453
Inyo			156	1	157	7,031
Kern	4	38	1,561	45	1,606	54,844
Kings	3	11	525	18	543	22,031
Lake			71	1	72	5,402
Lassen	1	3	161	1	162	8,507
Los Angeles	66	517	20,187	637	20,824	936,455
Madera	1	5	302	10	312	12,203
Marin	2	11	322	10	332	27,342
Mariposa			24	1	25	2,775
Mendocino	2	7	423	15	438	24,116
Merced	1	3	533	13	546	24,579
Modoc	1	2	99	4	103	5,425
Mono						960
Monterey	4	12	670	24	694	27,980
Napa	5	20	297	8	305	20,678
Nevada	2	5	167	5	172	10,850
Orange	6	39	1,805	55	1,860	61,375
Placer	2	7	473	7	480	18,584
Plumas			83	3	86	5,681
Riverside	8	32	1,037	26	1,063	50,297
Sacramento	9	57	2,249	69	2,318	91,029
San Benito	1		187	5	192	8,995
San Bernardino	8	48	1,831	46	1,877	73,401
San Diego	12	75	2,474	89	2,563	112,248
San Francisco	22	360	9,175	293	9,468	506,616
San Joaquin	5	22	2,065	42	2,107	79,905
San Luis Obispo	1		464	12	476	21,893
San Mateo	5	28	578	19	597	36,781
Santa Barbara	7	40	897	24	921	41,097
Santa Clara	9	37	2,168	51	2,219	100,676
Santa Cruz	6	15	523	22	550	26,299
Shasta	2	5	213	12	225	13,361
Sierra			25	1	26	1,783
Siskiyou	5	14	452	13	465	18,545
Solano	4	16	717	17	734	40,602
Sonoma	12	37	882	30	912	52,090
Stanislaus	9	40	1,059	29	1,089	43,557
Sutter			148	2	150	10,115
Tehama	1		273	3	276	12,882
Trinity			18	2	20	2,551
Tulare	10	31	1,529	55	1,584	59,031
Tuolumne	3	7	146	6	152	7,768
Ventura	5	20	656	21	677	28,724
Yolo	5	17	341	7	348	17,105
Yuba	1	4	185	5	190	10,375
	296	1,824	72,438	2,204	74,642	3,426,861

These figures do not include county hospitals.

Number of county hospitals having special wards.....	28
Number of county hospitals using single rooms.....	8
Number of county hospitals in which there is no special provision for maternity patients....	22

The birth statistics are for the year 1921 and were furnished by the Bureau of Vital Statistics, State Board of Health.

The inadequacy of the provision here recorded for maternity patients is apparent. There is need for more and better care, especially for women of small and moderate means. In the larger cities there is promise of increased and improved hospital service for obstetrical work. However, in the rural communities where the need for safe and adequate provision at childbirth is most acute, there is no apparent indication of relief for this serious situation.

2. *Standards.*

The requirements of this board for maternity license have been revised in the hope of raising the standard for obstetrical equipment and service in the hospitals and maternity homes throughout the state and of stimulating effort to meet this need.

RULES AND REGULATIONS FOR THE GOVERNMENT OF MATERNITY HOSPITALS AND HOMES.

In accordance with Chapter 69, Statutes 1913.

Definitions.

Any place into which women are received to be cared for before, during or after parturition shall be considered as a maternity hospital or home.

Institutions caring for maternity patients are classified as follows, according to equipment:

Class A. Separate class A building with complete equipment caring for maternity patients only.

Class B. Hospital with maternity department with fully equipped delivery room and nursery.

Class C. General hospital with either delivery room or nursery and general hospital using the operating room for delivery.

For rules and regulations for Class A, B and C maternity hospitals, see below.

Class D. Private homes.

For rules and regulations for Class D private maternity homes, see page 98.

Rules and Regulations Governing Maternity Hospitals.

(Classes A, B and C.)

Granting and revoking license.

1. All maternity hospitals and homes are required, in accordance with section 3, Chapter 69, Statutes 1913, to secure the license of the State Board of Charities and Corrections, and to conform to the standards set by that board.

2. Application for license must be made on blanks furnished by the State Board of Charities and Corrections.

3. Every applicant must have the approval of the local board of health or health officer.

4. Every licensee shall post his license in a conspicuous place.

5. Any change of ownership, management, location or name shall be promptly reported to the State Board of Charities and Corrections. When any such change is contemplated an application for a new license shall be made. In such instance the new license may be granted on surrender of the license held.

6. No greater number of women and infants shall be cared for at one time on such premises than is authorized by the license and no women or infants shall be kept in a building or place not designated in the license.

Physical equipment.

1. All rooms and wards occupied by patients shall be outside rooms and the window space shall not be less than one-fifth of the floor space.

2. The rooms and wards shall be of sufficient size to allow not less than 800 cu. ft. of air space and 100 sq. ft. of floor space for each adult patient and 250 cu. ft. of air space for each infant therein. Ventilation shall conform with state housing laws.

3. All plumbing, drainage and other arrangements for the disposal of excreta and household waste shall be in accordance with the rules and regulations of the State Board of Health and local health ordinances.

4. Toilets and hoppers shall be properly and adequately ventilated to the external air.

5. In order that the heating of all rooms shall be safe and adequate, no gas stove shall be used which is not directly connected with an outside flue and all gas connections should be of metal piping.

6. Fire protection shall be according to the rules and regulations of the local fire commission or city ordinance and the rules and regulations of the State Board of Charities and Corrections. These standards will be furnished with the application.

7. Provision for isolation of contagious diseases shall be made.

8. There shall be sanitary equipment for thorough bathing of patients and infants.

9. An adequate supply of clean bedding, body linen and towels shall be kept on hand at all times.

Bed pan sterilizers are recommended for hospitals. A separate bed pan marked for use of individual patients is strongly advocated.

Delivery room.

1. A delivery room shall be provided; it must be ready at all times and used for no other purpose.

2. The floors, walls and ceiling shall be of such material as will permit of being easily washed. Provision must be made for sterilization of water, basins, instruments and dressings. There shall be running water with a properly trapped and vented basin.

3. The delivery room shall be furnished with a delivery table or bed, instrument table, irrigating apparatus, basins and pitchers. There shall be an ample supply of sterile linen and dressings. Drugs ordinarily needed for use shall be kept in the room at all times.

4. Two infants' tubs shall be provided for resuscitation in delivery room.

5. Every infant shall be marked for identification before it is taken from delivery room.

Nursery.

1. A separate room for a nursery shall be provided.

2. Infants' cribs or baskets shall have firm, clean mattresses, covered with rubber sheeting and washable pads. Clean woolen blankets shall be used. There shall be a separate bed for each infant.

3. It is recommended that the nursery be provided with stationary bathing facilities, a properly protected dressing table and correct scales.

4. The nursery shall be heated and ventilated. A wall thermometer must be provided in order to be sure that an even temperature is maintained.

5. A covered container for soiled linen shall be provided.

6. A dressing tray shall be set up at all times. The following articles are recommended in dressing and caring for infants: Sterile gauze, absorbent cotton, medium and small safety pins, bottle of alcohol, a bar of pure mild soap, a proper lubricant (albolene or olive oil), boric acid solution, pure powder, abdominal binder for infant.

7. Bottles and nipples shall be properly sterilized after each use.

8. A minimum of one dozen diapers per child shall be provided for each 24 hours. Freshly laundered diapers only shall be used.

9. If hot water bags are ordered by physician, they must be covered with a flannel bag before being placed in the crib, and must not come in direct contact with the baby's body.

Care of patients.

1. Immediately upon the beginning of labor, a legally qualified physician shall be notified and shall be present and in attendance at the time of birth.

2. The eyes of all new born infants shall be treated immediately after birth with a one per cent solution of nitrate of silver, two drops in each eye, or with other approved solutions and during the first few days cleansed daily with saturated boric acid solution. Ampoules of nitrate of silver solution may be obtained free of charge by charitable institutions upon application to State Board of Health, 713 Wells Fargo Building, San Francisco, or 821 Pacific Finance Building, Los Angeles.

3. Attention is called to Chapter 724, Statutes 1915, which requires the reporting of reddened or inflamed eyes of an infant, within two weeks after birth, to the local health officer of the county or municipality within which the mother of such infant resides.

4. If the child is kept in the hospital and is not breast fed by the mother, the feeding and selection of food shall be under the direction of a registered physician. If a wet-nurse is provided, she shall meet the approval of the physician. Whenever advisable the mother shall be urged to nurse her child.

5. Each maternity hospital shall employ at least one graduate nurse.

6. Any patients afflicted with a venereal or other communicable disease shall be properly isolated in a separate room and all necessary precautions taken to prevent the spread of such disease to other persons.

Disposal of child.

1. Attention is called to section 224 of the Civil Code in accordance with which a child not retained by the mother must be legally relinquished before it can be adopted. This relinquishment must be expressed in writing, signed and acknowledged before an officer authorized to take acknowledgments, or before the secretary of one of the organizations mentioned below. Before adoption can take place a copy of the relinquishment must be filed with the State Board of Charities and Corrections.

2. Attention is called to Chapter 569, Statutes 1911, providing for the supervision and control by the State Board of Charities and Corrections of the placing of dependent children into homes, which makes it a misdemeanor for any person, association or society to engage in the work of placing children into homes without a license from the State Board of Charities and Corrections. The following agencies have been licensed to place dependent children into homes and to arrange for adoption:

Berkeley Welfare Society, 2120 Grove street, Berkeley.

Children's Home Society, 919 E. Twenty-fifth street, Los Angeles.

Children's Home Society (Branch), 3491 Sixty-sixth street, Oakland.

Catholic Ladies' Aid Society, City Hall, Oakland.

Oakland Associated Charities, City Hall, Oakland.

Little Children's Aid, 995 Market street, San Francisco.

Children's Agency of the Associated Charities, 1500 Jackson street, San Francisco.

Eureka Benevolent Society, 436 O'Farrell street, San Francisco.

Native Sons' and Daughters' Central Committee on Homeless Children, 955 Phelan Building, San Francisco, and 322 N. Van Ness avenue, Los Angeles.

3. Each licensee shall use due diligence to prevent the abandonment of children, which is, according to section 270-271 and 271a of the Penal Code, a penal offense.

4. A licensee shall not be permitted to advertise that he will procure the adoption of children or to hold out inducements to mothers to part with their offspring.

5. Maternity hospitals shall report on the usual report forms to the State Board of Charities and Corrections within twenty-four hours the name and address of any person other than a parent or relative, by blood or marriage, or the name and address of the organization or institution into whose custody a child is given on discharge from the licensed premises.

Records.

1. Every licensee must have a register wherein he shall enter the name and address of every maternity patient, the date of admission and discharge of every patient, the name and sex of every child born or boarded on the premises, the date of every birth, the legitimacy or illegitimacy of every child, the name and residence

of the father, the date of removal of the child, the name and address of the person taking it away, and, if relinquished by the mother, the date of relinquishment, the name and address of the person to whom the child is relinquished, and the reason therefor; and if adopted, the date of adoption, the name of the person signing the consent to adoption, and the name and address of the person adopting the child. Every admission, discharge, birth, death, relinquishment or adoption must be recorded in the register within twenty-four hours after its occurrence.*

2. A semi-annual report, which shall be an exact transcript of this register, shall be made to the State Board of Charities and Corrections, 995 Market street, San Francisco, January 1 and July 1 of each year.

3. A detailed medical record of mothers' and infants' physical condition shall be maintained. (Sample forms provided by State Board of Charities and Corrections, upon request.)

4. It is recommended that all orders from physicians regarding mothers and infants be written in ink on charts or in order book.

5. It is recommended that attending physician examine mother and infant on day of discharge and attach signature to statements of findings.

6. All births and deaths must be reported promptly to the local authorities by the attending physician. (See Political Code, Section 3077, Chapter 378, Statutes 1915.)

Inspections.

The proprietor or person in charge of a maternity hospital shall give the inspectors of the State Board of Charities and Corrections all information required and shall afford them every facility for examining the records, inspecting the premises, and seeing the inmates, and inquire into all matters concerning such hospital or house and the inmates thereof.

Rules and Regulations Governing Maternity Homes.

(Class D.)

No private maternity home shall receive at any one time more than three patients. No other type of patient shall be cared for in this home. Delivery shall take place in a room with washable walls, ceilings and floors.

Granting and revoking license.

1. All maternity homes are required, in accordance with section 3, chapter 69, Statutes 1913, to secure the license of the State Board of Charities and Corrections, and to conform to the standards set by the board.

2. Application for license must be made on blanks furnished by the State Board of Charities and Corrections.

3. Every applicant must have the approval of the local board of health or health officer.

4. Every licensee shall post his license in a conspicuous place.

5. Any change of ownership, management, location or name shall be promptly reported to the State Board of Charities and Corrections. When any such change is contemplated an application for a new license shall be made. In such instance the new license may be granted on surrender of the license held.

6. No greater number of women and infants shall be cared for at one time on such premises than is authorized by the license and no women or infants shall be kept in a building or place not designated in the license.

Physical equipment.

1. All rooms occupied by patients shall be outside rooms and the window space shall not be less than one-fifth of the floor space.

2. The rooms shall be of sufficient size to allow not less than 800 cu. ft. of air space and 100 sq. ft. of floor space for each adult patient and 250 cu. ft. of air space for each infant therein. Ventilation shall conform with state housing laws.

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3. All plumbing, drainage and other arrangements for the disposal of excreta and household waste shall be in accordance with the rules and regulations of the State Board of Health and local health ordinances.

4. Toilets and hoppers shall be properly and adequately ventilated to the external air.

5. In order that the heating of all rooms shall be safe and adequate no gas stove shall be used which is not directly connected with an outside flue and all gas connections should be of metal piping.

6. Fire protection shall be according to the rules and regulations of the local fire commission or city ordinance and the rules and regulations of the State Board of Charities and Corrections. These standards will be furnished with the application.

7. There shall be sanitary equipment for thorough bathing of patients and infants.

8. An adequate supply of clean bedding, body linen and towels shall be kept on hand at all times.

A separate bed pan marked for use of individual patients is strongly advocated.

The following equipment shall be provided:

For delivery.

1. Suitable table or hospital bed for delivery.
2. At least three pitchers.
3. Two basins.
4. Two tubs or large basins for resuscitation.
5. One pail for waste material.
6. Ample supply of sterile dressings, towels, leggings, sheets.
7. Two nail brushes for doctor's use only; should be boiled before and after using and kept in a weak solution of bichloride of mercury, or lysol, in a glass jar.
8. All linen should be marked and kept separate for patients.
9. Wooden blocks 4 and 6 inches high shall be provided for use in case of hemorrhage, where surgical bed is not in use.
10. At the time of delivery plenty of hot and cold sterile water (boiled for 20 minutes).
11. Facilities for sterilizing instruments shall be provided.
12. The following supplies are recommended to be kept on hand: Fl. extract of ergot, lysol, bichloride tablets (blue), sterile cord tape and blunt scissors, nitrate of silver (1%), or argyrol, two pieces of linen tape.

For infant.

1. Separate cribs or baskets for babies—clean mattresses covered with rubber sheeting and clean flannel blankets are to be used.
2. Correct scales for weighing infants.
3. Nitrate of silver one per cent solution.
4. A tray or basket equipped with necessary articles to be used in dressing and caring for infants; to contain sterile gauze, absorbent cotton, medium and small safety pins, cotton applicators, bottle of alcohol, a bar of pure mild soap, a proper lubricant (albolene or olive oil), boric acid solution, pure powder, abdominal binder for infant.
5. If hot water bags are ordered by physician they must be covered with a flannel bag before being placed in the crib, and must not come in direct contact with the baby's body.
6. All nursing bottles and nipples must be boiled at least once a day, and individual nipples must be provided for each child.

For mother.

1. Clean piece of rubber sheeting for each patient's bed.
2. Individual bed pans marked with name of patient.
3. Metal douche cans instead of rubber irrigating bags.
4. Glass tips and nozzles—to be boiled before and after using and kept in lysol solution.
5. Clinical thermometers; to be washed in alcohol before and after using.

Care of patients.

1. This board urges the attendance of a legally qualified physician at all confinements. The law permits midwives to assist women only in cases of normal child

birth. (See Statutes 1917, Sec. 8, page 96.) In any but a normal case the midwife must immediately call a legally qualified physician.

2. The eyes of all new born infants shall be treated immediately after birth with a one per cent solution of nitrate of silver, two drops in each eye, or with other approved solutions and during the first few days cleansed daily with saturated boric acid solution. Ampoules of nitrate of silver solution may be obtained free of charge by charitable institutions upon application to State Board of Health, 713 Wells Fargo Building, San Francisco, or 821 Pacific Finance Building, Los Angeles.

3. Attention is called to Chapter 724, Statutes 1915, which requires the reporting of reddened or inflamed eyes of an infant, within two weeks after birth, to the local health officer of the county or municipality within which the mother of such infant resides.

4. If the child is kept in the home and is not breast fed by the mother, the feeding and selection of food, shall be under the direction of a registered physician. If a wet-nurse is provided, she shall meet the approval of the physician. Whenever advisable the mother shall be urged to nurse her child.

5. Any patients afflicted with a venereal or other communicable disease shall be properly isolated in a separate room and all necessary precautions taken to prevent the spread of such disease to other persons.

Disposal of child.

1. Attention is called to section 224 of the Civil Code in accordance with which a child not retained by the mother must be legally relinquished before it can be adopted. This relinquishment must be expressed in writing, signed and acknowledged before an officer authorized to take acknowledgments, or before the secretary of one of the organizations mentioned below. Before adoption can take place a copy of the relinquishments must be filed with the State Board of Charities and Corrections.

2. Attention is called to Chapter 569, Statutes 1911, providing for the supervision and control of the State Board of Charities and Corrections of the placing of dependent children into homes, which makes it a misdemeanor for any person, association or society to engage in the work of placing children into homes without a license from the State Board of Charities and Corrections. The following agencies have been licensed to place dependent children into homes and to arrange for adoption:

Berkeley Welfare Society, 2120 Grove street Berkeley.

Children's Home Society, 919 E. Twenty-fifth street, Los Angeles.

Children's Home Society (Branch), 3491 Sixty-sixth street, Oakland.

Catholic Ladies' Aid Society, City Hall, Oakland.

Oakland Associated Charities, City Hall, Oakland.

Little Children's Aid, 995 Market street, San Francisco.

Children's Agency of the Associated Charities, 1500 Jackson street, San Francisco.

Eureka Benevolent Society, 436 O'Farrell street, San Francisco.

Native Sons' and Daughters' Central Committee on Homeless Children, 955 Phelan Building, San Francisco, and 322 N. Van Ness avenue, Los Angeles.

3. Each licensee shall use due diligence to prevent the abandonment of the children, which is, according to sections 270-271 and 271a of the Penal Code, a penal offense.

4. A licensee shall not be permitted to advertise that he will procure the adoption of children or to hold out inducements to mothers to part with their offspring.

5. Maternity hospitals and homes shall report on the usual report forms to the State Board of Charities and Corrections within twenty-four hours the name and address of any person other than a parent or relative by blood or marriage, or the name and address of the organization or institution into whose custody a child is given on discharge from the licensed premises.

Records.

1. Every licensee must have a register wherein he shall enter the name and address of every maternity patient, the date of admission and discharge of every patient, the name and sex of every child born or boarded on the premises, the date of every birth, the legitimacy or illegitimacy of every child, the name and residence of the father, the date of removal of the child, the name and address of the person

taking it away, and, if relinquished by the mother, the date of relinquishment, the name and address of the person to whom the child is relinquished, and the reasons therefor; and if adopted, the date of adoption, the name of the person signing the consent of adoption, and the name and address of the person adopting the child. Every admission, discharge, birth, death, relinquishment or adoption must be recorded in the register within twenty-four hours after its occurrence.*

2. A semi-annual report which shall be an exact transcript of this register, shall be made to the State Board of Charities and Corrections, 995 Market street, San Francisco, January 1 and July 1 of each year.

3. A detailed medical record of mothers' and infants' physical condition shall be maintained. (Sample forms provided by State Board of Charities and Corrections, upon request.)

4. It is recommended that all orders from physicians regarding mothers and infants be written in ink on charts or in order book.

5. It is recommended that attending physician examine mother and infant on day of discharge and attach signature to statement of findings.

6. All births and deaths must be reported promptly to the local authorities by the attending physician. (See Political Code, Section 3077, Chapter 378, Statutes 1915.)

Inspection.

The proprietor or person in charge of a maternity home shall give the inspectors of the State Board of Charities and Corrections all information required and shall afford them every facility for examining the records, inspecting the premises, and seeing the inmates, and inquiring into all matters concerning such home or house and the inmates thereof.

3. *Agreement with State Board of Health.*

We believe another step forward in raising the standard of hospital maternity work in California has been effected through an agreement with the State Board of Health and this board. By this agreement the State Board of Health will cooperate with the Board of Charities and Corrections in enforcement of these standards in hospitals with accredited training schools for nurses. This arrangement will insure proper facilities for training nurses in obstetrical work and the care of infants.

This cooperation, we believe, will result in raising the standards for care of maternity cases and in lowering the rate of infant mortality.

4. *Disposal of Infants.*

The State Board of Charities and Corrections is primarily interested in the child that for any reason is denied the care and protection of its natural parents. For this reason any baby relinquished by its parents becomes a special responsibility. It is hoped that the requirement of the revised standards which makes it necessary to report to the board within twenty-four hours, the name and address of the agency or the person other than parent or near relative into whose care a child is discharged from the hospital or maternity home, will further safeguard the future of these unwelcome babies. These babies, many of whom are illegitimate, are frequently relinquished by their mothers and removed from the hospital very soon after birth. The conditions surrounding the birth and relinquishment of such infants make for careless and hasty placements, often with disastrous results to the child.

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It is to safeguard against such chances and to protect the child that this immediate report is required. In carrying out this program the board feels it can depend upon the cooperation of the superintendent of hospitals and maternity homes who more than anyone else must appreciate the dangers of the situation.

5. *Prenatal clinics.*

There is great need throughout the state for prenatal care.

Thirty-eight prenatal clinics were reported by county and city health officers and other health agencies. Thirty-two of them are in our three largest counties.

Los Angeles County has a prenatal clinic in each of its twenty-one county health centers.

San Francisco has eight prenatal clinics with the following hospitals or centers:

- Mary's Help Hospital.
- Stanford Clinics.
- University of California Hospital.
- Mount Zion Hospital.
- Children's Hospital, Out-Patient Department.
- San Francisco Polyclinic.
- Telegraph Hill Neighborhood Settlement.
- San Francisco City and County Hospital.

Alameda County has three prenatal clinics. One at the Baby Hospital, Oakland, one at the Berkeley Dispensary, and one at the Alameda City Health Center.

The following counties all have one prenatal clinic:

- Fresno County, at the County Hospital.
- Contra Costa County, with the Richmond Health Center.
- Riverside County, in connection with the Riverside City Clinic.
- San Bernardino County, at the County Hospital.
- San Diego County, in connection with the County Dispensary.
- San Mateo County, at the Mills Memorial Hospital.

VII. WORKING GIRLS' CLUBS.

There has been a growing demand on this board for the past two years for help with the problems presented by clubs for working boys and girls. These appeals have come in the main from Los Angeles and San Francisco. They have included requests for license, for a standard budget, for regulations governing the social activities of such clubs, and model building plans. In order to determine in what way, if at all, the state board could best serve these clubs, meetings were called of the representatives of the thirteen girls' clubs in San Francisco and twelve girls' clubs in Los Angeles for consideration of this question.

The result was a request from both groups for the state board to prepare standards covering the administration, financing, and social responsibilities of such clubs. These standards were to be based on a study of the clubs represented and to be submitted for discussion at a future meeting of the directors of these clubs. The study is still under way. It is already evident that a careful analysis of the work of these organizations will be helpful in solving some of their difficult problems.

The fact that these clubs are always filled to capacity demonstrates the need for safe and comfortable living quarters for the girl away from home and earning a small wage. The number of girls who could not be accommodated indicates that our larger centers of population require greater opportunities of similar kind to solve the problem of safely housing the girl and young women in business and industry.

The following data is compiled from the questionnaires filled out by the following San Francisco clubs:

Business Women's Inn.
 Emanuel Sisterhood.
 Girls' Friendly Lodge.
 Madam J. C. Walker Club.
 Mary Elizabeth Inn.
 Recreation Home Club.
 Saint Cecile.
 San Francisco Girls' Welfare Home.

These eight clubs have a capacity of 451 girls. They employ 38 people. Six clubs have adapted old buildings to their use. Two clubs have built their homes. Four clubs reported 2989 applicants whom they could not accommodate. The other clubs did not keep this record. Two of the clubs referred applicants not accommodated to homes on their room registry. One club referred to the Y. W. C. A. The others did not report action taken.

The charges range from \$2.65 a week for room and use of gas to \$10 for single room and board. In general, the range of charges is

\$5 to \$10 for single room and board.
 \$5 to \$8 for double room and board.
 \$5 to \$8 for three or more in a room and board.

Six clubs state they are self-supporting.

The age limit for entrance ranges from 14 to 18 years. The age limit for terminating residence is from 20 to 35 years.

The salary limit is \$50 in one club, \$75 in one club, \$100 in four clubs.

NOTE.

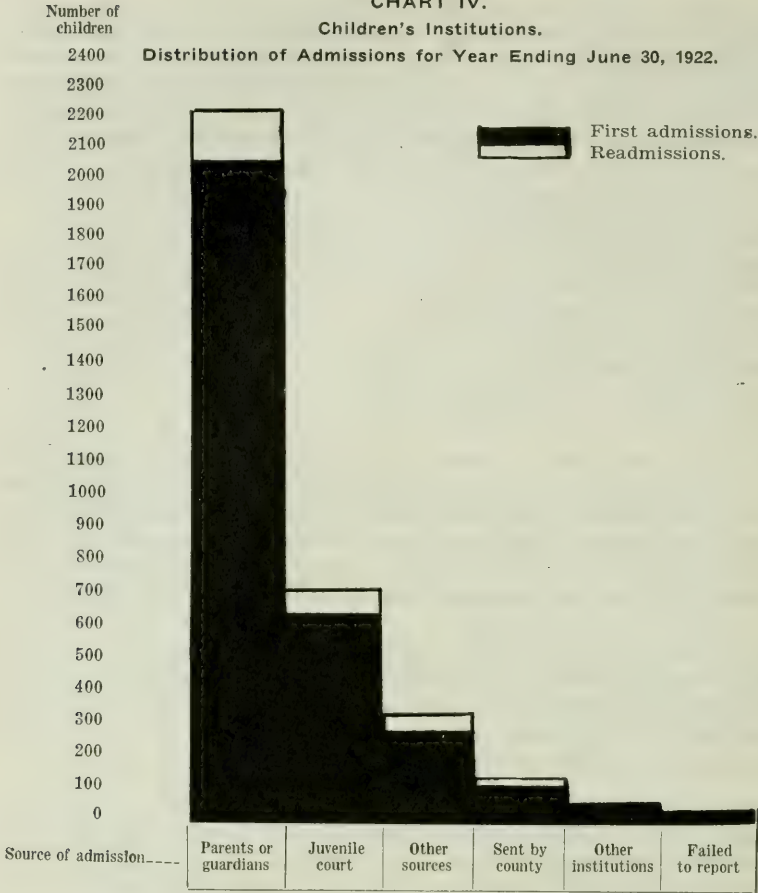
The following information concerning the children's work of this board will be sent to anyone upon request. Address State Board of Charities and Corrections, 995 Market Street, San Francisco, California.

Minimum standards for children's institutions, family boarding homes, maternity hospitals and homes, preventoria, detention homes, supervision of children in foster homes, and regulations for fire protection.

Samples of forms approved by the State Board of Charities and Corrections for social and financial accounting in children's institutions and agencies.

CHART IV.
Children's Institutions.

Distribution of Admissions for Year Ending June 30, 1922.



Number of Children Admitted.

From—	First admissions	Readmissions	Total admissions	Per cent of total
Parents or guardians	2102	168	2270	62.9
Juvenile court	672	54	726	20.1
Other sources	292	40	332	9.3
Sent by county	123	19	142	3.9
Other institutions	72	--	72	2.0
Failed to report	62	--	62	1.8
Total admissions	3323	281	3604	

Nearly two-thirds (62.9%) of the children admitted to institutions during the past year were entered by their parents or guardians. Eighty-five per cent (85%) of the institutional population had one or both parents living. The question at once arises as to whether many of these children should have been admitted to the institution in the first instance. There is universal agreement that normal children thrive best in the atmosphere of the normal family group. If for any reason a child can not remain with its parents or guardians, we believe every effort should be made to place it in a properly supervised boarding home, before it is placed in an institution. Institutions should be reserved for nonplaceable children or those requiring specialized care and treatment. Careful and complete investigation, we believe, is necessary to secure the care best suited to the individual development of each child.

The number of children in institutions June 30, 1922, was 5254. During the year, 3604 children were admitted and 3503 were dismissed. Approximately 70% of the children were in the institutions a year or less time. The institutional care, in the main, more closely resembles that of transient boarding places for children than that of a permanent home.

CHART V.

Children's Institutions.

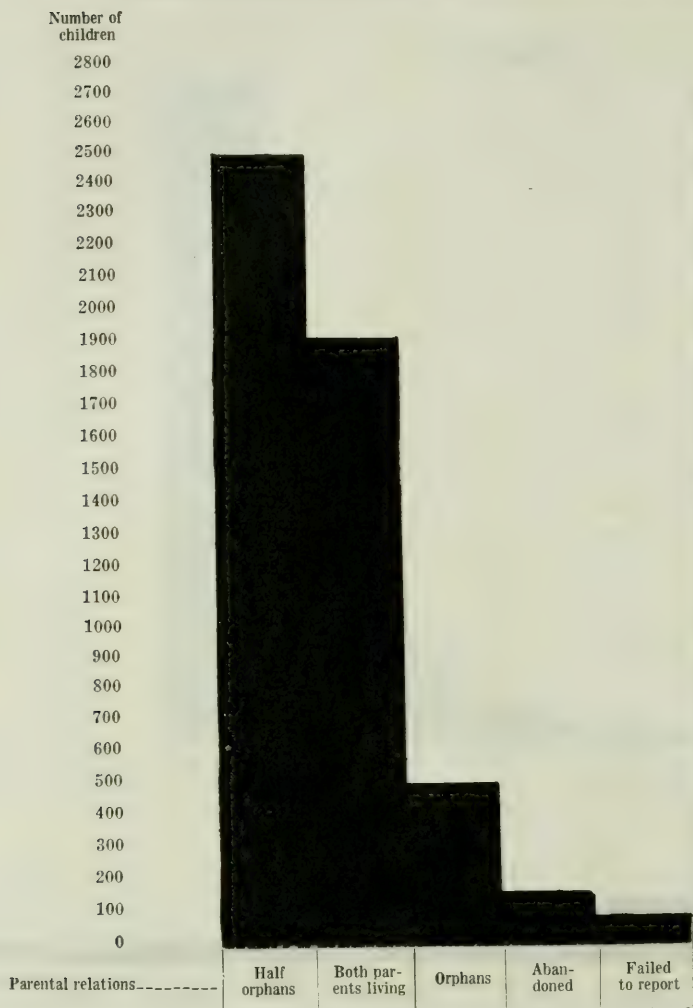
Distribution of Dismissals for Year Ending June 30, 1922.



Number of Children Dismissed.

		Per cent of total
To parents and guardians.....	2746	78.4
Juvenile court.....	196	5.6
Other institutions.....	145	4.2
Placed in service.....	105	3.1
Left without permission.....	99	2.8
Placed in free homes.....	65	1.8
Otherwise discharged.....	68	1.8
Died.....	36	1.1
Failed to report.....	43	1.1
Total number of dismissals.....	3503	

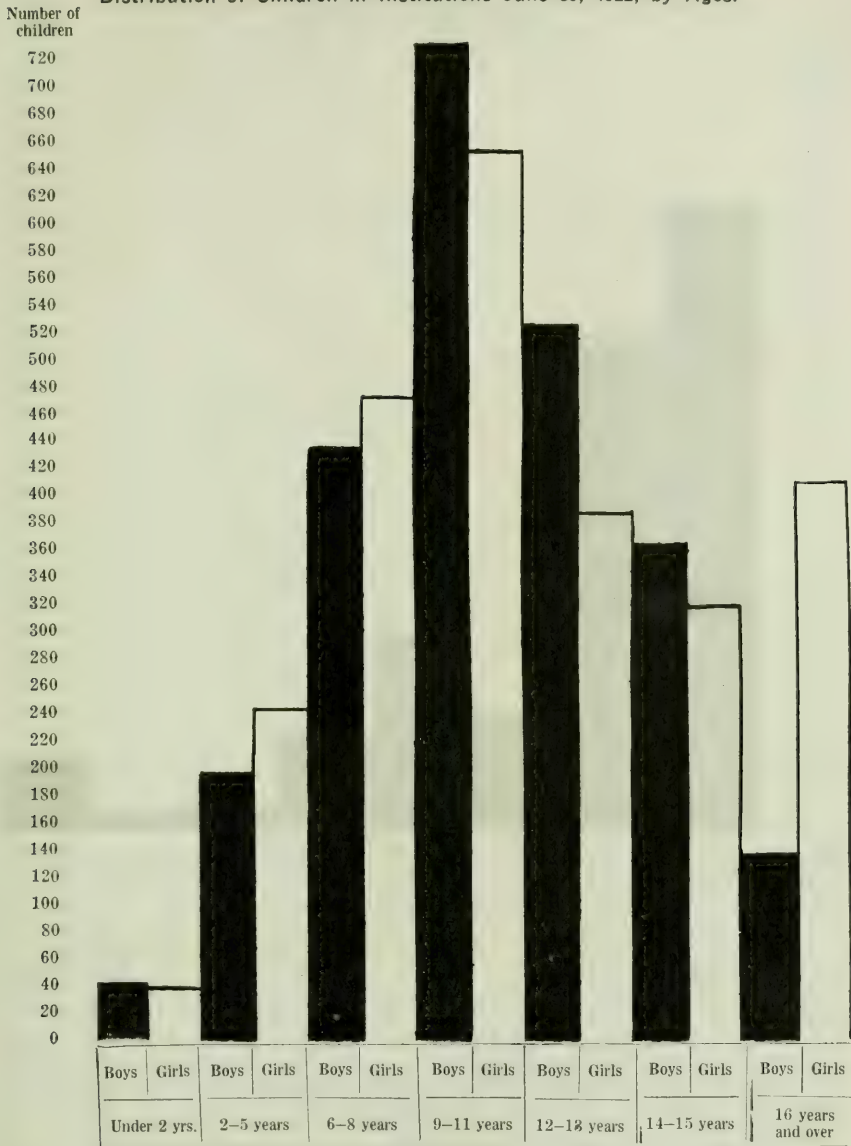
CHART VI.
 Children's Institutions.
 Parental Relations of Children in Institutions June 30, 1922.



Parental relations	Number of children	Per cent
Half orphans	2540	48.2
Both parents living	1946	37.0
Orphans	516	9.6
Abandoned	157	2.9
Failed to report	95	2.3
Total in institutions	5254	

CHART VII.
Children's Institutions.

Distribution of Children in Institutions June 30, 1922, by Ages.



Ages	Boys	Girls
Under 2 years	43	41
2 to 5 years	205	253
6 to 8 years	443	481
9 to 11 years	740	661
12 to 13 years	536	393
14 to 15 years	373	331
16 years and over	141	418
Ages not given	43	152
Totals	2524	2730

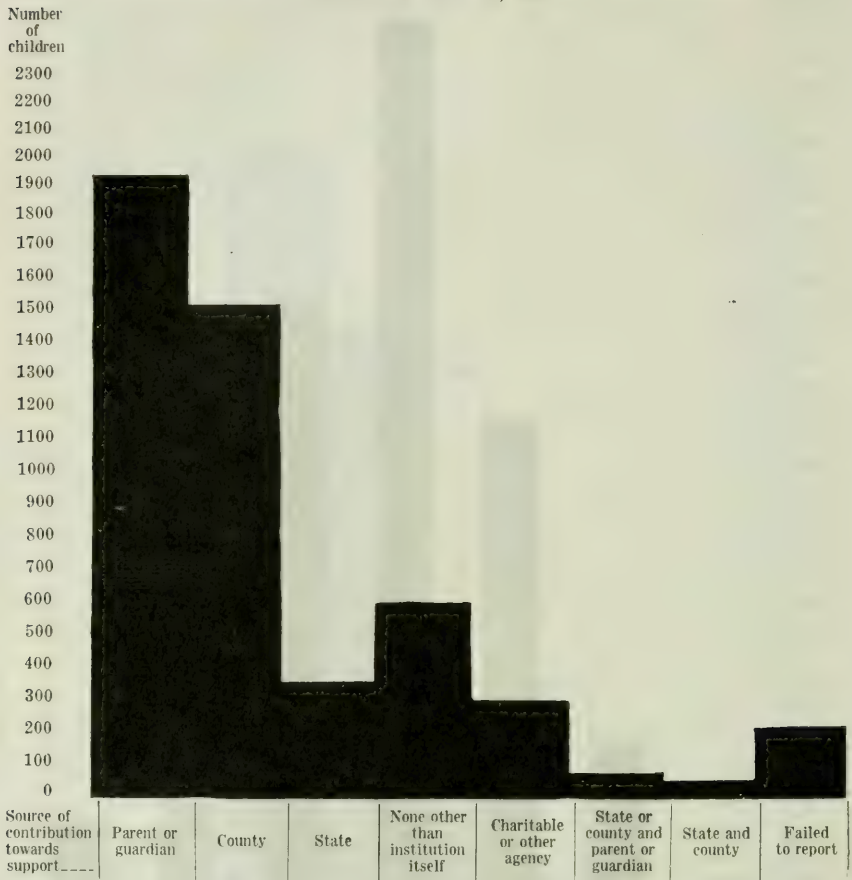
Of the children under two years of age, the majority are in institutions specializing in the care of infants and young children, such as the Castelar Creche in Los Angeles, which cares for undernourished children.

There are comparatively few boys 16 years or over; they have left the institutions to go to work. Of the girls 16 years and over, the greater number are in institutions caring for wayward and delinquent girls.

CHART VIII.

Children's Institutions.

Distributions of Contributions Towards Support of Children in Institutions June 30, 1922.



Source of contribution	Number of children	Per cent
Parent or guardian	1972	37.5
County	1569	29.5
State	372	7.0
None other than institution itself	611	11.5
Charitable or other agency	301	5.5
State or county, and parent or guardian	67	1.3
State and county	50	1.0
Failed to report	312	5.6
Total	5254	

CHART IX.

Children's Institutions.

Total Receipts, by Source of Income for Year Ending June 30, 1922.

Total Receipts for Year, \$2,080,348.62.

Private Subscriptions, Donations, Endowments.....	29.3%	\$609,779.32
Entertainments and Benefits.....	6.0%	\$124,956.38
Miscellaneous Sources	11.6%	\$241,452.11
Business Enterprise, Farms, Investments, Borrowed.....	14.1%	\$291,175.21
Parents and Guardians	19.9%	\$415,188.84
Public Aid, State, Counties, Cities.....	19.1%	\$397,796.76

Private contributions make up the largest single source of income to the institutions, accounting for over one-fourth of their incomes. While the parents or guardians contribute towards the support of 75% of the children in the institutions, their contributions make up approximately 40% of the total income of the institutions. As the sums contributed do not cover the cost of caring for the children in the institution, the remainder of the costs are met by private contributions, entertainments and benefits, business enterprise and miscellaneous sources.

CHART X.

Children's Institutions.

Distribution of Total Expenditures for Year Ending June 30, 1922.

Total Expenditures for Year, \$1,967,411.93.

Care and Subsistence.....	34.0%
\$668,910.17	
Administration and General Expense.....	30.8%
\$605,879.90	
Maintenance and Operation.....	19.6%
\$384,537.05	
New Buildings, Improvements, Investments	15.6%
\$308,084.81	

The following headings: Administration and General Expense; Maintenance and Operation; Care and Subsistence; New Buildings and Improvements, are prescribed for use by the State Department of Finance to insure uniform and comparable records. Under Administration and General Expense are included salaries and wages, expense of raising funds and all office expense. Under Maintenance and Operation are included light, heat, and power, rent, repairs, furniture and equipment, and farm expense. Under Care and Subsistence are included food, clothing, supplies of bedding, of school and medical articles and laundry.

There were 5254 children in the institutions June 30, 1922; the total of all children registered in the institutions in the course of the year was 8782. The total amount expended by the institutions during the year was \$1,967,411.93.

Of the \$605,879.90 spent for Administration and General Expenses, \$442,655.40 was for salaries and wages. Of the \$668,910.17 spent for Care and Subsistence, \$466,995.08 was for food.

REPORT OF COUNTY COMMITTEE.

Chairman, B. H. PRINDLETON.

County Agent, ESTHER DE TURBEVILLE.

- I. GENERAL SUMMARY OF POLICY AND WORK IN COUNTIES.
- II. COUNTY HOSPITALS.
 - A. Administration and service.
 - Organization of social and hospital work under one county body.
 - B. Buildings and equipment.
 1. New buildings in various counties.
 2. Improvements in old buildings.
 - C. Care of inmates.
 1. Separation of custodial from hospital patients.
 2. Care of aged custodials.
 3. Medical and nursing service.
 4. Maternity and children's wards.
 - Crippled children.
 5. Care of the dying and burial of the dead in county hospitals.
 6. Occupation and recreation for patients.
 7. Physical defectives in county hospitals.
 - D. Special studies made in certain county hospitals.
- III. COUNTY JAILS.
 - A. Buildings.
 1. New jail buildings in various counties.
 2. Improvements in old jail buildings.
 - B. Care of inmates.
 1. Existing laws affecting employment of prisoners.
 2. Medical examination and care of prisoners.
- IV. COUNTY OUTRELIEF AND WELFARE.
 - A. Organization of relief and welfare work under an unpaid county department of public welfare employing trained paid workers to handle relief and children's work; tendency in counties to include supervision of the county hospital under this county department of welfare appointed by the board of supervisors.
 - B. Provision for county welfare departments through county charters.
 - C. Installation of case records in county relief.
 - D. Publicity and communication by means of the county welfare letters.
 - E. Reprint of county ordinance creating a department of welfare.
- V. NEXT STEPS IN THE COUNTY WORK.

I. General Policy of the Board in County Work.

The relation of the State Board of Charities and Corrections to the county governments is outlined in the laws as cited below. But as a matter of fact it has become so closely identified with the social work in the counties that the feeling is more nearly akin to that of a central social agency where questions of investigation, standardization, organization, record keeping and institution planning are cleared. The act creating the State Board of Charities and Corrections (Statutes 1903, p. 482, amended 1911, p. 1334) names among its powers and duties the supervision of all charitable, correctional and penal institutions of the counties or cities and counties, investigation of all public moneys spent for relief, and passing upon building plans for all public institutions of such character or upon plans for repairs or alterations in such buildings. The state board also has the duty of prescribing forms of records and reports for county jails, county hospitals and systems of county outrelief (Stats. 1913, p. 682, and Stats. 1917, p. 444). Probation committees and probation officers must file with the State Board of Charities and Corrections copies of their annual reports (Stats. 1915, p. 1225, Juvenile Court Law).

Realizing that, in a last analysis, the development of social standards in a community is a local responsibility the state board has sought to encourage and organize local public sentiment to support and carry on

new movements which have been inaugurated. During the past two years, numerous conferences have been held with private groups and with county officials regarding the improvement of their county institutions. The chairman of the county committee and the county agent have met with boards of supervisors in various counties to urge certain changes and improvements in county hospitals, jails, and relief systems. County officials come frequently to the office of the State Board of Charities and Corrections for information or discussion. This growing tendency to refer to the state board all questions affecting county social work brings many visitors and many requests for advice and assistance. We feel that this indicates growing usefulness of the state board. Visits of inspection to the counties have been made as follows: to county hospitals 72, to county jails 41, to county detention homes 27, and to county relief or welfare offices 57. Detailed studies have been made of 14 county hospitals, 4 county jails, 7 county relief systems and 4 county detention homes. These intensive studies have been presented to the county boards in the form of written reports with recommendations for improved service. The detailed studies have been made at the request and with the cooperation of the county authorities.

Total inspection visits to counties-----	197
Total detailed surveys-----	29

A great many articles have been written for local and eastern agencies and journals on the subject of California's supervision of county institutions and county relief. Addresses have been given before clubs, social organizations, university students and other groups. The State Association of County Supervisors invited the chairman of our county committee to speak at their annual convention in Eureka, July, 1922, on the subject of "The Relation of the State Board of Charities and Corrections to County Social Work."

The county government is closest to the people, therefore it is a logical working unit in planning for state-wide improvement of social conditions. To superimpose standards upon local communities, depending upon outside inspiration and supervision from a state agency, would be expensive, ineffective and undemocratic. The county board of supervisors is the first circle of our legislative system. Above and around it is the state circle with its lawmaking body, the legislature. Beyond the state legislature is the national government. But the county board of supervisors determines the standard of education, health, morals and living conditions in the local communities. The moral code of the people is decided to a great extent by the character of the local courts and county laws. The very food of dependent children depends upon the high or low standard of the county government which is legally responsible for the maintenance of the sick and poor. Thousands of our young citizens do not go beyond the boundaries of their home county until they are grown men and women. It has seemed, therefore, to the State Board of Charities and Corrections that to raise the standard of the social work done by the county governments is the most far-reaching and enduring means of furthering social betterment in California. To this end it has been our object to cooperate with the county supervisors in the inspection and management of their charitable or correctional institutions and to establish

a friendly working relation with them. The response of the county officers to this desire for cooperation has been cordial and sincere. It is evident that they realize, as we do, that the problems of social service transcend the otherwise legitimate methods of party politics. It has been a pleasure to work with them in the organization and improvement of their county social institutions on the common ground of humanity.

The most effective means of reaching this plane of understanding has been the detailed county surveys made by our agents and the organization of county relief and welfare under County Departments of Welfare. This is discussed more in detail under the head of "County Outrelief and Welfare" further on in this report (p. 120). The county board of supervisors shares with the state, under our laws, the responsibility for care of dependent children. It also has the temporary care of delinquents and defectives pending their removal to state institutions. We have therefore a common interest in the prevention of poverty and delinquency and it is only when the state and the county work together that we can hope to solve these problems.

II. *County Hospitals.*

A. Administration and service.

Organization of the social and hospital work under one county body has been effected in several large counties, notably Alameda, Kern, Fresno and Madera. Similar policies are contained in county charter provisions in Sacramento, Butte and San Diego counties. This shows the tendency toward coordination of the health and the relief work. The County Hospital touches, from some angle, practically all the social activities in a community. Cases have been brought to our attention where members of one family have been scattered through the county hospital, the county jail, the county detention home and the county welfare office. To handle constructively, it was necessary to concentrate all knowledge and effort on these people as one family and to plan for their future with this fact in mind. The question of admissions and dismissals at the county hospital is a social one. The medical aspect of the case is the same whether the patient be rich or poor. The question of receiving pay patients in county hospitals has been given much serious attention during the past two years. In the smaller counties where the county hospital is a community hospital, the tendency is to make it the best hospital in the county. Admissions are graded according to the ability of the patient to pay, or, in some counties, according to the hospital cost.

Good equipment for hospital and laboratory is costly. By placing it in a publicly supported hospital, it is available for use by any physician. There are moot questions touching the county hospital as a community hospital and the best means of bringing serious thought to bear upon these questions is to have an organization like the County Welfare Department, composed of local men and women, who shall study them from all sides, taking into consideration the local circumstances.

B. Buildings and equipment.

The plans for all county hospital buildings must be submitted to the state board of charities and corrections before adoption (Stats. 1903, p. 482, amended Stats. 1911, p. 1334). Even before the plans are

drawn, it is customary for the board of supervisors to confer with the state board regarding the best type of institution suited to their county needs. In determining this point, the supervisors in many counties have formally requested the state board to make a study of their county hospital needs. These studies have been made by the staff of the state board and consultations had with recognized hospital experts in order to decide for the county in question upon the capacity, type of building, location and equipment of the proposed institution. Written reports with recommendations have been presented to the county supervisors with the findings of these hospital studies. Special attention has been called to the need for highest technical skill in the construction and planning of hospitals and the supervisors have been urged to appoint a "hospital consultant" to work with their architect. Frequent meetings with the county supervisors, local physicians, hospital experts and architects have been attended by the chairman of the county committee of this board and by the county agent, or the institutional agent. The new buildings noted below and the additions and improvements in old buildings have been undertaken after special investigations and studies were made by the agents of the State Board of Charities and Corrections.

1. *New buildings.*

General hospitals have been built or are in course of construction in the following counties, with all of which our state board is in close cooperation: Alameda, Kern, San Mateo, Ventura and Humboldt (tuberculosis).

New wards or buildings have been added to the following county hospitals during the biennium: San Diego, Los Angeles, San Joaquin, San Bernardino, Orange, Nevada, Sacramento and Fresno.

Proposed new hospital buildings are planned for the following counties: Santa Clara, Fresno, Trinity and San Bernardino will have additional wings or wards to existing institutions. Siskiyou, Madera, Santa Cruz, and Contra Costa will have new detached buildings.

2. *Improvements in old hospital buildings.*

Remodeling and alterations have been made in the following county institutions to improve housing and service conditions: Alameda, County Infirmary; San Diego, Mendocino, Kern and Modoc.

C. *Care of inmates.*

1. *Separation of custodial from hospital patients.*

In the larger counties there is a tendency to divide entirely these two classes of patients by means of separate institutions. This has been accomplished in Los Angeles, San Francisco, Santa Clara and Fresno counties where the old people are housed in buildings suitable for their care on County Farms or in Homes for the Aged. Alameda county will draw the line of cleavage between the hospital cases proper and the aged patients in that county as soon as the new Highland Hospital is completed, to which will be removed all the sick, leaving the old people on the County Farm at San Leandro. The need for this separation is recognized in many of the smaller counties where it is not possible to incur the expense of two institutions with their

double expense of administration; to meet this need of separation, detached buildings on the same grounds or additional wards in the congregate hospital are being provided in many counties. The mingling of the old people with medical and surgical patients is a hardship to all concerned. They require different types of buildings as well as different quality of care.

2. *Care of aged custodials.*

Certain conditions are required for adequate care of old people which may be provided without great expense or the building of monumental structures. Cleanliness (of persons and surroundings), warmth, comfortable beds and easy chairs, proper diet, inclines or easily-mounted stairs, and a recreational hall or assembly room; these are the essential features in a home for the aged. A due regard for such recreation and occupation as is suited to their years will add to the health and contentment of the inmates of such a Home. When an old person becomes ill or infirm from age, he should be placed under the care of a doctor and nurse. This is done usually in the infirmary ward or in the hospital proper.

3. *Medical and nursing service.*

It is to raise the standard of this part of the county hospitals' responsibility that so many counties are considering the improvement or replacement of their old county buildings. The old stigma of "the county" is being wiped off the record of California county hospitals. In some counties the word "County" is eliminated from the name of the hospital; in others the name is retained but made a title of credit instead of discredit. There are no finer hospitals in the State than some of the new county institutions. Training schools for nurses, staff of visiting physicians, organized nursing staff, clinics, social service departments,—these are some of the modern features in county hospitals. A good percentage of the hospitals approved by the American Medical Association, in California, are county hospitals. This means the entrance of internes into these hospitals, for the young physicians will come as soon as the hospitals are accredited. The new buildings which are being erected by the counties are provided with the newest and most approved equipment. In many counties these new hospitals are equipped to care for patients who can pay for their care. The basis of eligibility for admission is fixed according to local conditions. Some counties base it upon the ability of the patient to pay, others make a flat rate which covers the cost to the hospital. In rural counties where there are no private hospitals, the county institution is practically a community hospital.

4. *Maternity and children's wards.*

An increasing interest is noted in the proper care of maternity patients and sick children in the county hospitals. This interest is not confined to the county officials and the attending physicians but it is being discussed by women's organizations, men's clubs and private citizens. The Shriners are undertaking the stupendous task of constructing ten first-class hospitals in the United States for crippled children and equipping them with the latest modern apparatus, furnishing expert treatment, and admitting any needy child free of charge.

One of these hospitals for crippled children is being erected in San Francisco. For the sick child in the poor family or moderate-income family, the county hospital is the only means of receiving treatment. In one or two of our largest cities there are "Children's Hospitals" but only a small percentage of the children can be admitted.

In discharge of its legal duty of licensing maternity homes and hospitals, the State Board of Charities and Corrections has found that the county hospital is practically the only place where free maternity care can be secured by the ordinary mother. There are rescue homes for unmarried mothers where free care is given to a limited number of patients. However, the county hospitals have a larger number of unmarried mothers to care for than the rescue homes, and, in addition, give hospital care to thousands of married mothers. Many county hospitals are equipping maternity wards and single rooms where the woman from a moderate-income home may receive good hospital care and pay a reasonable rate which is within her means. To the average wage-earning man with a family, the expense of maternity care for his wife in a private hospital or even in her own home is an item of anxiety. Usually it means a burden of debt. To start the mother and baby in life with good health is a benefit to the community, and it is very fitting that the county hospital should assume that duty. The responsibility of the county to furnish proper maternity care is one than which none is more important. All of the new county hospitals recently erected or now in course of construction have modern maternity departments.

5. Care of the dying and burial of the dead in county hospitals.

As the result of a questionnaire sent out a year ago from this office to the counties, it was learned that many county hospitals fail to provide privacy for the dying by removal from a ward to a separate room. In some institutions, not even a screen around the bed was provided. Usually this indifference was found in the almshouse department, where a number of old men occupied one ward. When the objections were brought to the attention of the authorities, in most cases they responded by furnishing screens. In some instances where there are rooms available, the dying person is now removed from the ward. It is depressing to the other old people to hear and see an old companion die. In case there are relatives, it is most unhappy for them to be deprived of privacy. The rules of most institutions require that the grave shall be properly marked. The usual headstones erected in a hospital cemetery are unsightly. A method which is used in some counties and which is worthy of commendation is to mark the grave by a small slab of concrete on which are the necessary names, dates and facts. This slab being flat on the ground does not disfigure the landscape and answers every purpose of marking the grave.

6. Occupation and Recreation in County Hospitals.

The employment of aged custodial inmates in county institutions has been advocated by this board for the reason that it benefits the worker. A few hours each day devoted to labor suited to his physical strength, especially if it can be fitted into his past training or experience, brings contentment of mind and health of body to many old men in our county hospitals. Several institutions report their cabinet

work done by inmates who, in their stronger years, were carpenters or cabinet makers. Bookshelves, bedside tables, lockers, benches, stools and medicine cabinets are made by these men. They work slowly and at broken hours but their interest and pride in their own products mean much to the men themselves. It is also of value to the institution. Another group of old men take interest in gardening; both vegetables and flowers require constant care and it is a mutual advantage to the institution and to the man when this arrangement for garden work can be made. If, in addition to these immediate tasks, a teacher can be secured to instruct the old people or convalescent patients in the making of various articles it is a step to be commended.

Recreation includes library service which is rendered in most county institutions by the county library. In one or two of the larger counties, a library assistant visits the county hospital and almshouse regularly; a wheeled stand, resembling a teawagon, is taken through each ward or hall way and the books are given out and returned. Books which are loaned to tuberculosis wards or other communicable disease wards are not returnable. All books returned from the county hospitals are fumigated before being placed on the shelves. In addition to reading matter, music and dramatic entertainments are given by various community clubs; moving picture machines form a part of the equipment of the larger hospitals and almshouses and the mountain tuberculosis hospitals. Moving pictures are appreciated by many old people whose hearing is defective. Every county hospital which receives custodial patients should have a recreation room or assembly hall where the old people may read, smoke, hold entertainments and religious services.

7. Physical defectives in county hospitals.

No physically defective person who is otherwise in good health should be condemned to a useless life in an institution. Vocational training is now specialized to such a degree that there is something fitted to each person's needs. It has been appalling to find in county hospitals men who were consigned to the institution as helpless because they had lost arm, leg, or eyesight through some accident in their youth. Some of them are now too old for training but most of them have wasted many years in idleness in the institutions when they might have been earning a livelihood by means of special instruction in a new vocation. Los Angeles county has perhaps the best organized method for providing the handicapped with means of occupation. There is not space to tell of the equipment and accomplishments of the Los Angeles bureau for the handicapped but we invite the attention of other counties to its activities. It is conducted by the county for the rehabilitation of persons unable to earn their living by former occupation or unable to work regular hours on account of physical limitations. Not only does it relieve the county of the burden of their support, but it performs useful service, produces articles of merit and, best of all, the bureau restores self-respect and the spirit of independence to those who otherwise would be dependent.

D. Special studies made in certain county hospitals.

In response to local requests or complaints, special detailed studies have been made during the past biennium in the following county

hospitals: Los Angeles Psychopathic Hospital, Fresno General Hospital, San Diego, Sacramento, Orange, Kern, Santa Barbara, Butte, Merced, Mendocino, Madera, Sutter and Glenn county hospitals.

Written reports have been made of these surveys and copies submitted to the county authorities concerned. In most cases recommendations were included in the report. On the whole it has been gratifying to note that recommendations for improvements either in housing or service have been adopted by the counties and put into effect.

Studies are now being outlined in Siskiyou, Tulare, and Yolo counties. These are being made at the request of the county boards of supervisors, following inspections made by agents of the State Board of Charities and Corrections. These studies will cover facts concerning the present inmates of these county hospitals, general facts concerning health and dependency conditions in the counties, local resources and local needs. Based on the findings of these studies the county authorities may arrive at intelligent estimates of the hospital needs of their communities and the required capacity of new buildings for their county hospitals.

III. *County Jails.*

A. *Buildings.*

The State Board of Charities and Corrections is empowered to investigate all jails. It can require regular reports or special information. All plans for new buildings or alterations and additions to old buildings must be submitted to the state board for approval. All jails must keep register prescribed by the State Board of Charities and Corrections, (Stats. 1903, p. 482, amended 1911, p. 1334, amended Stats. 1913, p. 682). There have not been many new jail buildings erected in California in the past two years. Changes and additions have been made in some county jails to improve the housing and treatment of prisoners. The state board has not urged the construction of new jails because there is a new attitude now concerning the treatment of county jail prisoners. The legislature of 1921 enacted a measure which enables counties or groups of counties to establish county industrial farms to which may be committed misdemeanants or non-support prisoners. (Stats. 1921, p. 1615.) This may solve the question of the county jail to a large extent. The counties have been slow to avail themselves of this law but we hope that it will be put into effect during the next two years.

1. *New jail buildings.*

(a) Ventura County is building a new jail. The old building has been unsatisfactory to the local authorities as well as to the state board for several years. It was decided to change the location of the jail from the old courthouse block to the hillside back of the new courthouse.

(b) Orange County. Plans for a new county jail were submitted to the State Board and approved. Construction has been delayed on this jail, but it will probably go forward in the near future.

(c) Los Angeles County. This jail has been the subject of many investigations and complaints. It is always crowded. The people of the county have been for years looking toward a new jail building and this past year it was decided to build. Plans are being drawn but have not yet been submitted to the state board for approval.

2. *Improvements in old jail buildings.*

(a) Shasta County. After consultation with the sheriff, the county surveyor and the supervisors, plans were drawn and approved for a remodelling of this county jail. The new addition will provide for adequate segregation of prisoners and better housing of the women, insane and minors between 16 and 21 years of age.

(b) Alameda County. Investigation of a complaint regarding the provision for care of women prisoners resulted in a report with recommendations for improvements in that department of the jail. These improvements are being installed and will make the women's quarters conform to requirements.

B. Care of inmates in county jails.

The State Board of Charities and Corrections has always advocated some occupation, whether gainful or otherwise, for the prisoners in every penal institution. Enforced idleness is one of the worst features of our present method of treating offenders. Repression and idleness do not reform men. On the contrary, where prisoners are thrown together as they are in the modern cage-like cell block, the tendency is to lower their moral standard. The employment of county jail prisoners is provided for by law but very few counties avail themselves of this provision. Occupation and education are two important factors in the rehabilitation of prisoners. The jail as a place of punishment has failed to improve the men confined within it. It may have a more constructive effect if regarded as a place of education and work.

1. *Existing laws regarding employment of prisoners.*

(a) Penal Code, section 1613. "Prisoners confined in county jail under judgment of imprisonment rendered in a criminal action or proceeding may be required by an order of the board of supervisors to perform labor on public works or ways." * * *

(b) Political Code, section 4041, subdivision 29. "To provide for the working of prisoners confined in county jail under conviction of misdemeanor under the direction of some responsible person * * * upon public grounds, roads, streets, alleys, highways, or public buildings or in such other places as may be deemed advisable for the benefit of the county."

(c) California Statutes, 1921, p. 1615. "An act providing for the establishment and administration of industrial farms or industrial road camps in the counties of the state and the commitment thereto and discipline of persons charged with or convicted of public offenses." This law would seem to offer the best solution of the county jail problem. Not only is it possible to commit to the county farm the misdemeanant from the county jail but also it may receive the state prisoner who is convicted on the charge of nonsupport or neglect of a minor child. The earnings of such prisoners may be applied to the support of their dependents.

2. *Medical examination and care of prisoners.*

In response to a request for an investigation of the provision for medical care in the Los Angeles County Jail, the State Board of Charities and Corrections made a detailed study of conditions in that institution. A written report was made to the county authorities with recom-

mentations which were adopted. The recommendations included daily visit of physicians to the jail, medical examination of all prisoners on admittance, segregation until examined, equipment of hospital room, installment of records, and regular inspection of the sanitary and hygienic conditions of the jail. These recommendations might well be considered by all the larger counties maintaining jails of sufficient size to justify. In the smaller counties it has been found that sick prisoners are removed to county hospitals where they are attended by county physicians. Medical examination is not made unless the need for attention is plainly apparent.

IV. *County Relief and Welfare.*

A. **Organization of the relief and welfare work under an unpaid County Welfare Department or Commission employing trained paid workers to handle relief and children's work; tendency in counties to include supervision of the county hospitals under county welfare department appointed by the supervisors.**

The State Board of Charities and Corrections is given the power and duty of inspecting, passing upon plans, and prescribing records for all county institutions and public relief (Stats. 1903, p. 482; Stats. 1913, p. 682; Stats. 1917, p. 444). County boards of supervisors are required to investigate, visit and supervise all applicants for or persons receiving relief, to devise ways and means for restoring such persons to self-support and to keep such records of this work as are prescribed by the State Board of Charities and Corrections. They are empowered also under this act (Stats. 1917, p. 444,) to delegate the responsibility of this work to a person, a committee or a society whom they may authorize to do this service. It is under this act usually that the county departments of public welfare are organized, although, aside from this act, the board of supervisors has very elastic powers under the general laws "to provide for the care and maintenance of the indigent sick and dependent poor."

The most satisfactory and modern method of so providing, up to this writing, is found to be the county welfare department, consisting of five or seven members appointed by the board of supervisors. Two members of the board of supervisors are included in the membership of the department. Given certain powers and duties, either by ordinance or resolution of the board of supervisors, and equipped with a proper staff of one or more trained paid workers, this department takes hold of the dependency problems of the county in a businesslike manner. Modern casework methods are installed and efforts made to learn the extent of the county's burden and the causes therefor. The next step is rehabilitation. County relief in California, as in many other states, has meant too long a perfunctory giving of doles in the form of cash or groceries. The modern taxpayer wants to see a return on his money. County welfare department workers are proving that the best return on a county's investment of tax money is a healthy, self-supporting citizenry.

The establishment of county departments of public welfare composed of private citizens working in connection with the county government and authorized by that government to recommend the expenditure of county funds is consistently in accord with the policy of this state board concerning local responsibility for county work. The state board, by its knowledge of statewide conditions and methods acquired in the dis-

charge of its legal duty of inspection, is in position to set standards for institutional and out-relief work and to recommend certain methods of organization and case-work which have proved successful in other cities or counties. It is not possible, however, for the state board to carry on the detailed work in the counties on account of small staff and the expense of transportation over so large a field; and if it were possible to do so, there is grave doubt of the desirability of such a course. The state board assists in the inauguration of new movements in the community but the continuance and development of the work must depend upon local interest and local effort. This involves educational work in building up public sentiment to support progressive movements. But it is a foundation that endures and experience has proved that these local departments of welfare become centers of growth and social education in their communities.

In addition to the out-relief to the "dependent poor," many counties are now assigning to the county welfare departments, supervision over the county hospitals for the care of "indigent sick." Social service in the county hospitals is being developed. Progressive boards of supervisors who see the trend toward high-grade county hospitals are supported in their plans by the members of the county welfare department. These forward-looking counties are giving serious thought to the wider usefulness of their county hospitals in the future and are bringing to bear on their local problems all available information.

B. Provision for county welfare departments through county charters.

The demand for more constructive handling of the county funds expended for the indigent sick and dependent poor and the care of dependent children is widespread. In several counties boards of freeholders have been elected to draft county charters during the past two years. In some cases the tentative drafts have been defeated. But in almost every case there has been a demand for provision in the charter covering definite organization of the relief and hospital work of the county. We quote some of the outstanding counties where provision was incorporated in the county charter for county welfare administration:

1. *Alameda County.* Section 132 of proposed city and county charter reads as follows: "There is hereby created a Department of Public Health, Hospitals and Social Welfare. Said board shall consist of seven members who shall be appointed by the manager and who shall serve without compensation." Under this department is placed the administration and regulation of county hospitals, county relief and public health activities. Provision is made for a staff of trained workers who hold civil service status.

2. *Butte County.* Amendments to the existing county charter include a section creating a Department of Public Welfare as follows: "Article XI. There is hereby created a County Department of Public Welfare to be appointed by the board of supervisors and to serve without compensation." Provision is made for the membership and for a secretary and assistants who shall be chosen on the basis of training and fitness. The county hospital is placed under the supervision of this welfare department.

3. *Sacramento County.* Article VIII of the proposed county charter reads as follows: "There is hereby created a Board of Public Welfare which shall consist of seven members * * * who shall serve without compensation." This board is given charge of all funds expended for the care of the indigent sick and dependent poor including the county hospital and provision is made for a properly qualified staff of workers.

4. *San Diego County.* This county has a Department of Public Welfare appointed by the board of supervisors and now functioning satisfactorily. However, when the question of a county charter was raised there were some fears about its continuance. The feeling in the community was strongly in favor of the welfare department. Hence the board of freeholders included in their draft of the proposed county charter a section continuing the "Board of Welfare consisting of eight members, to be appointed by the board of supervisors and to serve without compensation; said board to have all the powers required to carry on this most important work * * * covering the charitable, correctional and public health activities of the country."

NOTE.—Alameda county and Sacramento county charters were not adopted.

C. Installation of case records in county relief.

The law provides for prescription of county records by the State Board of Charities and Corrections (Stats. 1917, p. 444). After consultation with the county officers, the state board worked out a minimum record system for cases of relief. This system includes a case history card, form of application for relief, investigation sheet, relief order and index card. The forms were printed and submitted to the counties for adoption. Since the formulation of these records (1917) they have been adopted in thirty-eight counties. Eight counties had previously installed satisfactory record systems and these were not changed except in some minor details to make them conform more closely to the prescribed forms. In many of the counties, however, although the printed record forms have been secured, they are not being used properly because the information necessary to fill out the case history is not available and there is no social worker to make the necessary investigation, and bring the records up to standard. The county agent of the State Board of Charities and Corrections has given personal assistance in bringing up these records in several counties.

Under the old county system, it was impossible to get even an estimate of the number of persons receiving county aid and no data were available on the cause of dependency or conditions existing in the family. Occasionally a county agitation would result in a spasmodic "investigation" of the county list of dependents but the work usually ended with one superficial inspection. Another favorite method of satisfying the tax payers was to cut off arbitrarily, at a given date, all of the persons receiving county aid; this necessitated a new application for each case and the claim for economy was made on the basis that there were usually some persons who failed to make a new application, thus the new list was apt to be shorter than the old list. Of course this method of cutting down relief expenditures risked great hardship to many old persons or children for whom no new claim was filed. Those who have worked with dependent families know that investigation is not an end; it is simply a beginning on which to base a plan for rehabilitation of the family or the individual. Records are important in the scheme for constructive work. No physician prescribes treatment until he has made a diagnosis.

D. Publicity and communication by means of the County Welfare Letters.

California is a big field and it is not possible for the county agent of the State Board of Charities and Corrections to visit the counties as often as we would like, therefore it has been our custom for the past two or three years to issue bi-monthly a "County Welfare Letter." This sheet, mimeographed in our office, goes to county officials, social workers, superintendents of county hospitals, boards of charities and

corrections in other states, California state boards which are interested in health or social activities, to leading newspapers and to many individuals who have requested that their names be placed on our mailing list. The original idea of the County Welfare Letter was to make it a medium of communication for our office and the county welfare departments or commissions throughout the state. Each issue contains a citation of the state laws, a decision of the attorney general or announcement of some state policy, and "County Notes," which contain items of happenings in various counties relating to social work. The newspapers usually print the local notes and the "American County" (official organ of the county supervisors) often prints the "Letter" in full. In this way each county learns what the neighbor county is doing in social welfare.

A typical issue of the "Letter" is here reproduced:

State Board of Charities and Corrections.

995 Market Street, San Francisco.
1110 Pacific Finance Bldg., Los Angeles.

County Department.

Chairman, B. H. Pendleton.
Agent, Esther DeTurbeville.
Agent, Mabel Weed.

COUNTY WELFARE LETTER NO. 10.

COUNTY CARE OF INSANE.

The State Board of Charities and Corrections has always advocated the care of insane and alleged insane patients in hospitals rather than in jails. The insane or psychopathic patient needs the care of a nurse not the supervision of a jailor. This policy is based upon the State law.

"The board of supervisors of each county and city and county must maintain in the county, or city and county, or in a receiving hospital situated therein, a suitable room or rooms for the detention, board, *care and treatment* of the alleged insane for a period of not less than one day nor more than twenty days." (Section 2167, Political Code.)

Statistics gathered last year show that while some counties are providing proper quarters in their county hospitals for this type of patients, many are still following the unsatisfactory custom of detaining them in jail. The facts at the time of collecting these data were as follows:

Counties using county jail for detention of insane.....	27
Counties using county hospital for detention of insane.....	25
Counties having no settled policy, using jail or hospital.....	2
Counties using state institution.....	1
Counties using emergency or detention hospitals.....	2
Counties maintaining special psychopathic hospital.....	1

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It is important to note that the law referred to requires that the county provide "care and treatment" as well as detention of the insane while awaiting commitment. Proper psychopathic treatment is not given in a jail. After commitment patients should be transported to State Hospitals in the care of trained attendants.

Counties which are planning new hospitals or improvements in existing hospitals should give careful thought to the matter of provision for care of the insane patients. The State Board of Charities and Corrections, which passes upon the plans for new buildings or alterations in county buildings, is glad to confer with county officials or their architects and is prepared to give advice which often will save the county time and money by having the plans conform to law as well as the latest approved construction.

COUNTY NOTES.

Los Angeles County is the only county in the State which maintains a special hospital for the care of psychopathic patients. Here they are detained for observation, receive care, treatment and examination. If it is decided to commit them to state hospitals, they are transported in care of trained attendants.

San Francisco County has cared for insane patients in the detention ward of the Emergency Hospital. This plan has been found unsatisfactory because of lack of proper equipment and treatment. The Board of Health contemplates, at the beginning of the new fiscal year, July 1, 1922, the establishment of a psychopathic ward in the fine new San Francisco County Hospital.

Orange County is adding a psychopathic ward to the county hospital so that insane or alleged insane patients will receive proper care and treatment there during detention.

Kern County is erecting a new and modern county hospital in which there will be provision for temporary care of the insane.

Alameda County will provide a department for care of psychopathic patients in its new \$2,000,000 Highland Hospital, which is the medical unit of its county institution.

San Mateo County—provision is being made for separate rooms in which care and treatment can be given to psychopathic and insane patients in San Mateo's new county hospital.

March, 1922.

E. Reprint of county ordinance creating a department of welfare.

In most counties the organization of the Welfare Department has been made by means of a county ordinance passed by the board of supervisors. In Alameda and Kern counties, however, this organization was effected by means of a resolution passed by the board of supervisors. A reproduction of a typical ordinance and also one of a county resolution creating a Welfare Department are given herewith.

ORDINANCE NO. 154.

An Ordinance Creating a Department of Public Welfare and Prescribing Its Powers and Duties.

The Board of Supervisors of Merced County, in the State of California, do ordain as follows:

Section 1. A department of county work is hereby created to be known as the County Welfare Department; said department shall consist of seven members to be appointed by the Board of Supervisors, two of whom shall be members of the Board of Supervisors. The members of the department shall serve without salary. The term of office shall be for a period of four years except as hereinafter specified, subject to the power of the Supervisors to remove for cause any member of the department.

Section 2. As soon as members of the department are appointed, they shall organize and divide their number by lot into three groups; the first group shall consist of two members, the second group of two members and the third group of three members. The term of office for the first group shall end on the first Tuesday after the first Monday in January, 1921; the term of office for the second group shall end on the first Tuesday after the first Monday in January, 1922; and the term of office for the third group shall end on the first Tuesday after the first Monday in January, 1923.

Section 3. When a vacancy shall occur in the department other than by expiration of term, the Supervisors, upon recommendation of the department, shall make an appointment for the unexpired term.

Section 4. Wherever in this ordinance the word "Department" is used it shall mean the County Welfare Department; the word "Board" shall mean the Board of Supervisors.

Section 5. The powers and duties of the Department shall be as follows:

(a) To appoint a secretary and such assistants as may be necessary to carry on the work of the Department. The secretary shall be the executive officer of the Department in charge of the work and shall not be one of the members of the Department. The salaries of the secretary and assistants shall be fixed by the Department, subject to confirmation by the Board, and shall be allowed by the Board, together with necessary expenses, in the usual manner of such claims.

(b) To investigate, determine and supervise the giving of relief to persons applying for county aid and to devise ways and means of restoring them to self-support where possible.

(c) To co-operate with the county hospital, county almshouse and the county jail and to assist the heads of those departments in matters of social service and investigation.

(d) To investigate, determine and supervise the family homes where children may be boarded; the standards of investigation, record and care to be in accord with those required by the State Board of Charities and Corrections with which Board cooperation shall be maintained; for the purpose of carrying out the provisions of this section the Department shall be authorized to receive children on commitment from the Juvenile Court under section 8 of the Juvenile Court law.

(e) To cooperate with the Juvenile Court, the Probation Officer and Probation Committee.

(f) To maintain through its paid secretary a moderate system of records on the county relief cases according to forms and methods prescribed by the State Board of Charities and Corrections as provided in Statutes of California, 1917, p. 444. These records may be used as a confidential exchange by charitable and welfare organizations of the county to prevent overlapping of work.

(g) To act as a co-ordinating agency for all relief and other welfare agencies and societies of the county which care to avail themselves of the services of the Department.

(h) To co-operate with the State, County and City health authorities in advancing and maintaining standards of housing, sanitation and other preventive health measures.

(i) To assist with the State welfare work when possible and to utilize the information and services furnished by the State Board of Charities and Corrections, the State Board of Health, the State Board of Education, the State Industrial Accident Board, the State Industrial Welfare Board, the State Commission of Housing and Immigration, the State Bureau of Labor Statistics and such other State agencies as may be called into the county work.

Section 6. Applications for relief made to the Board or to any member thereof shall be referred promptly to the Department for investigation and recommendation.

Section 7. The Department shall file with the Board monthly a report of work done and shall render for the Board's approval a statement of relief claims against the county with the list of additions, deductions and changes; the Department shall also file monthly with the Board a statement of expenses incurred in the usual manner of such claims.

Section 8. The Department shall make all needful rules and regulations for the transaction of its business.

Section 10. All ordinances and parts of ordinances in conflict herewith are hereby repealed.

RESOLUTION.

Whereas, The increasing volume and growing complexity of the business of Kern County compel its Board of Supervisors from time to time to create new administrative agencies in order that the services rendered to the people may continue efficient and effective, and

Whereas, Both from the survey of county institutions and social work, made at the request of the Board of Supervisors by the State Board of Charities and Corrections, and from independent information of the Board of Supervisors itself, it appears that the future needs of such institutions and such social work will be served best by delegating to a special department of county work acting under the Board of Supervisors the right of recommendations touching the administration and direction of such county institutions and the rights of investigation, supervision and rehabilitation of county dependents (Stats. Cal. 1917, p. 444); therefore be it

Resolved, That—

Section 1. A department of county work is hereby created, to be known as the "Kern County Institution and Welfare Department." Said department shall consist of nine members to be appointed by the Board of Supervisors, two of whom shall be members of the Board of Supervisors. The term of office of each member shall be four (4) years except as hereinafter specified. The members of the department shall serve without salary.

Section 2. As soon as the members of the department are appointed, they shall be divided by lot into three groups. The term of office for the first group shall be two years, the term of office for the second group shall be three years, and the term of office for the third group shall be four years.

Section 3. Whenever a vacancy shall occur in the department, it shall be filled by the Board of Supervisors.

Section 4. Whenever in this resolution the word "department" is used it shall mean the Department of Institutions and Welfare; the word "board" shall mean the Board of Supervisors.

Section 5. The department shall resolve itself into two committees, as follows:

(a) An Institution Committee, composed of three members, which shall have supervision over the county hospitals, the county infirmary, and all activities carried on therein; the committee shall make rules and regulations to improve and regulate such institutions and activities, the conduct and efficiency of the same, and to carry out the other purposes of this resolution.

(b) A Social Service Committee, composed of six members, which shall have supervision over all matters relating to county relief, children's welfare and other county social work.

All matters coming before the department referring in essence and principle to the county institutions or allied activities shall be referred to the Institution Committee. All matters coming before the Department referring in essence and principle to the county relief and social work shall be referred to the Social Service Committee.

Section 6. The powers and duties of the department shall be as follows:

(a) To appoint a secretary and such officers as may be deemed necessary to carry on the work of the department; the salaries of such secretary and officers shall be fixed by the department subject to the approval of the board; to appoint a director of health and hospitals, who shall carry out the policies of the department as outlined by the Institutions Committee; such director may be the superintendent of the county hospital and direct the clinics and other public health work of the county.

(b) To investigate, determine and supervise the giving of relief to persons applying for county aid and to devise ways and means of restoring them to self-support where possible.

(c) To investigate all applications for admission to the county hospitals.

(d) To maintain a modern system of records on the county relief cases in accordance with forms and methods prescribed by the State Board of Charities and Corrections as provided in Statutes of California, 1917, p. 444.

(e) To investigate all charities dependent upon public appeal or general solicitation for support and to file its report thereon with the board, a copy of such report to be filed with the State Board of Charities and Corrections.

(f) To cooperate with the Juvenile Court, probation committee and probation officer upon request.

(g) To investigate, determine and supervise family boarding homes where children may be boarded; the standards of investigation, care and record to be in accord with those required by the State Board of Charities and Corrections. For the purpose of carrying out the provisions of this section the department may be authorized to receive children on commitment from the Juvenile Court under section 8 of the Juvenile Court Law.

(h) To act as a coordinating agency for all relief and welfare agencies and societies in the county which may care to avail themselves of the services of the department.

Section 7. Applications for relief made to the board or to any member thereof shall be referred promptly to the department for investigation and recommendation thereon.

Section 8. The department shall file with the board monthly a full report of all work done, with recommendations, and shall render to the board for its approval a statement of all relief claims against the county with list of persons receiving aid; it shall render also a report on the administration and conditions in the county institutions, with recommendations.

Section 9. The department shall recommend to the board the duties of and terms of compensation for employees in the county institutions under its supervision.

Section 10. The Department shall make all needful rules and regulations for the transaction of its business.

Section 11. This resolution shall take effect July 1, 1921.

V. *Next steps for California counties.*

1. Organization of an unpaid public welfare department or commission in each county, employing trained paid workers, handling all county social work.

2. Trained workers in the employ of every county.

(a) Relief and children's agents, under direction of welfare department.

(b) Hospital superintendents and employees under direction of welfare department.

(c) Health officers.

(d) Probation officers.

(e) Detention Home officers in counties maintaining such homes.

3. Development of boarding-out system of supervised foster homes for children, under the welfare department.

4. Extension of county health service.

(a) County hospital accommodation for patients who can pay a minimum rate for care.

(b) Outpatient department.

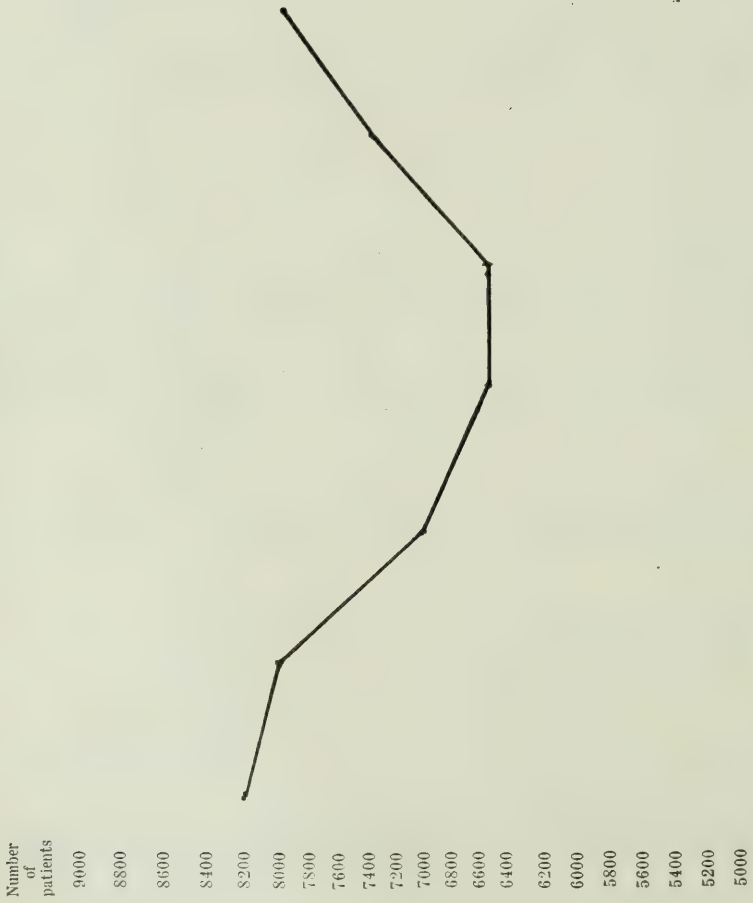
(c) County clinics.

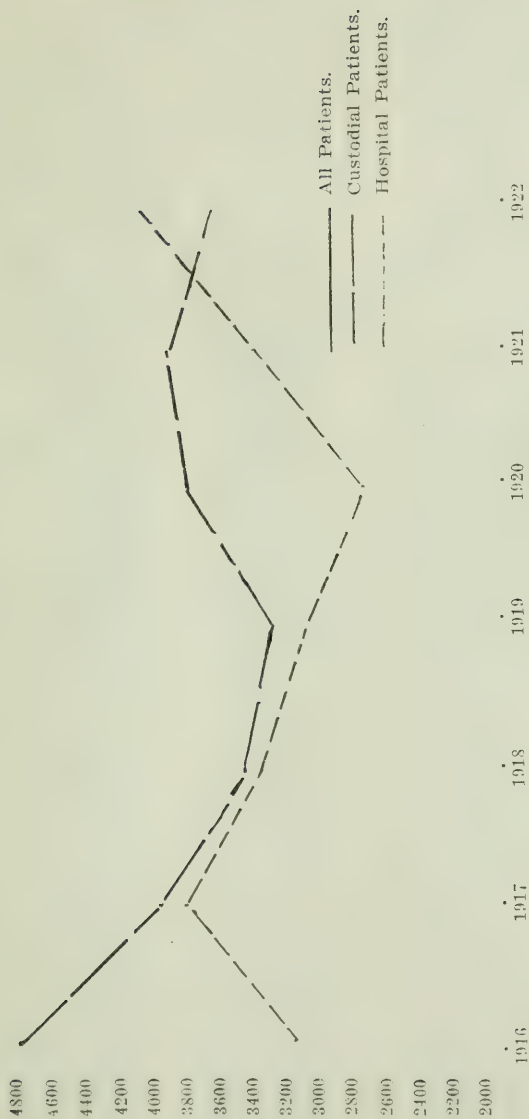
(d) County nurses for clinical and home visiting service.

(e) Medical examination and treatment of county jail prisoners.

5. Humane care of the insane awaiting examination and commitment.
 - (a) Provision for their detention in hospitals instead of jails.
 - (b) Prompt examination and informal court hearing.
 - (c) Transportation by trained attendants.
6. Employment of prisoners.
7. Cooperation in charitable, correctional and health work.
 - (a) Between agencies in the same county.
 - (b) Between counties.
 - (c) Between county and state agencies.

CHART XI.
County Hospitals—Fluctuations in Population, 1916-1922.





Year	All patients	Custodial Hospital patients
1916	8160	3236
1917	7903	4872
1918	6994	3881
1919	6570	4022
1920	6230	3572
1921	5875	3492
1922	8074	3182

FLUCTUATION OF POPULATION IN COUNTY INSTITUTIONS.

It will be noted that while the number of custodial patients in county hospitals has decreased, the number of hospital patients (medical and surgical) has increased. Taken in connection with the item "Permanence of patients," which shows a decrease in the number of patients in county hospitals, it does not mean that there are more sick persons in the communities, but it does mean that they are receiving more attention. It tells the story of better provision for hospitalization, which was needed sadly in many counties. Better equipment for the care of maternity patients and for sick children are two features which show the trend toward preventive work by social and public health agencies. The standards of medical and nursing care in county hospitals are improving steadily. (See Report of County Committee.)

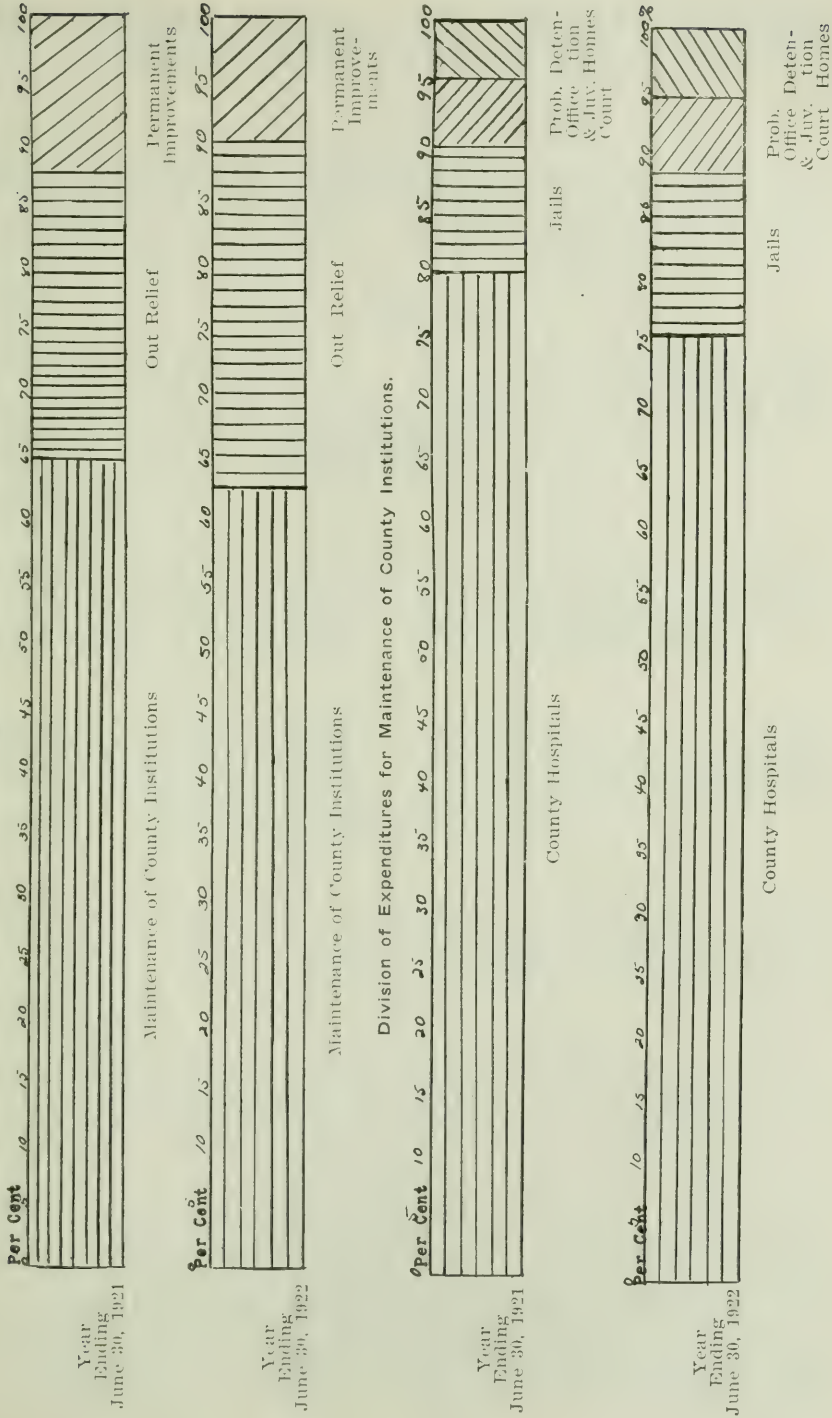
CHART XII.
County Jails—Fluctuations in Population, 1916-1922.

Number
of
prisoners
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900

1916 1917 1918 1919 1920 1921 1922

	Prisoners
1916	1590
1917	1306
1918	1560
1919	1386
1920	1006
1921	1701
1922	1768

CHART XIII.
Distribution of County Expenditures for Charities and Corrections for Years Ending June 30, 1921, 1922.



County Expenditures for Charities and Corrections.

	Year ending June 30, 1921	Year ending June 30, 1922	Per cent	Per cent
Total expenditures for charities and corrections.....	\$9,427,455 91	\$10,120,235 34	100	100
Maintenance of county institutions.....	6,034,490 58	6,303,593 77	---	---
County hospitals.....	4,837,956 53	5,011,144 73	51.3	49.5
County jails.....	502,626 76	636,200 81	5.3	6.2
Probation office and Juvenile Court.....	388,315 20	344,604 81	4.1	3.4
Detention homes.....	305,592 15	317,643 42	3.3	3.2
Out relief.....	2,265,984 02	2,811,608 84	24	27.8
Prisonment improvements.....	1,126,981 31	1,005,092 73	12	9.9

LAWs DIRECTLY AFFECTING THE WORK OF THE STATE BOARD OF CHARITIES AND CORRECTIONS.

I.

Statutes of 1903, page 482, as amended by Statutes of 1911, page 1334. An act to create a State Board of Charities and Corrections, prescribing its duties and powers, and appropriating money therefor, approved March 25, 1903, as amended by act approved May 1, 1911.

II.

Statutes of 1911, page 1087. An act providing for the supervision and control by the State Board of Charities and Corrections of the placing of dependent children into homes and for the supervision of all societies or organizations engaged in such work and known as children's home finding societies.

III.

Statutes of 1913, page 73. An act to provide for the licensing, inspecting, and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children by the State Board of Charities and Corrections.

IV.

Penal Code, Sec. 1203, subdivision (j) (as amended in 1917). Relating to the probation of persons convicted for crime, and requiring the probation officer to file a copy of his semiannual report with the State Board of Charities and Corrections.

V.

Statutes of 1913, page 682. An act making it the duty of the State Board of Charities and Corrections to prescribe forms of record for the use of county hospitals and almshouses, county jails, and city prisons.

VI.

Statutes of 1915, page 1225. The Juvenile Court Law, which requires the probation committee of each county to file a copy of its annual report with the State Board of Charities and Corrections.

VII.

Statutes of 1917, page 444. An act making it the duty of the county boards of supervisors to investigate every application for relief, to supervise persons receiving relief from county funds, and to keep records of such investigation, supervision, relief, and rehabilitation as shall be prescribed by the State Board of Charities and Corrections, and making it the duty of the State Board of Charities and Corrections to prescribe forms for the use of supervisors in keeping such records.

VIII.

Civil Code, Sec. 224 (as amended in 1917). Relating to persons whose consent is necessary to the adoption of a minor child, and requiring that when a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections prior to the commencement of any adoption proceedings.

1.

An act to create a state board of charities and corrections, prescribing its duties and powers, and appropriating money therefor.

(Approved March 25, 1903, Stats. 1903, p. 482, as amended by act approved May 1, 1911, Stats. 1911, p. 1334, as amended by act approved May 26, 1915, Stats. 1915, p. 847.)

Personnel of board; term of service.

SECTION 1. A state board of charities and corrections is hereby created of six members, to be appointed by the governor, with the advice and consent of the senate, not more than three of whom shall be of the same political party. Such members shall hold office for a period of four years and until their successors are appointed and qualified; *provided*, that the terms of the three members who were appointed February 17, 1908, shall expire February 17, 1912, and the other three terms shall expire February 17, 1914, and thereafter the terms of three members of said board shall expire on February 17 of each even numbered year. Women may be appointed members of said board or hold any position in the appointment of said board. No person shall be appointed a member, or continue to act as such, while he is a trustee, manager, director, or other administrative officer of an institution, subject to the provisions of this act. Appointments to fill vacancies before the expiration of such terms shall be for the residue of terms in the same manner as original appointments. The governor shall be ex-officio a member of said board.

Board unpaid; appointment of secretary; organization for work.

SEC. 2. The members of said board shall act without compensation, but shall be allowed their actual necessary expenses. The said board may appoint a secretary and such other employees as it may deem necessary to carry out the provisions of this act, and shall determine their salaries. The secretary of said board shall execute a bond in the sum of five thousand (\$5,000) dollars, and take the oath of office prescribed by the Political Code for the executive officers of this state. The board shall provide itself with an office in the city and county of San Francisco. Meetings of the board may be held at such times and in such places in the State of California as said board may deem fit. It may make such rules and orders for the regulation of its own proceedings as it may deem necessary, and may fix the number of members necessary to constitute a quorum. The failure of a member to attend three consecutive meetings of said board during any calendar year, unless excused by formal vote of the board, may be construed by the governor as a resignation of said nonattending member.

Powers and duties: To investigate, examine and report on all charitable, correctional, and penal institutions of the state, counties, cities and towns; to prescribe forms of record and report for above institutions; to criticize and make suggestions on plans for new buildings or parts of buildings for above institutions.

SEC. 3. The board is hereby empowered and authorized, and it shall be its duty as a whole, or by committee, or by its secretary, or other agent whom it may authorize, to investigate, examine, and make reports upon the charitable, correctional, and penal institutions of the state, including the state hospitals for the insane, of the counties, cities and counties, cities, and towns of the state, and such public officers as are in any way responsible for the administration of public funds used for the relief or maintenance of the poor. All the persons or officers in charge of or connected with such public institutions, or with the administration of said funds, are hereby required to furnish to the board or its committee or secretary such information and statistics as they may request or require, and allow said board, committee, or secretary free access to all departments of such institutions and to all of their records. In order to secure accuracy, uniformity, and completeness in such statistics and information, the board may prescribe such forms of report and records by the state commission in lunacy regarding the state hospitals for the insane and by such other officers, boards, or institutions as it may deem necessary,

and also such forms of registration at all public institutions referred to in this section as it may require. The state commission in lunacy, on behalf of the institutions under its charge, and the officers of all other institutions, and all officers in any way responsible for public funds used for the relief of the poor or the maintenance of any inmates of said public institutions, are hereby required to follow such forms, records, and registration so prescribed; *provided*, that the intent of this law is that, so far as possible, the board shall make use of the forms of report, record, and registration now obtaining in the state commission of lunacy and other state boards and institutions. All plans of new buildings, or parts of buildings for any of the public institutions coming under the provisions of this section, or any additions or alterations in such buildings, shall, before their adoption by the proper officials, be submitted to the board for suggestions and criticism.

To subpoena witnesses within county; to swear witnesses; penalty.

SEC. 4. The board shall have power to issue compulsory process to compel the attendance of any witness before said board or any member thereof, and to require the production of such books or papers relating to any public institution mentioned in section three of this act as they may deem necessary; *provided*, that no witness shall be required to attend before said board out of the county in which he resides. Any member of said board shall have power, and he is hereby authorized to administer an oath to any and all witnesses coming before said board, or any member thereof, for examination, and to examine such witness or witnesses in reference to any matter relating to public institutions mentioned in section three of this act appertaining to the inquiry before the board, or said member. Disobedience of a subpoena issued by said board, or refusal to be sworn, or to answer, shall subject such person disobeying or refusing to a forfeiture of one hundred dollars, to be recovered in a civil action brought in a court of competent jurisdiction by said board in its name as plaintiff, the money recovered to be appropriated to the use of said board.

To investigate all state aid for dependent children.

SEC. 5. The board is hereby empowered and authorized, and it shall be its duty as a whole, or by committee, or by its secretary, to investigate, examine, and make reports upon all institutions or persons receiving any state aid for the care of orphan, half-orphan, abandoned or dependent children, and may prescribe forms of record thereof to be kept, and require reports thereof.

Penalty for refusing information.

SEC. 6. Any public officer, superintendent, manager or person in charge of any said public institution, or with the administration of said funds, who refuses or neglects to furnish said board, its committee or secretary, the information and statistics which they may request or require shall be subject to a forfeiture of fifty dollars, to be recovered as provided in section four of this act for disobedience of a subpoena.

To act in response to request from governor.

SEC. 7. No provision in this act contained shall in any way be construed as preventing the governor of this state from making a plenary investigation in reference to the conduct of any public institutions under the terms of any act of the legislature of this state. Furthermore, the governor may at any time order an investigation by the board, or by a committee of its members, of the management of the above-named institutions, or any thereof.

To report to governor.

SEC. 8. Two months prior to each regular session of the legislature, the board shall make a full and complete report to the governor of all its transactions during the preceding two years, showing fully and in detail all expenses incurred and moneys paid out by it, and giving a list of all officers and agents employed, and the actual condition of all institutions under its supervision, with such suggestions as it may deem necessary and pertinent, and with recommendations for legislative and executive action.

Limitation of powers.

SEC. 9. The provisions of this act shall not apply to the Veterans' Home of California, located at Yountville, Napa County, nor to the Woman's Relief Corps Home at Evergreen, Santa Clara County.

SEC. 10. All acts and parts of acts in conflict with the provisions of this act are hereby repealed.

II.

An act providing for the supervision and control by the state board of charities and corrections of the placing of dependent children into homes and for the supervision of all societies or organizations engaged in such work and known as children's home finding societies.

(Approved April 24, 1911; Stats. 1911, p. 1087.)

Unlawful to place dependent children without permit.

SECTION 1. It shall hereafter be unlawful for any organization, society, or persons to engage in the work of placing dependent children into homes in this state without first obtaining a permit therefor, duly executed in writing, from the state board of charities and corrections.

Powers of board: To investigate, regulate and make rules for persons placing children; to require reports.

SEC. 2. The said state board of charities and corrections may investigate, or cause to be investigated, the books, records, and methods of such organizations, societies, or persons, and the disposition of the children coming into their custody; and it may make such rules and regulations as it may deem best for the government and regulation of such societies or persons, and may require such reports as it may desire.

To revoke permit for cause after hearing.

SEC. 3. The said state board of charities and corrections is hereby authorized and empowered to withdraw and cancel any permit to engage in the work of placing children into homes for any failure to observe the rules and regulations established for their government, or the failure to report as required, or for any failure on their part to perform their work as required by the best interests of the state, but no permit shall be canceled or withdrawn without due notice and hearing.

Child-placing without permit a misdemeanor.

SEC. 4. It is hereby made a misdemeanor for any person or persons, either as individuals or officers of any association or society, to engage in the work of placing children into homes, or the soliciting of funds therefor, in this state without a permit duly executed in writing by the state board of charities and corrections, authorizing said persons or such association or society to engage therein, or to engage in such work after any permit has been canceled.

State aid orphanages exempted from provisions of this act.

SEC. 5. This act shall not be construed as applying to any regularly established orphan home or any officer or official thereof acting for or on behalf of such home receiving aid from the state for the care of orphans, half-orphans or abandoned children in any effort such institution or its officers may make to procure the adoption into homes, or any officer or official thereof acting for or on behalf of such home of any such children.

SEC. 6. This act shall take effect immediately.

III.

An act to provide for the licensing, inspecting and regulating of maternity hospitals or lying-in asylums, and institutions, boarding houses and homes for the reception and care of children, by the state board of charities and corrections, and providing a penalty for the violation of the provisions of this act.

(Approved April 23, 1913; Stats. 1913, p. 73. In effect August 10, 1913.)

Unlawful to maintain maternity hospital or place for the reception and care of children without license.

SECTION 1. No person, association, or corporation shall hereafter maintain or conduct in this state any maternity hospital or lying-in asylum where females may be received, cared for, or treated during pregnancy, or during or after delivery; or any institution, boarding house, home, or other place conducted as a place for the reception and care of children, without first obtaining a license or permit therefor, in writing, from the state board of charities and corrections, such permit or license once issued to continue until revoked for cause after a hearing.

Board to issue licenses.

SEC. 2. The state board of charities and corrections is hereby authorized to issue licenses or permits to persons or associations to conduct maternity hospitals, lying-in asylums, or homes for children, as provided in section one of this act, and to pre-

scribe the conditions upon which such licenses or permits shall be granted, and such rules and regulations as it may deem best for the government and regulation of maternity hospitals, lying-in asylums and institutions, boarding houses, or homes for the reception and care of children, and said board is further authorized, by one or more of its members, secretary, or duly authorized representative, to inspect and report upon the conditions prevailing in all such institutions.

Penalty for violation.

SEC. 3. Any person who maintains or conducts, or assists in maintaining or conducting as manager or officer, any maternity hospital, lying-in asylum, or any institution, boarding house, home, or other place conducted as a place for the reception and care of children, or who keeps at any such place any child under the age of twelve years, not his relative, apprentice, or ward, without first having obtained a license or permit therefor in writing, as provided in section one of this act, shall be punished upon conviction by imprisonment in the county jail for not more than one year, or by a fine not to exceed five hundred dollars, or both a fine and imprisonment may be imposed at the discretion of the court.

IV.

Relating to the probation of persons convicted of crime and requiring the probation officer to file a copy of his semiannual report with the state board of charities and corrections. Penal Code, Sec. 1203, sub. (j).

Probation officer to furnish copy of semiannual report to secretary of board.

Every probation officer, within fifteen days after the thirtieth day of June, and within fifteen days after the thirty-first day of December, of each year, shall make in writing and file as a public document with the county clerk a report to the superior court of the county or city and county in which such probation officer is appointed to serve, and shall furnish a copy of such report to each judge in said county or city and county who has released any person on probation who at the time of such report remains on probation; and a further copy to the secretary of the state board of charities and corrections. Such report shall state, without giving names, the exact number of persons, segregating male and female, and segregating misdemeanors and felonies, who have been released on probation to such probation officer as such number exists, deducting all cases of expiration, discharge, dismissal, and restoration of rights, on said thirtieth day of June and said thirty-first day of December; and such report shall further segregate such persons as having been released on probation, as the case may be, in one thousand nine hundred three, one thousand nine hundred four, one thousand nine hundred five, and so on up to and including the calendar year in which such report is made and filed.

V.

An act making it the duty of the state board of charities and corrections to prescribe forms of record for the use of county hospitals and almshouses, county jails, and city prisons; and authorizing such board to furnish such records; and making the neglect or failure on the part of superintendents and jailers in charge thereof to keep such records a misdemeanor.

(Approved June 11, 1913: Stats. 1919, p. 682. In effect August 10, 1913.)

Board to prescribe forms of record for county hospitals and almshouses, county jails, and city prisons.

SECTION 1. It is hereby made the duty of the state board of charities and corrections to prescribe forms of record for the use of the superintendents of county hospitals and almshouses, and jailers in charge of county jails and city prisons, in keeping the records of persons received into or discharged from such county hospitals, almshouses, jails, and city prisons.

Board may furnish forms.

SEC. 2. Books of record for the records so prescribed by said state board of charities and corrections may be printed at the expense of said board and furnished to such county hospitals and almshouses, county jails and city prisons, at the cost thereof.

Failure to keep prescribed record a misdemeanor.

SEC. 3. It shall be the duty of the superintendent in charge of any such hospital or almshouse and the jailer in charge of any such jail or city prison to keep the records prescribed by the state board of charities and corrections as fully and completely as possible, and any such superintendent or jailer who neglects and fails to keep the records thus prescribed shall be guilty of a misdemeanor.

VI.

An act to be known as the juvenile court law, and concerning persons under the age of twenty-one years; and in certain cases providing for their care, custody and maintenance; providing for the probationary treatment of such persons, and for the commitment of such persons to the Whittier State School and the Preston School of Industry, the California School for Girls, and other institutions; establishing probation officers and a probation committee to deal with such persons and fixing the salary thereof; providing for the establishment of detention homes for such persons; fixing the method of procedure and treatment or commitment where crimes have been committed by such persons; providing for the punishment of those guilty of offenses with reference to such persons, and defining such crimes; and repealing the juvenile court law approved March 8, 1909, as amended by an act approved April 5, 1911, and as amended by an act approved June 16, 1913, and all amendments thereof and all acts or parts of acts inconsistent herewith.

(Approved June 5, 1915; Stats. 1915, p. 1225.)

* * * * *

Copy of annual report of probation committees to be filed with state board.

SEC. 17b. The juvenile court, or the judge thereof, may at any time and upon request of the county board of supervisors shall require said probation committee or the probation officer to examine into the qualifications and management of any society, association or corporation, other than a state institution, receiving, or applying for, any ward of the juvenile court and to report thereon to the court; *provided*, that nothing in this section shall be construed as giving any probation officer or probation committee any power to enter any institution without the consent of such institution but in the event that such consent is refused, commitments thereto shall not be made. It shall be the duty of each probation committee to prepare each year one or more reports in writing on the qualifications and management of all societies, associations, corporations and institutions, except state institutions, applying for or receiving any ward of the juvenile court from the courts of their respective counties, and in such report said committee may make such suggestions or comments as to them may seem fit; such report shall be filed for the information of said court with the clerk of the juvenile court appointing such committee. The probation committee shall also make to the court an annual report to be filed as a public document prior to the first day of December, copies of which shall be filed with the county board of supervisors and the state board of charities and corrections. It shall be the duty of the probation committee to exercise a friendly supervision and visitation over the wards of the juvenile court when so directed by the court, to furnish the court information and assistance whenever required upon the request of the court and from time to time, to advise and recommend to the court any change or modification of the order made in the case of a ward of the juvenile court as may be for the best interests of such person. Upon request of the judge any member of the probation committee shall investigate the case of an alleged ward of the juvenile court coming under the provisions of this act, and render a report thereon to the judge. The probation committee shall also have the control and management of the internal affairs of any detention home or branch detention home heretofore or hereafter established by the county board of supervisors; and it shall be the duty of said board of supervisors to provide for the payment of such employees as may be needed in the efficient management of such detention home or branch detention home or homes.

* * * * *

VIII.

An act to provide for the maintenance and support, in certain cases, of indigent, incompetent, and incapacitated persons, other than persons adjudged insane and confined within the state hospitals, becoming a public charge upon the counties or cities and counties within the State of California, and for the payment thereof into a fund for the maintenance and support of such persons.

(Approved March 23, 1901; Stats. 1901, p. 636. Amendment approved May 14, 1917; Stats. 1917, p. 444.)

* * * * *

Duty of supervisors to investigate applications for relief; to supervise persons receiving relief; to keep records; may delegate duties.

SEC. 5. It shall be the duty of the board of supervisors of every county and every city and county as a whole, or by committee or by such person or society as it may authorize, to investigate every application for relief from the funds of such county or city and county, to supervise by periodic visitation every person receiving such relief, to devise ways and means for bringing persons unable to maintain

themselves to self-support and to keep full and complete records of such investigation, supervision, relief and rehabilitation, as shall be prescribed by the state board of charities and corrections.

* * * * *

Duty of board to prescribe records for above.

SEC. 10. It shall be the duty of the state board of charities and corrections to prescribe forms of records for the use of board of supervisors and their agents in keeping records heretofore mentioned.

IX.

Relating to persons whose consent is necessary to the adoption of a minor child, and requiring that when a child has been relinquished by its parents for the purpose of adoption, a copy of the relinquishment must be filed with the state board of charities and corrections prior to the commencement of any adoption proceedings. Civil Code, sec. 224.

(Approved May 19, 1917.)

Consent necessary for adoption; exemptions.

A legitimate child can not be adopted without the consent of its parents if living, nor any illegitimate child without the consent of its mother if living, except that consent is not necessary in the following cases, to wit:

From parent if deprived of civil rights.

1. From a father or mother if deprived of civil rights.

From a parent adjudged guilty of cruelty or adultery.

2. From a father or mother adjudged guilty of adultery or cruelty and for either cause divorced.

From parent judicially deprived of custody and control.

3. From a father or mother who has been judicially deprived of the custody and control of such child on the ground of abandonment, cruelty, neglect or habitual intemperance, either by order of the juvenile court declaring said child to be free from the custody and control of its parents as provided in the juvenile court law of the State of California, approved June 5, 1915, and any act or acts superseding or amending same, or by order of the juvenile court of the county, where such child was left in the care and custody of another by its parent or parents, without any provisions for its support, for the period of one year, determining such child to be an abandoned child as defined in said juvenile court law; *provided, however*, that said juvenile court shall never make such order of abandonment without first giving notice of said abandonment proceeding by personal service of citation or other court process on the parent or parents or person having the custody of such child residing within the state, if their residence is known, and also such other or further notice to said parent or parents or person having the custody of such child, or other person or persons as the court may require, or by order of any other court of competent jurisdiction.

From parent declared feeble-minded or insane.

4. From a father or mother who has been declared either feeble-minded or insane by the state commission in lunacy or by three competent persons appointed by said commission; *provided*, that if so declared insane, said father or mother shall have subsequently been determined to be incurably insane by the superior court of the county where he or she resides.

From parent abandoning child without means of identification.

From a father or mother of any child deserted by its parents without provision for their identification.

From parent relinquishing child for adoption when relinquishment is filed with board.

From a father or mother of any child relinquished by its parent or parents for the purpose of adoption expressed in writing signed and acknowledged by such parent or parents before an officer authorized to take acknowledgments, or signed by such parent or parents before two subscribing witnesses and acknowledged by such parent or parents before the secretary of any organization or society engaged in the work of placing dependent or deserted children into the homes in this state, which organization or society has obtained a permit therefor, duly executed in writing, from the state board of charities and corrections, and when a copy of this relinquishment shall have been filed with the state board of charities and corrections prior to the commencement of any adoption proceedings affecting such child.

Procedure for adoption in cases where consent is not necessary.

Any child, the consent of whose parents is not necessary for its adoption within the meaning of this section maintained by or in the custody of any orphan asylum within this state, any charitable organization or society receiving state aid or receiving commitments from the juvenile court, may be adopted with the consent of the president of such orphan asylum, charitable organization or society, or with the consent of such officer as may be authorized by the directors or managers of such asylum, organization or society to consent to adoption in such cases. Any orphan child for whose support no provision has been made by any person for a period of one year, but who has been maintained during said year, by or in the custody of any orphan asylum within this state, any charitable organization or society receiving state aid or receiving commitments from the juvenile court may be adopted with the consent of the president of such orphan asylum, charitable organization or society or with the consent of such officer as may be authorized by the directors or managers of such asylum, organization or society to consent to adoption in such cases.

INDEX OF LAWS.**Adoption.**

When a child has been relinquished by its parents or guardians for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections before adoption can be completed. Civil Code, Sec. 224.

Charitable institutions.

Public charitable institutions shall be investigated by the State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; plans for new buildings must be submitted to S. B. C. and C. Stats. 1911, p. 1334.

Child-placing agencies.

Must hold the license of the State Board of Charities and Corrections. Stats. 1911, p. 1087; S. B. C. and C. may require reports from. Stats. 1911, p. 1087; S. B. C. and C. may regulate. Stats. 1911, p. 1087.

Children's homes.

Licensed by State Board of Charities and Corrections. Stats. 1913, p. 73; regulated by S. B. C. and C. Stats. 1913, p. 73; subject to inspection by S. B. C. and C. Stats. 1913, p. 73.

Children's institutions.

Licensed by State Board of Charities and Corrections. Stats. 1913, p. 73; regulated by S. B. C. and C. Stats. 1913, p. 73; subject to inspection by S. B. C. and C. Stats. 1913, p. 73.

City prisons.

Plans for new buildings or additions to buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records are prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

Correctional institutions. (See Public institutions.)**County almshouses.**

Plans for new buildings or additions to buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County boards of public welfare.

Must file a copy of all reports to their supervisors with the State Board of Charities and Corrections. Stats. 1915, p. 339.

County detention homes.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records and reports may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County hospitals.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by the S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County jails.

Plans for new buildings must be submitted to State Board of Charities and Corrections. Stats. 1911, p. 1334; records shall be prescribed by S. B. C. and C. Stats. 1913, p. 682; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

County out-relief systems.

Records must be prescribed by State Board of Charities and Corrections. Stats. 1917, p. 444.

Day nurseries.

Inspection, license, and regulation by State Board of Charities and Corrections. Stats. 1913, p. 73.

Hospitals.

Hospitals having maternity departments must be licensed by State Board of Charities and Corrections. Stats. 1913, p. 73.

Institutions.

Public charitable, correctional and penal institutions shall be investigated by State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by the S. B. C. and C. and plans for new buildings must be submitted to S. B. C. and C. Stats. 1911, p. 1334.

License.

Agencies which place children in homes must have a permit from the State Board of Charities and Corrections. Stats. 1911, p. 1087. Children's institutions, children's homes, homes which receive and care for children, day nurseries, maternity hospitals, lying-in asylums, hospitals must be licensed by the S. B. C. and C. Stats. 1913, p. 73.

Lying-in asylums.

Must be licensed by the State Board of Charities and Corrections. Stats. 1913, p. 73; inspection and regulation by S. B. C. and C. Stats. 1913, p. 73.

Maternity hospitals and homes.

Must be licensed by the State Board of Charities and Corrections. Stats. 1913, p. 73; inspection and regulation by S. B. C. and C. Stats. 1913, p. 73.

Penal institutions. (See Public institutions.)**Plans for new buildings.**

Must be submitted to State Board of Charities and Corrections by all public, charitable, correctional, and penal institutions. Stats. 1911, p. 1334.

Prisons. (See Public institutions.)**Probation committees.**

Must file copy of annual report with State Board of Charities and Corrections. Stats. 1915, p. 1225.

Probation officers.

Must file copy of semiannual report with State Board of Charities and Corrections. Penal Code, Sec. 1203, Sub. (j).

Public institutions.

Public charitable, correctional and penal institutions shall be investigated by State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. for county almshouses, county hospitals, county jails, and city prisons. Stats. 1913, p. 682; for county out-relief systems. Stats. 1917, p. 444.

Records.

May be prescribed by State Board of Charities and Corrections for all public charitable, correctional, and penal institutions. Stats. 1911, p. 1334; shall be prescribed by S. B. C. and C. for county almshouses, county hospitals, county jails, and city prisons. Stats. 1913, p. 682; for county out-relief systems. Stats. 1917, p. 444.

Relinquishment.

Copy of relinquishment of a child by its parent or guardian for the purpose of adoption must be filed with the State Board of Charities and Corrections before adoption can be completed. Civil Code, Sec. 224.

Reports.

State Board of Charities and Corrections may require from child-placing agencies, Stats. 1911, p. 1087; from all public charitable, correctional, and penal institutions,

Stats. 1911, p. 1334; must be filed with the S. B. C. and C. by county boards of public welfare. Stats. 1915, p. 339; annual reports of probation committees must be filed with S. B. C. and C. Stats. 1915, p. 1225; probation officers must file copy of semiannual report with S. B. C. and C. Penal Code, Sec. 1203, Sub. (j).

State Home for the Adult Blind.

Plans for new buildings must be submitted to the State Board of Charities and Corrections. Stats. 1911, p. 1334; records may be prescribed by S. B. C. and C. Stats. 1911, p. 1334; S. B. C. and C. shall investigate. Stats. 1911, p. 1334.

State Home for the Feeble-minded.

Same as above.

State hospitals for the insane.

Same as above.

State prisons.

Same as above.

State reformatories.

Same as above.

STATE BOARD OF CHARITIES AND CORRECTIONS.

Statement of Expenditures for Period July 1, 1920, to June 30, 1921, Seventy-second Fiscal Year.

	Materials and supplies	Salaries and wages	Service and expense	Property and equipment	Total.
Administrative and executive:					
Board members			\$1,701 07		\$1,701 07
Secretary		\$3,600 00	700 11		4,300 11
Clerical	\$424 83	4,771 48	509 36	\$379 31	5,984 98
Express and cartage			30 52		30 52
Postage			388 64		388 64
Printing			202 20		202 20
Rent			1,472 64		1,472 64
Telephone and telegraph			786 89		786 89
Totals	\$424 83	\$8,371 48	\$5,691 23	\$379 31	\$14,866 85
Child welfare	\$6 05	\$8,887 10	\$1,572 46		\$10,465 61
Institutional welfare:					
State institutions		\$1,144 42	\$527 63		\$1,672 05
City and county institutions		458 14	360 04		818 18
Totals		\$1,602 56	\$887 67		\$2,490 23
County welfare		\$4,072 88	\$1,197 83		\$5,270 71
Social research:					
Special surveys		\$150 68			\$150 68
Statistics	\$7 58	470 28	83 65	\$6 45	487 96
Library			12 60	5 70	16 50
Totals	\$7 58	\$620 96	\$16 25	\$10 15	\$654 94
Total expenditures	\$438 46	\$23,754 98	\$9,365 44	\$380 46	\$33,748 34
Salaries and expense appropriation, seventy-second fiscal year					\$29,530 55
Emergency Resolution No. 63					3,067 00
Emergency Resolution No. 87					1,150 78
Total expenditures				\$33,748 34	\$33,748 34

STATE BOARD OF CHARITIES AND CORRECTIONS.

Statement of Expenditures for Period July 1, 1921, to June 30, 1922, Seventy-third Fiscal Year.

	Materials and supplies	Salaries and wages	Service and expense	Property and contingent	Total
Administrative and executive:					
Board members			\$1,238 52		\$1,238 52
Secretary		\$3,600 00	788 16		4,388 16
Clerical	\$817 16	6,176 43	685 71	\$554 62	8,233 92
Express and cartage			58 17		58 17
Postage			626 74		626 74
Printing			361 80		361 80
Rent			2,544 00		2,544 00
Telephone and telegraph			810 29		810 29
Totals	\$817 16	\$9,776 43	\$7,113 39	\$554 62	\$18,261 60
Child welfare		\$11,500 23	\$2,394 91		\$13,895 14
Institutional welfare		\$1,836 01	\$1,113 38		\$2,949 39
County welfare		\$2,826 93	\$1,271 76		\$4,098 69
Social research:					
Library			\$3 00		\$3 00
Publication—biennial			712 60		712 60
Totals			\$715 60		\$715 60
Total expenditures	\$817 16	\$25,939 60	\$12,609 04	\$554 62	\$39,920 42
Appropriation for support seventy-third and seventy-fourth fiscal years, Chap. 905-1715					\$90,000 00
Total disbursements, seventy-third fiscal year				\$39,920 42	
Unexpended balance				50,079 58	
				\$90,000 00	\$90,000 00

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REPORT

OF

The Adjutant General

OF THE

State of California

For the Period November 17, 1914, to June 30, 1920



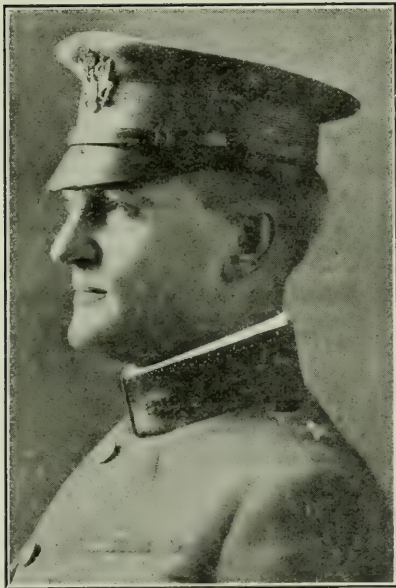
CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1922



GOVERNOR WILLIAM D. STEPHENS
Commander-in-Chief, California National Guard.

THE ADJUTANT GENERAL'S OFFICE.

BRIGADIER GENERAL JAMES J. BORREE-----The Adjutant General
HOWARD S. MCINTIRE-----Chief Clerk
JACOB ALEXANDER -----Clerk
JOHN F. SHERBURN -----Clerk
ALICE M. COUGHLIN-----Stenographer and Clerk
J. L. HENDERSON-----Military Storekeeper
PETER RONNING-----Assistant Military Storekeeper and Porter



BRIGADIER GENERAL JAMES J. BORREE
The Adjutant-General of California.

LETTER OF TRANSMITTAL.

STATE OF CALIFORNIA,

THE ADJUTANT GENERAL'S OFFICE,

SACRAMENTO, November 20, 1920.

Honorable WM. D. STEPHENS,

Governor and Commander-in-Chief.

YOUR EXCELLENCY: I have the honor to transmit to you report of the activities of this office during the period of November 17, 1914, to June 30, 1920. The report covers the administrations of three Adjutants General.

Very respectfully,

J. J. BORREE,

Brigadier General, National Guard California.

The Adjutant General.

REPORT.

CHANGES AMONG COMMISSIONED PERSONNEL, THE ADJUTANT GENERAL'S OFFICE.

The following changes among the commissioned personnel of The Adjutant General's Office have taken place since November 16, 1914.

Major Charles W. Thomas, Jr., 2d Infantry, appointed Colonel and The Assistant Adjutant General, January 11, 1915, *vice* Canon, retired. (Grade reduced to Lieutenant Colonel and title changed to Assistant to The Adjutant General, August 8, 1915, pursuant to legislative enactment, 1915, and Colonel Thomas placed upon the retired list, and withdrawn from active service.)

On August 8, 1915, Colonel Thomas (retired) was appointed Lieutenant Colonel and Assistant to The Adjutant General. On August 19, 1915, Lieutenant Colonel Thomas was appointed Brigadier General and The Adjutant General, *vice* the late Adjutant General Edwin A. Forbes, reference to whose death is made elsewhere in this report. On August 20, 1916, General Thomas was placed upon the retired list at his own request. On the same day he was appointed Major in the Inspector General's Department, and served with the 16th Division at Nogales, (Ariz.), in 1916, where the California National Guard was stationed in connection with the Mexican border troubles.

Major James J. Borree, Inspector General's Department, was appointed Lieutenant Colonel and Assistant to The Adjutant General, November 17, 1915. *vice* Thomas, appointed The Adjutant General. On December 16, 1916, Lieutenant Colonel Borree was appointed Brigadier General and The Adjutant General, *vice* Thomas retired.

Lieutenant Colonel Herbert R. Fay, Coast Artillery Corps, California National Guard Reserve, was appointed Lieutenant Colonel and Assistant to The Adjutant General, on March 6, 1917, *vice* Borree, appointed The Adjutant General. Lieutenant Colonel Fay's resignation of his commission as *The Assistant Adjutant General was accepted by the Governor on September 18, 1918.

James S. McKnight was appointed Lieutenant Colonel and The Assistant Adjutant General on November 19, 1919, *vice* Fay, resigned.

TRAINING OF THE NATIONAL GUARD.

Since the Congress of the United States passed National legislation known as the "Dick Bill," the War Department gradually assumed control of the instruction and training of the National Guard, detailing several Regular Army officers to each state to act as inspector-instructors. This control of the Federal Government greatly increased the efficiency

*Title changed from Assistant to The Adjutant General, 1917.

of the National Guard, and this efficiency could be noted with each succeeding year. The inspector-instructors prepared courses of armory instruction, conducted correspondence schools for all officers, and supervised the annual camps of instruction for officers and non-commissioned officers. They were also detailed to the various boards appointed for the examination of National Guard officers. The several inspector-instructors assigned to California at all times demonstrated a splendid cooperative spirit, and to their tireless energy is due the gratifying results that have been obtained by the California National Guard.

On June 3, 1916, Congress passed the first comprehensive National Guard legislation known as the National Defense Act. This act directed that uniforms and equipment of the latest pattern be furnished to the National Guard by the Federal Government. This equipment includes pistols, rifles, machine-guns, field artillery, anti-aircraft guns, motorcycles, trucks, tanks, aeroplanes, target material, and ammunition. This legislation practically places the guard under the control of the Federal Government, leaving to the states the matter of enforcing compliance with the Federal requirements, also permitting the states to use the troops to enforce the law, repel invasions, and suppress insurrections.

The National Defense Act of June 3, 1916, was amended June 4, 1920. The act as amended provides more liberally for the National Guard, increases the armory drill pay and definitely makes the National Guard a trained Federal force and a part of the Nation's first line of defense. The selection of officers by the vote of organizations has been abolished. Officers are now selected by competitive examinations held under the supervision of the War Department. The examination papers are forwarded to the War Department, the state is notified of the results, and the Governor authorized to commission the successful candidate.

CAMPS.

During the month of June, 1915, camps of instruction for officers and non-commissioned officers of the National Guard were held at Fort Winfield Scott, San Francisco, the instruction being given by Regular Army officers.

These camps were largely attended and splendid results were obtained from the instruction there given. State camps of instruction were also held at Fort Winfield Scott for the infantry units. These camps were a success insofar as the training received was concerned, but the results expected were not obtained, due to the non-attendance of a large number of enlisted personnel. The Coast Artillery held its annual camp of instruction at Fort Winfield Scott, being there attached to the fortifications for instruction. The two companies of Coast Artillery of San Diego were sent to Fort Rosecrans for fifteen days of instruction. Field

Artillery and Cavalry were sent to Gigling. In addition to field training held in California, officers of the Signal Corps were sent to Fort Riley, Kansas, and officers of the Field Artillery were sent to Sparta, Wisconsin, for special training in their branches.

During the years 1916, 1917, 1918, and 1919 no encampments were held due to the fact that the California National Guard was absent on Federal service and in the World War.

The number and kinds of camps, and special tours of duty participated in by the California National Guard, including the Naval Militia, during the period covered by this report, are set forth in detail in Appendix "B."

PROPERTY.

The care and preserving of the property in the hands of the National Guard has ever been a serious problem. Even with the exercise of greatest vigilance, losses will occur, and the result is that both the United States and the State are put to considerable expense. In order to check this loss of property as far as possible, an order was issued providing for a series of inspections to be made once every three months. It was found that this in a large measure prevented loss. Property is often taken from the armory by enlisted men who neglect to return it. When the National Guard receive Federal pay it will be possible for the company commanders to stop payment for the amount of property lost, and this will practically prevent all future shortages.

When California troops were mobilized for Mexican border duty in June, 1916, all property in the hands of troops was transferred to the Federal Government. Upon the return of the troops to their home stations, a new transfer of the property was made to the State. When the United States entered the World War, all property in the hands of the State troops as well as the property in the State Arsenal was transferred to the Federal Government. This property was valued at over \$1,400,000. An effort was made by this office to account for all property which had been issued to the State. Survey proceedings were held in the case of lost property and in May, 1920, The Adjutant General was informed by the War Department that in the transfer of the Federal property, California had successfully accounted for every item, and a clearance was given to the State.

RIFLE INSTRUCTION.

Rifle practice was yearly given increased attention. Additional ranges were constructed and the attendance at target practice was greatly increased. During November, 1915, a camp for instruction and competition in rifle practice was held on the Manzanita and Eagle Rock Rifle ranges. The most experienced riflemen in the State were selected

for executive and range officers in order that the best results possible be obtained. This competition provided matches for the individual championship of the State, company, battalion, and regimental championships. Each company was authorized to send its six best riflemen. High scores were made at every range at all matches. All matches were keenly contested and splendid instruction was received by all in attendance, and the encampment was a success in every way.

California sent National Guard teams to the National rifle matches in 1916, 1919, and 1920, and while the California teams were not winners their performance was a credit to the State.

Holding State competitions and sending rifle teams to the National matches is of great assistance in forwarding rifle work, as it returns all the competitors to their organizations enthusiastic and capable of giving instruction to those who were not fortunate enough to attend the competitions.

Every effort in the future should be made not only to improve the expert but to endeavor to teach every guardsman the use of the rifle so that we may increase the number of riflemen rather than increase the efficiency of experts.

CIVILIAN RIFLE TEAMS.

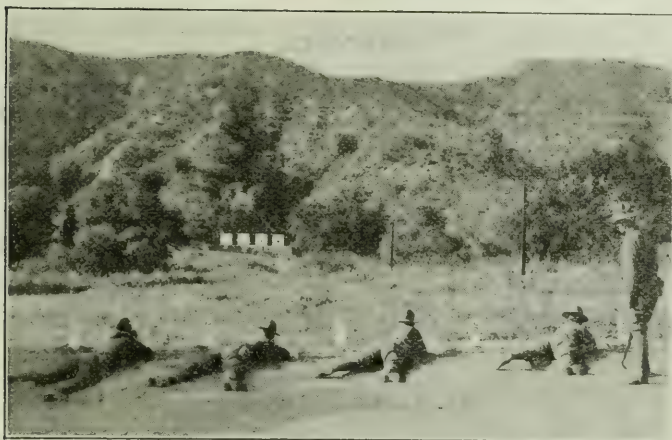
A civilian rifle team was sent from California in 1916, 1919, and 1920. These teams were selected in 1916 by The Adjutant General through his personal knowledge of the men's abilities as riflemen. In 1919 and 1920 teams were selected by competitive firing. It was a most difficult matter to hold these competitions as no funds had been provided by the Legislature for conducting them.

It is recommended that a sum be appropriated by the Legislature sufficiently large to enable this office to hold these competitions in such a manner that the best men be selected to represent the State.

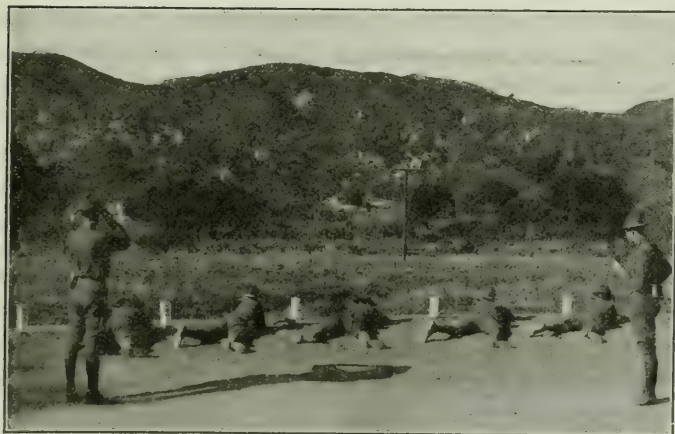
RIFLE RANGES.

The rifle ranges in California have in the past been entirely inadequate for the needs of the troops. If the National Guard is to be properly instructed in rifle firing work, a rifle range must be provided where each organization can practice without need of paying transportation for troops.

There is an excellent rifle range at Eagle Rock, Glendale, which will be enlarged when Los Angeles has recruited its complement of men. The Leona Heights rifle range near Oakland, when completed, will adequately care for all the troops in San Francisco, Oakland, Alameda, Berkeley, and Richmond, and will probably be the best equipped rifle range west of Camp Perry, Ohio.



200-yard rifle range, Eagle Rock, Los Angeles.



500- and 600-yard rifle ranges, Eagle Rock, Los Angeles.

An effort will be made to locate near where organizations are stationed rifle ranges large enough for their practice. This can in most instances, be done without a great deal of expense to the State, and will be a large saving in that it does not require transportation to send them to the ranges.

ARMORIES.

California has only four State armories. These are located in San Francisco, Los Angeles, Stockton, and Sacramento. The Stockton armory is the only armory which has been constructed since the rendering of the last report. This armory is sufficiently large to house one battery of field artillery.

The California National Guard is badly hampered through the lack of proper armory facilities and it is recommended that the Legislature provide for the construction of adequate armories in all communities where National Guard troops are located.

STATE LEGISLATION.

The Legislature of 1915 amended various sections of the Political Code relating to the National Guard of this State, the effect of such legislation being the bringing of the organization, system, drill, discipline, etc., of the National Guard closer to those of the Regular Army.

At this session of the Legislature the law was amended so as to provide that a commissioned officer of the National Guard who honorably served as such for a period of fifteen years may, upon his own application, be placed upon the retired list with an increase of rank of one grade above that held by him at the time such application is made.

The code with reference to the Naval Militia was changed to bring that organization nearer to the Regular Navy's system of organization, drill, discipline, etc., and providing, also, for the forming of marine companies and additional engineer divisions.

The principal amendments to the National Guard laws passed by the Legislature of 1917 were:

Abolishment of the old system of election of field and company officers, and substituting therefor the procurement of officers by competitive examination.

Changing the laws to conform them to the requirements of the National Defense Act of June 3, 1916.

MEETING OF NATIONAL GUARD ASSOCIATION OF THE UNITED STATES.

The 17th annual meeting of the National Guard Association of the United States was held in San Francisco November 9 to 11, 1915. The Legislature of California had previously provided sufficient appropriation to adequately cover the expense of this convention and to provide

for the entertainment of the delegates during their stay. Every opportunity was taken to extend the hospitality and courtesy of California to the delegates, and they were kind enough to give the State high praise for the manner in which it had administered its duty as host.

At the 21st annual session of the association, held in St. Louis, Missouri, in May of 1919, the present Adjutant General of California was elected a vice-president of the association. Lieutenant Colonel David A. Smith, Quartermaster Corps, California National Guard, represented this State at this session of the association.

MEXICAN BORDER SERVICE.

The call by the President of the United States for California troops for Mexican border service was received by Governor Hiram W. Johnson, June 18, 1916. Upon the Governor's orders California National Guardsmen were immediately directed to assemble in their armories and establish camp. Within twelve hours all commanding officers had reported their organizations ready for entraining.

Immediately upon the receipt of orders to mobilize the Guard, all officers of the staff corps and departments were ordered into service and directed to report at Sacramento and detailed to the duty of preparing the mobilization camp at the State Fair Grounds, Sacramento.

One-half a mile of ten-inch sewer and four-inch water main were laid, and water piped over the entire inner field of the race track. Shower baths and latrines were installed. On Thursday, June 22, the camp was completed and the first troops arrived and immediately pitched camp. Mobilization orders had previously been prepared covering the mobilization, and due to the instruction and efficiency of the officers, the mobilization of the California National Guard at Sacramento for border service was splendidly executed.

The entrainment of some 4,600 men and moving them over the great distances of California to the mobilization camp without a mishap and, with the exception of one or two, on time to the minute, speak volumes for the efficiency and discipline of the National Guard and for the earnest cooperation of the railroads in California.

The only difficulty experienced during the mobilization was caused by the late arrival of Federal equipment and the fact that it was necessary to check and segregate the various sizes before they could be issued to the troops.

Following are the organizations, their officers and the number of enlisted men of each organization mustered into the Federal Service in connection with the Mexican border duty in 1916:

1st Battalion, Field Artillery.

Commissioned officers	Organization	No. of enlisted men	Mustered in	Mustered out
Major Ralph J. Faneuf.....	-----	4	June 28, 1916	Dec. 21, 1916
Capt. Frederick W. H. Petersen	Staff			
1st Lieut. James A. Gleason	Staff			
Veterinarian James A. Hill	Staff			
Capt. Jesse McComas.....	Battery A	148	June 28, 1916	Dec. 30, 1916
1st Lieut. Harold G. Ferguson	Battery A			
1st Lieut. Walter Luer.....	Battery A			
2d Lieut. Robert W. Yates.....	Battery A			
2d Lieut. Frederick H. Hover	Battery A			
Capt. Harry F. Huber.....	Battery B	150	June 28, 1916	Dec. 21, 1916
1st Lieut. Edward E. Vicary	Battery B			
1st Lieut. John W. White.....	Battery B			
2d Lieut. Howard W. Encifer	Battery B			
2d Lieut. Clyde C. Alexander	Battery B			
Capt. Edward Van Vranken	Battery C	158	June 28, 1916	Jan. 6, 1917
1st Lieut. Otto E. Sandman	Battery C			
1st Lieut. Charles H. Young	Battery C			
2d Lieut. Hewitt A. Davidson	Battery C			
2d Lieut. Charles A. Rayner	Battery C			
Capt. James C. Hanley.....	San. Ditch	10	June 28, 1916	Oct. 31, 1916

Company B, Signal Corps.

Commissioned officers	Number of enlisted men	Mustered in	Mustered out
Capt. Frank J. Sullivan.....	76	June 28, 1916	Nov. 6, 1916
1st Lieut. Edward V. Orr.....			
1st Lieut. Frederick A. Cellarius			

Field Hospital, No. 1.

Commissioned officers	Number of enlisted men	Mustered in	Mustered out
Major Charles W. Decker.....	68	June 30, 1916	Oct. 31, 1916
Capt. Harlan Shoemaker.....			
Capt. George P. Waller, Jr.			
1st Lieut. Frank H. Chase.....			
1st Lieut. Elmer R. Pascoe.....			
1st Lieut. Frank B. Marek.....			

Ambulance Company, No. 1.

Commissioned officers	Number of enlisted men	Mustered in	Mustered out
Capt. Charles H. Bulson.....	80	June 30, 1916	Oct. 31, 1916
Capt. Cyril E. Lewis.....			
1st Lieut. Robert M. Jones.....			
1st Lieut. Charles S. Freedman			
1st Lieut. Albert B. Herrick.....			

Headquarters First Brigade.

Commissioned officers	Mustered in	Mustered out
Brig. Gen. Robert Wankowski-----	June 29, 1916	Nov. 6, 1916
Major Raymond I. Follmer-----	June 29, 1916	Nov. 6, 1916
Major John G. Lee-----	June 29, 1916	Nov. 6, 1916

Company A, Engineers.

Commissioned officers	Number of enlisted men	Mustered in	Mustered out
Capt. Jay A. Given-----	96	July 27, 1916	March 6, 1917
1st Lieut. Alexander M. Barton-----		July 27, 1916	March 15, 1917
2d Lieut. John P. Jones-----		July 27, 1916	March 6, 1917
2d Lieut. Myron Peck-----		July 27, 1916	{ Oct. 7, 1916 } { (Resigned) }

Staff Corps and Departments.

Commissioned officers	Corps or department	Mustered in	Mustered out
Lieut. Col. David A. Smith-----	Q. M. Corps	June 20, 1916	April 2, 1917
Major Homer L. Duffy-----	Q. M. Corps	June 20, 1916	Jan. 10, 1917
Major John F. Sherburn-----	Q. M. Corps	June 28, 1916	Aug. 16, 1916
Major George E. Heber-----	Q. M. Corps	July 31, 1916	Oct. 12, 1916
Capt. Fred S. Rounage-----	Q. M. Corps	June 20, 1916	Oct. 19, 1916
Capt. Asa M. Clark-----	Q. M. Corps	June 20, 1916	July 11, 1916
Capt. Jay A. Given-----	Q. M. Corps	June 20, 1916	July 18, 1916
Capt. Albert B. Austin-----	Q. M. Corps	June 25, 1916	Aug. 16, 1916
Capt. Joseph D. Smedberg-----	Q. M. Corps	July 20, 1916	Oct. 31, 1916
Major Andrew J. Copp, Jr.-----	J. A. G.	July 24, 1916	Oct. 17, 1916
Major Charles W. Thomas, Jr.-----	I. G.	Aug. 27, 1916	March 26, 1917
Major Charles A. Dukes-----	Med. Corps	June 22, 1916	July 7, 1916
Major Frank S. Emmal-----	Med. Corps	Sept. 1, 1916	Feb. 28, 1917
Major William J. Hanna-----	Med. Corps	June 22, 1916	Nov. 15, 1916
Capt. Edouard S. Loizeaux-----	Med. Corps	June 22, 1916	Jan. 6, 1917
1st Lieut. Ray K. Barry-----	Med. Corps	July 7, 1916	Oct. 31, 1916
1st Lieut. Roy P. Wilcox-----	Dental Corps	Sept. 22, 1916	Jan. 26, 1917
Sgt. Phillips A. Sootheran, (Re- cruiting service)-----		July 25, 1916	Oct. 19, 1916
Corp. John A. Freeman (Re- cruiting service)-----		July 27, 1916	Oct. 15, 1916

1st Squadron of Cavalry.

Commissioned officers	Organization	Number of enlisted men	Mustered in	Mustered out
*Major Samuel W. Kay-----	Comdg.	1	June 26, 1916	Nov. 17, 1916
1st Lieut. David E. Barney----	Staff			
2d Lieut. Harry R. Gimbal----	Staff			
Veterinarian Julian P. Nichols-----	Staff			
Capt. Willard C. Bush-----	Troop A	94	June 26, 1916	Nov. 17, 1916
1st Lieut. Elon Le C. Burns--	Troop A			
2d Lieut. Gilbert S. F. Davies--	Troop A			
Capt. Henry H. Sydenham----	Troop B	91	June 26, 1916	Nov. 17, 1916
1st Lieut. Clarence S. Pixley--	Troop B			
2d Lieut. George W. Calvert--	Troop B			
Capt. Edward J. Hardy-----	Troop C	94	June 26, 1916	Nov. 17, 1916
1st Lieut. Bert. E. Underwood--	Troop C			
2d Lieut. James S. MacLean--	Troop C			
Capt. James Gunn-----	Troop D	99	June 27, 1916	Nov. 11, 1916
1st Lieut. Ray Rogers-----	Troop D			
2d Lieut. Levin A. Bowland--	Troop D			
Capt. Eldridge C. Turner----	San. Dch.	6	June 26, 1916	Nov. 17, 1916

*Relieved for physical disability and succeeded by Major Albert B. Dockery (Captain, Cavalry, U. S. Army).

2d Infantry.

Regiment mustered in June 27, 1916; mustered out November 15, 1916.

Commissioned officers	Organization	Number of enlisted men
Colonel Lon Bond		
Lieut. Col. Wm. H. White		
Major Will Kelly	3d Battalion	
Major Sidney H. Sayre	2d Battalion	
Major Rudolf Rieger	1st Battalion	
Captain Carl B. Nichols	Staff	
Captain G. R. E. McDonald	Chaplain	
Captain Harry R. Downing	Headquarters Company	52
1st Lieut. Chas. R. Hoppin	Headquarters Company	
1st Lieut. Fenton W. Jamison	Headquarters Company	
1st Lieut. LeRoy LV. Smith	Headquarters Company	
Captain S. Luke Howe	Supply Company	33
2d Lieut. Erle D. Ferguson	Supply Company	
2d Lieut. Fred'k E. Smith	Supply Company	
Captain Jas. V. McClatchy	Machine Gun Company	56
2d Lieut. Alexander W. Dodge	Machine Gun Company	
Captain Earl L. Turner	Company A	99
1st Lieut. Earl R. Bevins	Company A	
2d Lieut. Edgar E. Roberts	Company A	
Captain Ernest B. Griffin	Company B	65
1st Lieut. Wm. A. Vickery	Company B	
2d Lieut. Wm. Van Keltz	Company B	
Captain John J. Phillips	Company C	87
1st Lieut. Beach E. Taber	Company C	
2d Lieut. Frank D. Hopkins	Company C	
Captain Alexander M. Simons	Company D	96
2d Lieut. Ford E. Spigelmyre	Company D	
Captain Henry H. Brown	Company E	84
1st Lieut. Walter W. Wright	Company E	
2d Lieut. Ward E. Pagnello	Company E	
Captain Lester J. Caldwell	Company F	70
1st Lieut. Rodney J. Hill	Company F	
2d Lieut. Jos. Armstrong	Company F	
Captain Harold J. McClatchy	Company G	83
1st Lieut. Geo. W. Toland	Company G	
2d Lieut. Edw. J. Murray	Company G	
Captain Leo A. McCoy	Company H	87
1st Lieut. Merrill O. Ballard	Company H	
2d Lieut. Raymond E. Whitney	Company H	
Captain John C. Dooley	Company I	82
1st Lieut. Chas. B. Griggs	Company I	
2d Lieut. Edw. I. Cook	Company I	
Captain Claude H. Fowler	Company K	88
1st Lieut. Louis H. Heintz	Company K	
2d Lieut. Samuel Gallaher	Company K	
Captain Julius L. Hippeli	Company L	79
1st Lieut. Wm. J. Allison	Company L	
2d Lieut. Stanley A. Leddy	Company L	
Captain Walter M. McNamara	Company M	86
1st Lieut. Geo. A. Beck	Company M	
2d Lieut. Francis Kimes	Company M	
Major Wm. J. Hanna	Sanitary Detachment	24
Captain Homer Rogers	Sanitary Detachment	
1st Lieut. Anthony B. Diepenbroek	Sanitary Detachment	
1st Lieut. James R. Snyder	Sanitary Detachment	

5th Infantry.

Regiment mustered in June 28, 1916; mustered out October 7, 1916.

Commissioned officers	Organization	Number of enlisted men
*Colonel Edwin G. Hunt	Field, Staff and Band	45
Lieut. Col. Leon C. Francis		
Major Leonard M. Farrell	1st Battalion	
Major Laurence S. O'Toole	2d Battalion	
Major Joshua B. Dickson	3d Battalion	
Captain Arthur C. Jenvey	Adjutant	
†Captain Louis J. Nissen	Quartermaster, Commanding Supply Company	
†Captain Fred A. Marriott	Commissary, Commanding Machine Gun Company	
Captain Arthur W. T. Hicks	Chaplain	
1st Lieut. Lewis H. Britton	Adjutant 1st Battalion	
1st Lieut. Walker L. Martin	Adjutant 2d Battalion	
1st Lieut. Wm. K. Carswell	Adjutant 3d Battalion	
2d Lieut. Walter A. Scott	Machine Gun Company	
2d Lieut. Jos. M. Seammell	Supply Company	
2d Lieut. Newton W. Armstrong	Supply Company	
Captain Silas H. Hanson	Company A	82
1st Lieut. Harold H. Hearfield	Company A	
2d Lieut. Walter F. Long	Company A	
1st Lieut. John S. Hasen	Company B	78
2d Lieut. Lauren L. LaHue	Company B	
Captain Denis A. Daly	Company C	104
1st Lieut. Guy W. Hassler	Company C	
2d Lieut. Ernest S. Evans	Company C	
Captain Archie W. Deuberry	Company D	67
1st Lieut. Phillip E. Benjamin	Company D	
2d Lieut. David P. Hardy	Company D	
Captain Hilliard Comstock	Company E	76
1st Lieut. Leland M. Britton	Company E	
2d Lieut. Thornbrough P. Gale	Company E	
Captain Edwin E. Hinchman	Company F	86
1st Lieut. Eugene A. deHarmida	Company F	
2d Lieut. Warren A. DeSosa	Company F	
Captain Chas. D. P. Magagnos	Company G	77
1st Lieut. Alvin L. Gunn	Company G	
2d Lieut. Jesse L. Delanoy	Company G	
Captain Harry A. Bradford	Company H	73
1st Lieut. Arnold H. Morris	Company H	
2d Lieut. Chester P. Phillips	Company H	
Captain Jos. S. Concannon	Company I	83
1st Lieut. Henry A. Mehrmann	Company I	
2d Lieut. Carl G. Clarke	Company I	
Captain Theodore Jarvis	Company K	72
1st Lieut. Francis J. O'Neill	Company K	
2d Lieut. Jos. O. Haran	Company K	
Captain Wm. H. Bates	Company L	76
1st Lieut. Ernest W. Risling	Company L	
2d Lieut. John R. Montgomery	Company L	
Captain Clarence L. Mitchell	Company M	70
1st Lieut. Willia L. Howe	Company M	
2d Lieut. Walter B. Robinson	Company M	
Major Frank H. Paterson	Sanitary Detachment	24
Captain Wilfred E. Chambers	Sanitary Detachment	
1st Lieut. Albert B. Herrick	Sanitary Detachment	
1st Lieut. Chas. E. Schwartz	Sanitary Detachment	

*Relieved for physical disability and succeeded by Colonel W. B. Burt (Captain, Infantry, U. S. Army).

†Supply and Machine Gun Companies were provisional organizations, made up of enlisted men detailed thereto from the other companies.

7th Infantry.

Regiment mustered in June 29, 1916; mustered out November 11, 1916.

Commissioned officers	Organization	Number of enlisted men
Colonel Wm. G. Schreiber.....	Field, Staff and Band.....	36
Lieut. Col. Samuel M. Saltmarsh.....		
Major Frank C. Prescott, Jr.....	1st Battalion.....	
Major Chas. F. Hutchins.....	2d Battalion.....	
Major Byron W. Allen.....	3d Battalion.....	
*Captain Harry E. Kunkel.....	Adjutant, Commanding Headquarters Company.....	
*Captain Alfred F. Moulton.....	Quartermaster, Commanding Supply Company.....	
*Captain Stephen S. Boothe.....	Commissary, Commanding Machine Gun Company.....	
Captain Mark B. Shaw.....	Chaplain.....	
1st Lieut. Frank D. Shearer.....	Adjutant 1st Battalion.....	
1st Lieut. Edwin A. Merwin.....	Adjutant 2d Battalion.....	
1st Lieut. Victor B. Berger.....	Adjutant 3d Battalion.....	
2d Lieut. Plummer H. Montgomery.....	Supply Company.....	
2d Lieut. Isaac DeL. Jaynes.....	Supply Company.....	
2d Lieut. Fred S. Swanson.....	Supply Company.....	
Captain Harry C. Underwood.....	Company A.....	84
1st Lieut. Rolla P. Umstead.....	Company A.....	
2d Lieut. Arthur L. DeMott.....	Company A.....	
Captain Howard S. Tracy.....	Company B.....	73
1st Lieut. James S. McKnight.....	Company B.....	
2d Lieut. Paul E. Peabody.....	Company B.....	
Captain Everett W. Peckham.....	Company C.....	79
1st Lieut. Edw. H. Marxen.....	Company C.....	
2d Lieut. Horace Cutler.....	Company C.....	
Captain Chas. P. Rowe.....	Company D.....	74
1st Lieut. Edgar E. Stevens.....	Company D.....	
2d Lieut. Everett R. Dial.....	Company D.....	
Captain Herbert 'J' Simon.....	Company E.....	74
1st Lieut. Geo. W. White.....	Company E.....	
2d Lieut. Vincent W. Shutt.....	Company E.....	
Captain Herbert T. Bathey.....	Company F.....	80
1st Lieut. James K. Crum.....	Company F.....	
2d Lieut. Neal C. Johnson.....	Company F.....	
Captain Adolph G. Johnson.....	Company G.....	67
1st Lieut. Ernest L. Danielson.....	Company G.....	
2d Lieut. Clyde L. Cook.....	Company G.....	
Captain Archibald D. Borden.....	Company H.....	65
1st Lieut. Dean C. H. Seaver.....	Company H.....	
2d Lieut. Harry U. Richards.....	Company H.....	
Captain Bert M. Muzzey.....	Company I.....	87
1st Lieut. Wm. R. Jackson.....	Company I.....	
2d Lieut. John D. Robertson.....	Company I.....	
Captain Varian B. Hogue.....	Company K.....	80
1st Lieut. Leo A. Strome.....	Company K.....	
2d Lieut. Chas. F. Starr.....	Company K.....	
Captain John L. McBride.....	Company L.....	72
1st Lieut. Nelson M. Holderman.....	Company L.....	
2d Lieut. Arthur K. Ford.....	Company L.....	
Captain Walter C. Davison.....	Company M.....	67
1st Lieut. Felix F. Horton.....	Company M.....	
2d Lieut. John P. Bayha.....	Company M.....	
Major Frank C. Wiser.....	Sanitary Detachment.....	24
Captain Samuel M. Alter.....	Sanitary Detachment.....	
Captain Fred E. Lettice.....	Sanitary Detachment.....	
1st Lieut. Philip H. Stephens.....	Sanitary Detachment.....	

*Regimental Headquarters Company, Regimental Supply Company and Machine Gun Company were provisional organizations, made up of enlisted men detailed thereto from the other companies.

While the troops were at the border regulations were issued by the Militia Bureau providing that before the National Guard could be recognized under the Congressional Act of June 3, 1916, all officers must subscribe to a new oath of office and all enlisted men must sign a new oath of enlistment.

The new oath of enlistment provided for three years in an active organization and three years in the National Guard Reserve. Practically the entire National Guard of California declined to sign the new oath of enlistment.

When the state troops were no longer needed on the Mexican border, the Fifth Infantry was ordered from Nogales to Sacramento, September, 1916, and was mustered out of Federal service October 7, 1916. The remaining units of the California National Guard were ordered from Nogales to Los Angeles to be mustered out during the months of October, November, December, and January.

As the muster out of Federal service separated all those from the National Guard who had not signed the new oath of enlistment, the National Guard of California was represented by a force averaging approximately eleven men per organization. An exception must be noted in the Coast Artillery. The ten companies at San Francisco, twelve at Los Angeles and vicinity, and two companies at San Diego were recruiting and sufficient men had taken the Federal oath so that practically all of these organizations were at minimum strength of sixty-five men and three officers per company. An intensive recruiting campaign was inaugurated and by March 1 each organization outside of the Coast Artillery had an average strength of thirty-five enlisted men.

DRAFT FOR WORLD WAR.

Time does not permit of a detailed account of the unusual activities brought forth by the World War. The work of the draft, the registering of 850,000 Californians, and all matters pertaining to that subject will be covered in a separate report, The Administration of the Selective Service Law in California, issued by this office.

THE CALIFORNIA NATIONAL GUARD IN FEDERAL SERVICE DURING THE WORLD WAR.

Pursuant to telegraphic orders from the Secretary of War, calling the California National Guard into Federal Service, Governor William D. Stephens, on March 26, 1917, ordered the organizations of the 2d, 5th and 7th Infantry Regiments to assemble at their armories and begin recruiting. Subsequently the regiments were established with headquarters at Fort Mason, San Francisco; Sacramento, and Los Angeles, California. The different organizations were then divided into detachments for duty guarding railroad bridges, tunnels, munition plants, etc., in California, Nevada, and Utah, from the Mexican border on the south to as far north as Utah.

The organizations remained on this duty until September, 1917, when the regiments were concentrated and proceeded to Camp Kearny, Linda Vista, California, and there became part of the 40th Division, U. S. Army.

The 5th and 8th Companies, Coast Artillery, of the 1st Coast Defense Command, and the 13th, 14th, 15th and 18th Companies, Coast Artillery, of the 2d Coast Defense Command, were called into Federal service on April 12, 1917, for duty similar to that assigned to the infantry regiments.

Companies A and B, 1st Battalion of Engineers, were called into Federal service on June 20 and July 10, 1917, respectively.

Headquarters and Batteries A, B, and C, 1st Battalion of Field Artillery, were called into Federal service June 22, 1917.

Headquarters and the 1st, 2d, 3d, 4th, 5th, 6th, 7th, 8th, 9th, 10th and 11th Divisions, 1st and 2d Engineer Divisions, 1st Marine Company, Aeronautic Section, 9th Division, Engineer Section, 4th Division, and Medical Department, California Naval Militia, were called into Federal service April 6, 1917. The different units were detailed for duty aboard various war vessels and stations throughout the United States.

The remaining organizations of the California National Guard consisting of the Headquarters 1st Brigade, Medical, Dental, and Veterinary Corps; Company C, 1st Battalion of Engineers; Company B, Signal Corps; 1st and 2d Field Hospital Companies; 1st and 2d Ambulance Companies; Headquarters and Troops A, B, C, and D, and Machine-gun Troop, 1st Squadron of Cavalry; 1st Regiment of Field Artillery, less Headquarters and Batteries A, B, and C, previously called out; Headquarters and Batteries A, B, C, D, E, and F, 2d Regiment of Field Artillery; Headquarters and 1st, 2d, 3d, 4th, 6th, 7th, 9th, 10th, 11th, and 12th Companies, Coast Artillery, 1st Coast Defense Command; Headquarters and 16th, 17th, 19th, 20th, 21st, 22d, 23d, and 24th Companies, Coast Artillery, 2d Coast Defense Command, together with the National Guard organizations previously called into active service, were

drafted into the Federal service on August 5, 1917, by proclamation of the President, dated July 3, 1917. Many of these organizations were mustered into the State service shortly prior to being called into Federal service. The dates on which they were organized are shown in Appendix "E."

Officers and enlisted men of the different staff corps and departments of the Guard were called or drafted into the service by direct orders from the Secretary of War from time to time as their services were required, and served creditably in this country and with overseas organizations.

The organizations, and the dates on which they entered Federal service, are set forth in detail in Appendix "G."

Tables of California National Guard and the Letters and Numerals Assigned to Them After Entering the Federal Service.

Former State units	Reorganized as or assigned to
2d Infantry:	
Companies A, B, C, D, I, and K.....	159th Infantry, 80th Brigade, 40th Division
Companies E, F, G, H, L, and M.....	160th Infantry, 80th Brigade, 40th Division
Band.....	315th Cavalry
5th Infantry.....	159th Infantry, 80th Brigade, 40th Division
7th Infantry.....	160th Infantry, 80th Brigade, 40th Division
1st Squadron of Cavalry:	
Troops A, B, and C, and M. G. Troop.....	145th Machine-gun Battalion, 40th Division
Troop D.....	Headquarters Troop, 40th Division
1st Regiment, Field Artillery.....	143d Regt., Field Arty., 65th Brig., 40th Div.
2d Regiment, Field Artillery.....	144th Regt., Field Arty., 65th Brig., 40th Div.
1st Battalion Engineers.....	117th Engineer Regt., 42d Division
Company B, Signal Corps.....	Co. A, 115th Field Sig. Battalion, 40th Div.
Ambulance Companies Nos. 1 and 2.....	157th and 158th Ambulance Companies, 115th Sanitary Train, 40th Division
Field Hospitals, Nos. 1 and 2.....	157th and 158th Field Hospital companies, 115th Sanitary Train, 40th Division
Coast Artillery:	
1st Coast Defense Command.	
Band.....	Fort Winfield Scott
1st Company.....	21st Company, San Francisco, C. D. Comd.
2d Company.....	22d Company, San Francisco, C. D. Comd.
3d Company.....	23d Company, San Francisco, C. D. Comd.
4th Company.....	24th Company, San Francisco, C. D. Comd.
5th Company.....	5th Company, San Diego, C. D. Comd.
6th Company.....	26th Company, San Francisco, C. D. Comd.
7th Company.....	27th Company, San Francisco, C. D. Comd.
8th Company.....	Battery B, 65th Regiment, C. A.
9th Company.....	29th Company, San Francisco, C. D. Comd.
10th Company.....	30th Company, San Francisco, C. D. Comd.
11th Company.....	25th Company, San Francisco, C. D. Comd.
12th Company.....	28th Company, San Francisco, C. D. Comd.
2d Coast Defense Command.	
Band.....	27th Coast Artillery Band
13th Company.....	7th Company, San Diego, C. D. Comd.
14th Company.....	8th Company, San Diego, C. D. Comd.
15th Company.....	Coast Defense Command, San Diego
16th Company.....	5th Company, Los Angeles, C. D. Comd.
17th Company.....	6th Company, Los Angeles, C. D. Comd.
18th Company.....	6th Company, San Diego, C. D. Comd.
19th Company.....	7th Company, Los Angeles, C. D. Comd.
20th Company.....	8th Company, Los Angeles, C. D. Comd.
21st Company.....	9th Company, Los Angeles, C. D. Comd.
22d Company.....	10th Company, Los Angeles, C. D. Comd.
23d Company.....	11th Company, Los Angeles, C. D. Comd.
24th Company.....	12th Company, Los Angeles, C. D. Comd.

The 40th division was composed of California National Guard and organizations from other states, and was organized and trained at Camp Kearny, California, under command of Major General F. S. Strong, U. S. Army, in September, 1917. Training was continued there until July 26, 1918, when the Headquarters and Headquarters Troop, followed by the different units, entrained for overseas duty; the entire division arriving in France during the month of August, 1918, where it became the 6th Depot Division or replacement division, sending replacements of officers and men to front line divisions. The division as a whole did not take part in any active operations against the enemy, but its personnel suffered many fatalities and other casualties through being sent as replacements to front line organizations.

After the signing of the armistice, the units of the division were returned to California, and were discharged at Camp Kearny, and San Francisco, California, their service being no longer required.

BRIEF OVERSEAS HISTORY OF THE DIFFERENT UNITS, WORLD WAR.

159th Infantry (2d and 5th Infantry, Cal. N. G.).

The regiment entrained at Camp Kearny, California, July 28, 1918, arriving at Camp Mills, Long Island, August 4, 1918, and embarked on four transports August 7, 1918, for overseas, departing August 8, 1918, and arriving at Liverpool, England, August 20, 1918. The regiment entrained at Liverpool, August 21, 1918, arriving at Winchester, England, August 22, 1918, where it entrained August 24, 1918, for Southampton, arriving there the same day and embarking to cross the English Channel, reaching La Havre, France, August 25, 1918. At La Havre, the regiment entrained for Nerondes, France, arriving August 27, 1918, where it remained until October 30, 1918, sending four-fifths of its officers and men to front line divisions as replacements, many of whom were subsequently killed or wounded. On October 30, 1918, the regiment entrained at Nerondes for Amiens, France, reaching there on November 1, and was assigned to and became part of the 2d Corps composed of the 27th and 30th Divisions, both National Guard units.

On December 27, 1918, the regiment entrained at Amiens for Cadillac, south of Bordeaux, to await transport for the United States, arriving in the United States in the spring of 1919, and was demobilized at Camp Kearny, California.

160th Infantry (7th Infantry, Cal. N. G.).

The regiment entrained at Camp Kearny, California, July 26, 1918, arriving at Camp Mills, Long Island, August 1, 1918. On August 7, 1918, it embarked from the port of New York, sailing for Liverpool, England, on August 8, 1918, and arriving there on August 20, 1918. It entrained at Liverpool, England, for Winchester, and from there to Southampton, where it embarked for La Havre, France. Upon arrival there the regiment entrained for La Guerche, France, remaining there until October 6, 1918, furnishing replacements to the 1st, 2d, 42d, and 77th Divisions, all front line divisions.

On November 4, the regiment entrained for Revigny, Department of Meuse, and was attached to the First Army. On January 6, 1919, it was ordered to Bordeaux to await transportation to the United States. Here it embarked on March 13, 1919, and arrived in New York on March 25, 1919, remaining at Camp Mills, Long Island, for two weeks. It then entrained for Camp Kearny, California, where the regiment was demobilized on April 14 and 15, and the Regimental Headquarters on May 7, 1919.

145th Machine-gun Battalion (1st Squadron of Cavalry, Cal. N. G., less Troop D, Headquarters Troop, 40th Division).

The battalion entrained at Camp Kearny, California, on July 26 and 27, 1918, arriving at Camp Mills, Long Island, on August 1 and 2, 1918. It embarked on August 8, 1918, for Liverpool, England, arriving there on August 20. At Liverpool, it entrained for Southampton, arriving there on August 21, where it embarked for La

Havre, France, reaching there on August 23. From there it entrained for Tortoron, Department of Cher, August 26, 1918, where it remained until November 3, 1918, and during that time it furnished nine lieutenants and 382 enlisted men, specialists and machine gunners, as replacements for front line divisions.

On November 3, 1918, the battalion entrained for the Department of Marne and on arriving there, became a unit in the support of the First Army in the Meuse-Argonne Offensive.

On January 7, 1919, the battalion entrained for the Department of Gironde to await transportation to the United States, and on April 19, 1919, embarked for the United States. Upon arrival in Boston, Massachusetts, it was entrained for the Presidio of San Francisco, California, where it was demobilized on May 20, 1919.

143d Field Artillery (1st Field Artillery, Cal. N. G.).

The regiment entrained at Camp Kearny, California, on August 1, 1918, and arrived at Camp Mills, Long Island, on August 8, 1918. It embarked at the port of New York on August 16, 1919, and arrived at Liverpool, England, August 28, 1918, where it entrained for Southampton, August 30. At Southampton the regiment embarked to cross the English Channel and arrived at La Havre, France, on September 1, 1918. At La Havre it entrained for Portiers and remained there ten days, after which it departed for the Artillery Camp at Camp de Souge, Gironde, near Bordeaux, for training in the service of the 75 millimeter gun material.

Orders were received assigning the regiment to the First Army as Army Artillery, but on account of the signing of the armistice, the regiment did not leave the area.

The regiment began to embark at Bordeaux on December 8, 1918, and upon arrival in the United States entrained for the Presidio of San Francisco, where it was demobilized on January 28, 1919.

144th Field Artillery (2d Field Artillery, Cal. N. G.).

The regiment entrained at Camp Kearny, California on August 1, 1918, for overseas duty and arrived at Camp Mills, Long Island, on August 8, 1918. It remained there until August 15, when it embarked at the port of New York, arriving at Liverpool, England, on August 18, going into an English rest camp at Knotty Ash. At Liverpool the regiment entrained for Southampton, and embarked there to cross the English Channel, arriving at La Havre, France, on September 1, 1918. Upon arrival, the regiment marched to San Andresse where it entrained for Portiers, arriving on September 4, going into billets at Migne. On September 16 it entrained for Villenave-d'Ornon, near Bordeaux, and on September 23 was sent to Clarmont, Ferrand, a training center for heavy artillery, where it remained in training. Prior to the battle in the Argonne Forest the regiment had its position assigned, but the signing of the armistice prevented it taking its position.

On November 29, 1918, the regiment entrained for Bordeaux, there to await transportation to the United States. On December 22, 1918, it embarked, arriving in New York on January 3, 1919. On January 11, 1919, it entrained for San Francisco, California, arriving there on January 8, and was demobilized on February 6, 1919.

Battery B, 65th Artillery, Coast Artillery Corps (8th Company C. A. C., Cal. N. G.).

This battery was formed from the enlisted personnel of the 5th, 8th, 13th and 14th Companies, Coast Artillery Corps, California National Guard. It was organized on January 1, 1918, at Fort Rosecrans, California, and left there on February 28, 1918, for overseas, going by rail to San Francisco, and thence by way of the Panama Canal to New York and Camp Merritt, New Jersey. On March 25, 1918, it embarked for Liverpool and arrived there on April 2, 1918. It there entrained for Southampton and upon arrival embarked for La Havre, France, where it entrained for Limoges, France, remaining there until July 31, 1918, when it departed for La Courtine. On August 21 it entrained for Rouvroy, remaining there until August 28, and was assigned as Army Artillery, First Army. The battery took position at Saint Jacques on the St. Mihiel Salient on September 1, participating in the St. Mihiel Offensive on September 12, from which point it moved to a new sector in the Argonne Forest, and participated in the first Argonne Offensive on September 26, 1918, being in position at the Rendezvous des Chasse.

The battery was then attached to the Seventeenth French Army Corps and took position in Ravin des Vignes on the east bank of the Meuse River, and participated in the French Offensive beginning October 7, 1918.

On October 23, 1918, the battery took position in the Bois des Forges on the west bank of the Meuse River and participated in the offensive against the Bois d'Etrayes.

On November 1, 1918, the battery was assigned as Corps Artillery to the First Army Corps and took position at Lancou in the Argonne Forest, and operated against the enemy positions until the signing of the armistice.

On December 25, 1918, it entrained at Rouvrey for Brest and embarked on January 15, 1919, arriving at Philadelphia on January 30, 1919. On February 11, 1919, it entrained at Camp Dix, New Jersey, for Camp Kearny, California, where it was demobilized February 20, 1919.

The battery was in the front line 72 days and fired more than 2000 rounds of high explosives and suffered 28 casualties.

157th and 158th Ambulance Companies (1st and 2d Ambulance Companies, Cal. N. G.), and 157th and 158th Field Hospital Companies (1st and 2d Field Hospital Companies, Cal. N. G.).

The ambulance companies and field hospital companies entrained at Camp Kearny, California, on July 31, 1918, and arrived at Camp Mills, August 7, 1918. They entrained for Montreal, Canada, arriving there August 13, 1918. They embarked on the same day at Montreal, arriving in Liverpool, England, on August 31, 1918, where they entrained for Southampton, embarking there for La Havre, France, arriving September 2, 1918. At La Havre they entrained for La Guerche, France, and remained there until October 29, 1918, when they entrained for Rosiere en Haye, where they were assigned to the Sixth Army Corps.

On November 17 they were transferred to the Second Army and established hospitals and dressing stations at Mars La Tour. The organizations remained at Mars La Tour until May 24, 1919, when they entrained for Marseilles, arriving on May 26, 1919. On June 7 the organizations embarked for the United States and arrived in New York June 22, 1919, where they entrained for the Presidio of San Francisco, arriving there on July 2. The organization was demobilized on July 3, 1919.

Headquarters Troop, 40th Division (Troop D, 1st Squadron of Cavalry, Cal. N. G.).

The troop entrained at Camp Kearny, California, on July 26, 1918, and arrived at Camp Mills, Long Island, on August 1, 1918. It embarked at the port of New York on August 8, 1918, arriving in Liverpool, England, August 20. At Liverpool, it entrained on August 21 for Winchester, England, arriving the same day. On August 23, it entrained for Southampton, where it embarked to cross the English Channel, arriving at Cherbourg, France, August 24. At Cherbourg it entrained on August 25 for La Guerche, arriving there on August 28, where it remained on duty with the Headquarters 40th Division until October 31, 1918. It then entrained for Revigny, France, where it was attached to the First Army. The troop remained there until February, 1919, when it entrained for Bordeaux to await transportation to the United States. It was demobilized at Camp Kearny, California, in the spring of 1919.

1st Coast Defense Command, Cal. N. G.

The organizations after having been drafted into Federal Service August 5, 1918, were given different numerical designations after which they were assigned individually to other organizations most of which saw overseas service.

Three officers and fifty enlisted men, motorcycle experts, were assigned to the First Battalion, Anti-Aircraft Artillery, and left for France November 30, 1917.

One-third of the 62d Artillery, C. A. C., a regiment of heavy artillery, was composed of men drawn from the 1st Coast Defense Command. This regiment left San Francisco for France on June 13, 1918, arriving in France July 28, 1918, and returning to San Francisco March 11, 1919.

A large number of officers and men were assigned to the 67th Regiment of Heavy Artillery and left for France August 9, 1918, arriving there September 5, 1918, returning to San Francisco March 22, 1919.

The 1st, 2d, 3d, 4th and 11th Companies were assigned as units to the Army Artillery Park, First Army, and as such served in France and participated in the following engagements: Oise-Aisne, Meuse-Argonne, St. Mihiel, and in the First Army Defense Sector.

The 40th Regiment, Coast Artillery Corps (12th Railroad Mortars), was also composed of officers and men from the 1st Coast Defense Command and at the time of signing the armistice was at Camp Upton, New York, awaiting transportation overseas.

BRIEF NARRATIVE OF THE OPERATIONS OF 2D BATTALION, 117TH ENGINEER REGIMENT, DURING WORLD WAR. (1917 TO 1919.)

(By WALLACE A. MASON, late Major, 2d Battalion, 117th Engineers.)

(NOTE.—*1st Battalion, this Regiment, from South Carolina.*)

The Second Battalion was comprised of Companies D from Sacramento and E and F from Los Angeles. In the California National Guard these organizations were known as Companies A, B, and C, 1st Battalion Engineers. This battalion, prior to an Eastern movement, was employed in constructing camps at Camps Fremont and Kearney, and, at various dates throughout September, 1917, started an Eastern movement, arriving in Camp Mills on the sixth and seventh of September, 1917, that being the first time that the battalion was assembled as a unit. We remained in Camp Mills until the eighteenth of October, the time being spent in intensive training, principally close-order drill.

On the 18th of October, 1917, we sailed for France on the U. S. S. "Covington," arriving in St. Nazaire on November 1. We remained on the boat five days, entraining on November 5th for some point in France, and arrived at Mauvage on the 8th of November, and were billeted in the homes and hay lofts of the villagers. This being the first time our troops were billeted in this manner, it was quite a novel experience at first. The weather at this time of the year was cold and disagreeable, and considerable sickness, due to colds, made it very inconvenient for a while, but we soon became acclimated and nothing serious developed.

On the 24th of November the majority of the officers left for the First Corps School at Gondrecourt, remaining until the thirtieth of December, 1917. Officers from all branches of the service were there, but it was mostly an Infantry-Engineer school. The organization moved from Mauvage to Chalindrey on the twenty-sixth of December, where it was joined by the officers returning from school. This latter town was in what was known as the 7th Divisional Area, and we were there on barrack construction, making ready for the incoming troops. It was here that we came in contact with the French lines of communication troops.

On the twenty-seventh day of January, 1918, I took half of D Company, which I commanded at that time, and went to Chaumont, General Pershing's headquarters, on barrack and camp construction, remaining there until the 16th of February, when we rejoined the regiment again at Chalindrey and began making ready to entrain for the front. We marched out of Chalindrey at 4 a. m. on February 14 and entrained at Langres, arriving at Moyon at 6 a. m. on February 20.

We marched from Moyon to Habainville and went into the line on the twenty-second of February under French command, attached to the 167th French Infantry. We stayed in line continuously thereafter until the eighteenth of June. During this period we picked up matters of modern warfare that were invaluable, as we learned in the campaigns that followed, and I consider this battalion, and the 7th Division, to which we were attached, as most fortunate in being able to spend so much time in a semi-active sector, which, however, became quite active at times, the officers and men becoming accustomed to shell and gas attacks, both shell and projector. We spent long days at hard work throughout our entire period in this, the Baccarat Sector, and I consider this, alone, made us physically fit to undertake the hard campaigns which followed soon thereafter.

We left Vacquerville for the rear on June 18, and marched to St. Benoit, then to St. Helene, thence to Thaon, where we entrained June 24, arriving at Coolus June 25, and marched twenty-two kilometers to Hablaincourt.

We marched out of Hablaincourt on June 28 to L'Peine, a distance of thirty kilometers. While here we rehearsed a problem of an attack we were to make west of Rheims, but this was suddenly called off, and we marched into line in front of Suippes on the night of July 4, arriving there at daybreak on July 5. Here we noticed great preparations for a counter to the pending German attack. We worked day and night on the trenches of the second position, getting them in readiness, and all units were informed that they must dig in for their self-preservation. Everyone seemed to realize, including officers and men, that a heavy attack was pending, but no one seemed to doubt but that we were perfectly safe from any deep penetration on the part of the enemy. The front-line units (French) made one raid every night, and sometimes two a night, and gained most valuable information. Word was passed down as to the exact hour the bombardment would open up. Never before had the

organization been upon the receiving end of a more violent artillery action. D and E Companies stood to as Reserve Infantry with the 84th Brigade, and F Company in reserve to the same brigade.

During the day of July 15, 1918, moving out as a battalion to the left of the Divisional Sector, we joined the First Battalion, taking up our position as Reserve Infantry, as a regiment, in the vicinity of Jonchrey Farm, relieving the 165th New York Infantry. During this action D Company was the first to receive any casualties, it losing, in killed and wounded, about 14 per cent from enemy shell fire. This was on the night of July 14 and the morning of the 15th. While in the Jonchrey Farm section F Company stood to as Infantry, and D and E Companies in reserve. We received at this time considerable annoyance from gas shells, but suffered no serious casualties. We moved out of this position at midnight July 18, arriving at Cuperly at 5 a. m. on the nineteenth, remaining in this town until the twenty-third of July, when we entrained for Chateau Thierry.

Arrived at Triport on July 24, and marched to Trancrew, where we were billeted for the night. We moved out of this place on July 25, by truck train, to the north of Chateau Thierry, and went into position in the Forêt-de-Fere as Reserve Infantry, following up the advance to the Vesle River. We were relieved here and brought back to Fere-on-Tardenois on August 5. While in Forêt-de-Fere we acted as Infantry and Engineers. We sent reconnaissance parties along the Ourcq River, getting information for the Division in general, and threw bridges across the Ourcq for light artillery, this being done under shell fire. The bridge party from F Company, while putting a bridge in front of Sergy, was fired upon and almost wiped out, three or four being killed and the rest wounded.

We moved out of Fere-on-Tardenois toward the rear and arrived at Domptin August 13, remaining in this latter town until August 19th, when we marched to Chateau Thierry and entrained, arriving in Brainville August 20th. We remained at this point, in training, until August 28, when we started on our march to the Toul Sector. The commander of E Company, Capt. Wade, and myself preceded the battalion on the line by three days, the organization arriving on September 11th and going into the attack on the morning of the 12th. D and E Companies sent one platoon each with the 167th and 168th Regiments of Infantry to cut wire at the head of the attacking party, one platoon each with the small French tanks and two platoons with the artillery sniping batteries, F Company being in reserve in line of communication work. Great preparations were made for the attack at a jump-off point, as the Infantry troops would come into the line at midnight prior to the attack. Trails were cut through the woods for a quarter of a kilometer, and smooth wire put on both sides for guides with illuminated signs, in large letters, at the entrances to these trails, luminous paint being used for this purpose. This, the St. Mihiel Offensive, started on the 12th of September, zero hour, 5 o'clock, the bombardment starting at 1 o'clock. At midnight of September 11 a terrible rainstorm started and continued throughout the night until the zero hour, but stopped soon thereafter, and broke out into a wonderful day. All of us were of the opinion that we would meet with a stubborn resistance, and little did anyone think, on the morning that we "went over," that our objective would be reached so easily. The attacking units were a very wonderful sight, three distinct Infantry waves, the tanks and sniping batteries following in support, and, about an hour afterwards, the prisoners coming back. The men went into this action with a vigor and purpose unrivaled by any troops, and I want to pay great tribute to the Engineer soldiers. When their work was accomplished as Engineers, after getting through the wire, they fought with the Infantry in reducing machine-gun nests, taking many prisoners.

Our objective took us to a line drawn through St. Benoit and known as the Essey-Pannes Sector, which line we held until the first of October, when we moved to the immediate rear and entrained on an Indo-Chino truck train, arriving at Souilly, then Advanced Army Headquarters, on October 2, remaining there until October 4, when we started our march to the Argonne, arriving at Bois-de-Montfaucon, where we stayed until the eleventh of October, when we moved to Baulney, relieving the First Engineers at this point.

On October 12, 1918, we moved to Carpentry. On October 14 we moved out at 3 a. m. into an attack, in Reserve to the 84th Infantry Brigade, arriving at Exermont on the same afternoon. A portion of F Company preceded the 168th Infantry in this attack, in which they received many casualties. The rest of the organization stood in Infantry Reserve. The battalion stayed in the vicinity of Exermont until the 2d of November on the organization of a position in front of Landres St. Georges.

On November 22 D Company moved out with the 84th Brigade along the left flank of the Divisional Sector, and the rest of the regiment followed up as Engineers. This drive was the one that landed the Division in front of Sedan, at which point we arrived on the afternoon of November 7th.

Our troops were engaged in reconnaissance work ahead of the Infantry along the Meuse River, and, on the evening of November 8, we threw a footbridge across the Meuse in front of Remilly. Received order on November 9th to move to the rear. We marched to Les Petit Armoises.

On November 10 we moved to Bar-sur-Buzancy. We were at this point on November 11, when we heard unconfirmed rumors that the armistice had been signed. On the 12th of November we received confirmation of the report, and also learned that we were to be a part of the Army of Occupation. Left Bar-sur-Buzancy November 14, and camped at Landreville.

On November 16 we marched out of Landreville via Landres St. Georges, Sommerance and Romange, camping in the woods just east of Bantheville. Left next morning, November 17, and camped at Breheville. Here we met the first liberated Allied prisoners, among them being French, English and American. Left Breheville on November 20 and camped at Juevigny. Here we met other Allied prisoners, who showed signs of terrible mistreatment and looked very much emaciated.

Left Juevigny on November 21, marching via Montmedy to Ecouviez. This was the last town in France, being two kilometers from the Belgian frontier and a large German ammunition dump. On November 22d we moved to Chatillon via Virton, Belmont and St. Leger, passing the Belgian frontier at 8:20 a. m. On November 23 we moved out and camped at Elvange-les-Beckwith, this town being in Luxembourg, passing the boundary of Belgium at 11:45 a. m. We camped in this town, policing up equipment and drilling, until December 1, when we moved out and camped at Brouch.

Moved out of Brouch on December 2, 1918, and marched to Heffingen. Left Heffingen on December 3, and marched to Bollendorf, arriving there at 2:50 p. m., crossing the Sauer River, which is the boundary line between Luxembourg and Germany at this point. We were two days behind the German army in accordance with the terms of the armistice. We camped in this town until the 5th of December, when I moved out with D Company to Messerich, to guard a piece of railroad over which the Division was moving its supplies between Trier and Bitburg. The rest of the regiment moved on into Germany with the Division, behind the German army, their line of march being as follows:

Bollendorf	on December 3;
Oberweiss	on December 5;
Reuland	on December 6;
Schwirzheim	on December 7;
Feusdorf	on December 8;
Dorsel	on December 9;
Bruck	on December 14;
Mayschoss	on December 15.

D Company stayed in Messerich, on this railroad guard, until the 18th of December, when we moved out by train at 11 a. m., arriving in Mayschoss at 3 p. m., where we joined the rest of the regiment. The wagon train was sent overland, and did not arrive until a week later. We camped in this town during our period of occupation in Germany where the regiment was engaged in barrack and stable construction and maneuver problems.

Left Mayschoss on April 10, 1919, entraining at Oberwinter on the Rhein, for our trip to Brest. Arrived at Brest on April 13, and marched to Camp Pontanenzan.

Left Brest on April 16, and boarded the U. S. S. "Pueblo," homeward bound, arriving in New York on the twenty-eighth of April, and camped at Camp Merritt, N. Y., where the Division was broken up into detachments and sent to the respective rendezvous.

All of the headquarters company of the regiment went to South Carolina, and the detachments of 2d Battalion to Camp Kearny and the Presidio of San Francisco.

We left Camp Merritt on May 10, arriving in San Francisco about seven days later, where we were discharged from the service of the United States, and there ending the service and designation of the 2d Battalion, 117th Engineer Regiment.

NAVAL MILITIA.

The Naval Militia of California had made splendid progress during the past two years. The following additional units were organized: Ninth Division, Aeronautic Section, Ninth Division; Tenth and Eleventh Divisions, Second Engineer Division, Engineer Section, Fourth Division, and First Marine Company.

They had outgrown the U. S. S. "Marblehead" which had been assigned to the Naval Militia at San Francisco, and the Navy Department assigned the U. S. S. "Oregon" to that station, and the U. S. S. "Farragut" for use at Santa Barbara, Los Angeles, and San Diego.

On April 6, 1917, Governor William D. Stephens received a telegram from the Secretary of the Navy calling the Naval Militia into Federal Service. Upon the Governor's orders the Naval Militia was immediately directed to assemble at their armories and prepare for muster. The following organizations were mustered in as National Naval Volunteers: First Division, San Francisco; Second Division, San Francisco; Third Division, San Diego; Fourth Division, Santa Cruz; Engineer Section, Fourth Division, Santa Cruz; Fifth Division, Eureka; Sixth Division, Santa Barbara; Seventh, Eighth, and Ninth Divisions, Los Angeles; Aeronautic Section, Ninth Division, Los Angeles; Tenth Division, San Diego; Eleventh Division, Los Angeles; First Engineer Division, San Francisco; Second Engineer Division, Los Angeles, and First Marine Company, Los Angeles. The entire organization was subsequently mobilized on board the U. S. S. "Oregon," U. S. S. "San Diego," and U. S. S. "Huntington" at Mare Island, California.

The Naval Militia has practically been replaced by the present United States Naval Reserve Force system, which is entirely under Federal control, having no connection with the State. In view of the fact that Congress did not provide for reorganization, there can be no Naval Militia organized in the State.

Officers and men were assigned to duty on vessels of the Pacific Fleet, under orders to proceed to the Atlantic coast, also to other duties aboard ship and ashore, and they saw service in all parts of the world.

The Naval Militia of California has been acknowledged by the Navy Department to have been one of the best organizations of its kind to enter the Federal service.

**LIST OF OFFICERS AND MEN OF THE NAVAL MILITIA OF CALIFORNIA
AND DATES OF ENROLLMENT IN NATIONAL NAVAL VOLUNTEERS.**

Headquarters.

Name	Rank or rating	Date of enrollment
Bauer, Geo. W.	Captain	April 6, 1917
McGee, John A.	Commander, Chief Staff	April 16, 1917
Speck, Wm.	Lt. Commander, Chief Eng.	April 14, 1917
Smith, H. P.	Lt. Commander, Ord. Officer	April 6, 1917
Dennis, C. C.	Lt. Commander, Paymaster	April 21, 1917

Band.

Murray, R. E.	Bandmaster	May 18, 1917
Love, E. B.	Musician, 1st class	May 18, 1917
Smith, F. A.	Musician, 1st class	May 23, 1917
Yeager, R. L.	Musician, 1st class	May 23, 1917
Nauman, K. G.	Musician, 1st class	May 23, 1917
DeVaughn, E.	Musician, 1st class	May 23, 1917
Himmel, B. F.	Musician, 1st class	May 23, 1917
Musse, E. J.	Musician, 1st class	May 23, 1917
Steffen, T., Jr.	Musician, 1st class	May 23, 1917
Voss, R.	Musician, 1st class	May 23, 1917
Walrath, G. L.	Musician, 1st class	May 23, 1917
Johnson, H. McK.	Musician, 2d class	May 18, 1917
Steele, C. T.	Musician, 2d class	May 18, 1917
Caralli, F. E.	Musician, 2d class	May 23, 1917
Wind, P. H.	Musician, 2d class	May 23, 1917
Fisk, E. H.	Musician, 2d class	May 23, 1917
Munch, R. E.	Musician, 2d class	May 23, 1917
Himmel, E. E.	Musician, 2d class	May 23, 1917
Himmel, W.	Musician, 2d class	May 23, 1917
Voss, C. R.	Musician, 2d class	May 23, 1917
Carter, A. V.	Musician, 2d class	May 23, 1917
Green, W. S.	Musician, 2d class	July 20, 1917

Medical Department.

Leland, T. B. W.	Lt. Commander, Chief Surgeon	April 8, 1917
Bush, Benj. H.	Lt. (JG) Asst.	April 14, 1917
Murrieta, A. J.	Lt. P.A. Surg.	April 14, 1917
Castlehun, Paul	Lt. P.A. Surg.	April 14, 1917
Macleish, A. C.	Lt. (JG) Asst. Surg.	April 28, 1917
Pounds, T. C.	Lt. (JG) Asst. Surg.	April 14, 1917
Wallace, Carl T.	Lt. (JG) Asst. Surg.	April 12, 1917

First Battalion.

Cobb, W. R.	Lt. (JG) Sig.	April 19, 1917
Harris, F. S. M.	Lieutenant	April 17, 1917
Hilton, H. A.	Ch. Gun Mate	May 9, 1917
Hubbard, W. E.	Lieutenant	April 20, 1917
Kammerer, G. E.	Commander	April 17, 1917
Kurtzman, L. W.	Pharmacist	April 21, 1917
McGee, G. S.	Ensign (Asst. paymaster)	April 6, 1917
Moore, D. C.	Pharmacist	April 20, 1917
Mosbacher, E.	Lt. (P. A. paymaster)	April 23, 1917
Schnalle, R.	Ch. Bos.	April 20, 1917
Stange, John	Ch. Carp. Mate	April 20, 1917
Tooze, W. C.	Lieutenant	April 20, 1917

First Division.

Ducray, J. A.	Lieutenant	April 16, 1917
Johnson, Wm. M.	Ensign	April 6, 1917
Stern, R. J. A.	Ensign	April 17, 1917

Second Division.

Harloe, Thos. S.	Lieutenant	April 6, 1917
Ashley, Wm. J.	Ensign	April 17, 1917
Holm, L. R.	Ensign	April 6, 1917

Fourth Division.

Name	Rank or rating	Date of enrollment
Wiley, J. H.	Lieutenant	April 16, 1917
Baldwin, A. M.	Ensign	April 6, 1917
Sprague, E. W.	Ensign	April 6, 1917
Atwood, A. R.	Ensign (Mach.)	Aug. 7, 1917

Fifth Division, First Battalion.

Adams, A. B.	Lieutenant	April 6, 1917
Torrey, W. E.	Lieutenant (JG)	April 6, 1917

First Engineer Division.

Leopold, H. A.	Lieutenant	April 20, 1917
Hendry, C. S.	Lieutenant (JG)	April 6, 1917
Hass, R. L.	Ensign	April 6, 1917
Hendry, C. S.	Lt. (JG) Retired	May 30, 1917

Second Battalion.

Woodbine, A. H.	Commander	April 14, 1917
Stewart, D. M.	Lt. Commander, Ex Off.	April 17, 1917
Adams, Morgan	Lt., Nav.	April 14, 1917
Doheny, E. L., Jr.	Lt., Eng. Off.	April 19, 1917
Haver, H. M.	Lt., Eng. Off.	April 19, 1917
Taylor, N.	Lt., Gun Off.	April 19, 1917
Tipton, M. R.	Lt., P. A. Paymaster	April 6, 1917
Hizar, J. C.	Ensign, Asst. Paymaster	April 19, 1917
McMillan, H. H.	Pay Clerk	April 28, 1917

Third Division.

Loebenstein, D. A.	Lieutenant	April 19, 1917
Buckle, H. C.	Lieutenant (JG)	April 17, 1917
Gill, H. H.	Ensign	April 19, 1917
Shively, R. G.	Ensign	April 17, 1917

Sixth Division.

Kimball, F. H.	Lieutenant	April 19, 1917
Wright, C. W.	Lieutenant (JG)	April 19, 1917
Niler, H. L.	Ensign	April 19, 1917
Cruickshank, J. I.	Ensign	Aug. 7, 1917

Seventh Division.

Clark, R. W.	Lieutenant	April 14, 1917
Henneberger, H., Jr.	Lieutenant (JG)	April 17, 1917
Hageman, M. J.	Ensign	April 19, 1917
Tillotson, C. B.	Ensign	April 28, 1917

Eighth Division.

Link, Geo. E.	Lieutenant	April 19, 1917
Koebig, Hans K.	Lieutenant (JG)	April 19, 1917
Ryerson, H. S.	Ensign	April 19, 1917
Clark, Wm. A.	Ensign	April 20, 1917

Ninth Division.

Seaver, Frank R.	Lieutenant	April 14, 1917
Hogan, Dana	Ensign	April 19, 1917
Wright, H. W.	Ensign	April 19, 1917

Tenth Division.

Baker, Robt. H.	Lieutenant	April 17, 1917
Haynes, H. S.	Lieutenant (JG)	April 19, 1917
Siebert, S. R.	Ensign	April 17, 1917

Eleventh Division.

Name	Rank or rating	Date of enrollment
Armstrong, J. L.	Lieutenant	April 19, 1917
Smith, C. W.	Lieutenant (JG)	April 28, 1917
Jennings, D. W.	Ensign	April 28, 1917
Lee, E. W.	Ensign	April 19, 1917

Second Engineer Division.

Silent, R. W.	Lieutenant	April 28, 1917
Pierce, C. W.	Ensign	April 19, 1917

Aeronautic Section, Ninth Division.

Simpson, F., Jr.	Lieutenant	
Burns, A. C.	Ensign	
Reynolds, H. V.	Ensign	

Marine Company.

Best, Newton	Captain	April 27, 1917
Hayes, Glenn E.	1st Lieutenant	April 21, 1917
Garner, John L.	2d Lieutenant	April 21, 1917
Talbot, John F.	2d Lieutenant	April 17, 1917

FIRST BATTALION.

First Division (San Francisco).

Carmicheal, N. M.	Quartermaster, 2d class	May 3, 1917
Henn, C. A.	Electrician, 2d class (R.)	May 3, 1917
Falk, V. H.	Electrician, 2d class (R.)	May 3, 1917
Jorden	Yeoman, 2d class	May 3, 1917
Dinsmore, V. A.	Pharmacist's mate, 2d class	May 3, 1917
Issacs, H.	Yeoman, 3d class	May 3, 1917
Daly, L. C.	Fireman, 3d class	May 3, 1917
Buck, S. M.	Electrician, 3d class (G.)	May 3, 1917
Gibson, W. W.	Pharmacist's mate, 3d class	May 3, 1917
Gibson, E. L.	Pharmacist's mate, 3d class	May 3, 1917
Hanssen, H. H.	Carpenter's mate, 2d class	May 3, 1917
Berry, A. T.	Seaman	May 3, 1917
Carrillo, G. E.	Seaman	May 3, 1917
Randall, N. H.	Seaman	May 3, 1917
Downing, G.	Seaman	May 3, 1917
Carroll, G. M.	Seaman, 2d class	May 3, 1917
Doran, S. J.	Seaman, 2d class	May 3, 1917
Huber, G. J.	Seaman, 2d class	May 3, 1917
Jewett, A. R.	Seaman, 2d class	May 3, 1917
Mogan, W. E.	Seaman, 2d class	May 3, 1917
Murphy, F. A.	Seaman, 2d class	May 3, 1917
Silverman, J.	Seaman, 2d class	May 3, 1917
Whitten, E. W.	Seaman, 2d class	May 3, 1917
Yeffa, F.	Seaman, 2d class	May 3, 1917
Abrahams, H. W.	Seaman, 2d class	May 3, 1917
Johnston, C. A.	Seaman, 2d class	May 3, 1917
O'Connor, F. N.	Seaman, 2d class	May 3, 1917
Green, R.	Seaman, 2d class	May 3, 1917
Church, G. A.	Seaman, 2d class	May 3, 1917
Wood, M. H.	Seaman, 2d class	May 3, 1917
Woodward, D. E.	Seaman, 2d class	May 3, 1917
Martin, J. A.	Seaman, 2d class	May 3, 1917
Johnson, M. H.	Seaman, 2d class	May 3, 1917
Bright, D. H.	Seaman, 2d class	May 3, 1917
Bull, V. S.	Seaman, 2d class	May 3, 1917
Ross, A. J.	Seaman, 2d class	May 3, 1917
Middleton, W. Stc.	Seaman, 2d class	May 3, 1917
Setliff, G. M.	Gunner's mate, 1st class	May 3, 1917

Second Division (San Francisco).

Name	Rank or rating	Date of enrollment
Grant, Fred	Boatswain's mate, 1st class	May 3, 1917
Stelling, Henry	Gunner's mate, 1st class	May 3, 1917
Hahn, E.	Quartermaster, 1st class	May 4, 1917
Elliott, J. H.	Shipfitter, 1st class	May 3, 1917
Orth, E. P.	Electrician, 1st class (R.)	May 3, 1917
Rupprecht, G.	Printer, 1st class	May 3, 1917
Reidy, J.	Boatswain's mate, 2d class	May 2, 1917
Thurban, Edward P.	Yeoman, 2d class	May 3, 1917
Margo, J.	Yeoman, 2d class	May 3, 1917
Newman, Leslie B.	Yeoman, 2d class	May 4, 1917
McLaughlin, W. B.	Pharmacist's mate, 2d class	May 3, 1917
Filiberti, E. J.	Coxswain	May 3, 1917
Filiberti, A.	Gunner's mate, 3d class	May 3, 1917
Weiss, F.	Quartermaster, 3d class	May 3, 1917
Stange, E. H.	Carpenter's mate, 3d class	May 3, 1917
Collins, J. M.	Yeoman, 3d class	May 3, 1917
Anderson, O.	Seaman	May 3, 1917
Blakwell, William R.	Seaman	May 3, 1917
Barten, E. G.	Seaman	May 3, 1917
Browning, R. H.	Seaman	May 3, 1917
Berns, R. E.	Seaman	May 3, 1917
Blair, H. H.	Seaman	May 3, 1917
Boyes, C. M.	Seaman	May 3, 1917
Charlton, T.	Seaman	May 3, 1917
Crapetello, J.	Seaman	May 3, 1917
Dunne, J. A.	Seaman	May 3, 1917
Donahue, G. W.	Seaman	May 3, 1917
Gaston, Bertram	Seaman	May 3, 1917
Giller, Leon	Seaman	May 14, 1917
Kenny, George	Seaman	May 13, 1917
Long, Charles E.	Seaman	May 3, 1917
Looney, Oran E.	Seaman	May 3, 1917
Martini, A.	Seaman	May 3, 1917
McClernon, J. R.	Seaman	May 4, 1917
Moehus, Frank	Seaman	May 3, 1917
Rubenstein, J.	Seaman	May 3, 1917
Ritchie, J. P.	Seaman	May 3, 1917
Reigelman, Carl	Seaman	May 3, 1917
Sanders, G. B.	Seaman	May 3, 1917
Schmidt, George	Seaman	May 3, 1917
Smith, Leslie	Seaman	May 3, 1917
Stewart, K. R.	Seaman	May 3, 1917
Stange, J. E. W., Jr.	Seaman	May 3, 1917
Thompson, W.	Seaman	May 3, 1917
Tissot, A.	Seaman	May 3, 1917
Welsch, W. E.	Seaman	May 3, 1917
White, T. J.	Seaman	May 3, 1917
Wrath, E. O.	Seaman	May 3, 1917

Fourth Division (Santa Cruz).

Stevens, Floyd Cecil	Boatswain's mate, 1st class	May 2, 1917
Martin, John Edward	Quartermaster, 1st class	May 2, 1917
Rankin, Lowell Harvey	Quartermaster, 1st class	May 2, 1917
White, Jonas	Cook, 1st class	May 2, 1917
Paulsen, Wm. Earl	Boatswain's mate, 2d class	May 2, 1917
Sneath, Karl Lester	Quartermaster, 2d class	May 2, 1917
Paulsen, Benj. Rush	Coxswain	May 2, 1917
Paulsen, Nahmen	Coxswain	May 2, 1917
Wright, John Alvin	Coxswain	May 2, 1917
O'Keefe, John	Coxswain	May 2, 1917
Delmonica, Jack Julian	Quartermaster, 3d class	May 2, 1917
Heick, James H.	Fireman, 2d class	May 2, 1917
Kirtley, Charles	Chief Machinist's mate	May 2, 1917
Walker, Jas. Gordon	Machinist's mate, 2d class	May 2, 1917
Abbott, Elmer Jay	Yeoman, 1st class	May 2, 1917
Fatte, Calvin	Oiler	May 2, 1917
McAbee, Faxon M.	Electrician, 2d class	May 2, 1917
Coats, Raymond Francis	Pharmacist's mate, 3d class	May 2, 1917
Birkenseer, George	Seaman	May 2, 1917
Brown, Robert William	Seaman	May 2, 1917
Conklin, Fred Vern	Seaman	May 2, 1917

Fourth Division (Santa Cruz)—Continued.

Name	Rank or rating	Date of enrollment
Crumpton, James	Seaman	May 2, 1917
Dean, Millard Vernon	Seaman	May 2, 1917
Denton, William Hayes	Seaman	May 2, 1917
Finn, James Gotchy	Seaman	May 2, 1917
Hamber, Claud Reginald	Seaman	May 2, 1917
Hill, Steven Thayer	Seaman	May 2, 1917
Jacobson, Earl Fridolf	Seaman	May 2, 1917
Kirkmon, Charles	Seaman	May 2, 1917
Poole, Walter James	Seaman	May 2, 1917
Sheldon, Earnest Blair	Seaman	May 2, 1917
Whipple, Delos	Seaman	May 2, 1917
Zamzow, Walter Millard	Seaman	May 2, 1917
Schmarje, L. A.	Seaman	May 2, 1917
Frey, Edward	Seaman	May 2, 1917
Foster, Arthur	Seaman	May 2, 1917
Amaral, Tony Lawrence	Seaman	May 2, 1917
Huddleson, Lee	Seaman	May 2, 1917
Linstedt, Arthur	Seaman	May 2, 1917
Butler, Charles Logan	Seaman	May 2, 1917
Edmans, Arthur Lee	Seaman	May 2, 1917
Francis, John Fee	Seaman	May 2, 1917
Jones, Elmer Madeira	Seaman	May 2, 1917
Siveley, Will Arch	Seaman	May 2, 1917
Soria, Ernest Joseph	Seaman	May 2, 1917
Rea, Henry Carter	Fireman, 2d class	May 2, 1917
Hill, Henry Leemore	Fireman, 1st class	May 2, 1917
Snellgrove, Lee Roy	Fireman, 1st class	May 2, 1917
Delaney, James F.	Fireman, 2d class	May 2, 1917
Leeman, Archibald	Fireman, 2d class	May 2, 1917
Reukema, Lester Edwin	Fireman, 2d class	May 2, 1917
Trafton, Frank George	Fireman, 2d class	May 2, 1917
Fischer, Paul Bonebrake	Fireman, 3d class	May 2, 1917
Gibson, Wesley H.	Fireman, 3d class	May 2, 1917
Gilbert, William F.	Fireman, 3d class	May 2, 1917
Hazelton, Elmer	Fireman, 3d class	May 2, 1917
Hazelton, Ralph L.	Electrician, 3d class	May 2, 1917
Codiga, Louis Paul	Fireman, 1st class	May 2, 1917
Atwood, Lyman Chester	Fireman, 2d class	May 2, 1917

Fifth Division (Eureka).

Acorn, H. S.	Yeoman, 2d class	April 18, 1917
Blondin, F. T.	Electrician, 2d class	April 18, 1917
Garner, F. B.	Yeoman, 3d class	April 18, 1917
Gugliemetti, L. J.	Yeoman, 3d class	April 18, 1917
Hillicker, J. H.	Electrician	April 18, 1917
McGeorge, T. F.	Electrician, 3d class	April 18, 1917
Brown, I. L.	Seaman	April 18, 1917
Brooks, J. G.	Seaman	April 18, 1917
Bell, A. J.	Seaman	April 18, 1917
Brown, C. L.	Seaman	April 18, 1917
Bulfinch, F. E.	Seaman	April 18, 1917
Benefield, R. C.	Seaman	April 18, 1917
Burrows, J. A.	Seaman	April 18, 1917
Connett, H. D.	Seaman	April 18, 1917
Carl, G. W.	Seaman	April 18, 1917
Chilcott, W.	Seaman	April 18, 1917
Coats, R. A.	Seaman	April 18, 1917
Diehl, W. F.	Seaman	April 18, 1917
Davis, F. D.	Seaman	April 18, 1917
Dean, W. R.	Seaman	April 18, 1917
Delgrandy, L.	Seaman	April 18, 1917
Day, W.	Seaman	April 18, 1917
Delgrandy, C.	Seaman	April 18, 1917
Evans, L.	Seaman	April 18, 1917
Eckholm, E.	Seaman	April 18, 1917
Foss, C.	Seaman	April 18, 1917
Foster, J. T.	Seaman	April 18, 1917
Flowers, J. R.	Seaman	April 18, 1917
Griffin, H. W.	Seaman	April 18, 1917
Helms, F. E.	Seaman	April 18, 1917
Harmon, J. R.	Seaman	April 18, 1917

Fifth Division (Eureka)—Continued.

Name	Rank or rating	Date of enrollment
Hanley, L. S.	Seaman	April 18, 1917
Haney, J. F.	Seaman	April 18, 1917
Jones, J. D.	Seaman	April 18, 1917
Judd, J. L.	Seaman	April 18, 1917
Kerr, G. H.	Seaman	April 18, 1917
Kern, G. R.	Seaman	April 18, 1917
Kniss, M. E.	Seaman	April 18, 1917
Klemp, A. R.	Seaman	April 18, 1917
Manning, W. R.	Seaman	April 18, 1917
Marks, A.	Seaman	April 18, 1917
Norton, A. E.	Seaman	April 18, 1917
Neff, J. L.	Seaman	April 18, 1917
Nickolson, W. H.	Seaman	April 18, 1917
Petersen, F. W.	Seaman	April 18, 1917
Porter, S. L.	Seaman	April 18, 1917
Ramsdell, C. G.	Seaman	April 18, 1917
Rochet, J.	Seaman	April 18, 1917
Shortridge, R. C.	Seaman	April 18, 1917
Sanders, J. O.	Seaman	April 18, 1917
Shields, R. I.	Seaman	April 18, 1917
Saffell, H. J.	Seaman	April 18, 1917
Sundfers, A. A.	Seaman	April 18, 1917
Wyatt, J. W.	Seaman	April 18, 1917
Williams, C.	Seaman	April 18, 1917
Anerson, Earl	Seaman, 2d class	April 18, 1917
Brittain, G. D.	Seaman, 2d class	April 18, 1917

First Engineer Division (San Francisco).

Cohen, R. E.	Plumber and fitter	May 4, 1917
Faneuf, R. L.	Oiler	May 4, 1917
Strapenhorst, W. H.	Fireman, 2d class	May 4, 1917
Spellman, J. J.	Pharmacist's mate, 2d class	May 4, 1917
Anderson, E. R.	Yeoman, 2d class	May 4, 1917
Toel, G. E.	Fireman, 1st class	May 4, 1917
Jenkins, L. G.	Electrician, 3d class (gunner)	May 4, 1917
Doherty, J. J. Jr.	Boilermaker	May 4, 1917
Hackmaier, F. R.	Fireman, 2d class	May 4, 1917
Hertzog, E. E.	Fireman, 3d class	May 4, 1917
Malone, W. R.	Fireman, 1st class	May 4, 1917
Buckan, M. L.	Fireman, 3d class	May 4, 1917
Rode, C. B.	Fireman, 2d class	May 4, 1917
Miller, A. H.	Machinist's mate, 2d class	May 4, 1917
Grimes, G. T.	Fireman, 2d class	May 4, 1917
Andichou, P. J.	Shipfitter, 2d class	May 4, 1917
Young, H. G.	Machinist's mate, 1st class	May 4, 1917
Hackmair, H. M.	Oiler	May 4, 1917
Lawson, H. S.	Fireman, 2d class	May 4, 1917
Duncan, G. W.	Fireman, 3d class	May 4, 1917
Campbell, W. C.	Fireman, 3d class	May 4, 1917
Wright, H. H.	Fireman, 3d class	May 4, 1917
Mosher, J. N.	Machinist's mate, 2d class	May 4, 1917
Madden, J. J.	Chief electrician, gunner	May 4, 1917
Buckman, A. E.	Machinist's mate, 2d class	May 4, 1917
O'Brein, J. J.	Fireman, 1st class	May 4, 1917
Sinclair, H. L.	Electrician, 3d class (gunner)	May 4, 1917
Walsh, P. J.	Electrician, 2d class (gunner)	May 4, 1917
Grosscup, S. J.	Electrician, 3d class (gunner)	May 4, 1917
Barton, H. E.	Electrician, 3d class (gunner)	May 4, 1917
Jordan, C. L.	Fireman, 2d class	May 4, 1917
Williams, E. A., Jr.	Fireman, 1st class	May 4, 1917
Wilson, F. E.	Machinist's mate, 1st class	May 4, 1917
Fargo, H. D.	Fireman, 1st class	May 4, 1917
Bree, T. W.	Fireman, 2d class	May 4, 1917
Masse, G. J.	Fireman, 2d class	May 4, 1917
Wuelfken, R.	Fireman, 3d class	May 4, 1917
Sinclair, R. J.	Fireman, 2d class	May 4, 1917
Anderson, V. Q.	Fireman, 2d class	May 4, 1917
Bruhn, P.	Machinist's mate, 2d class	May 4, 1917
Foley, D. F.	Fireman, 2d class	May 4, 1917
Hollis, C. A.	Fireman, 2d class	May 4, 1917

First Engineer Division (San Francisco)—Continued.

Name	Rank or rating	Date of enrollment
Vogler, W. A.	Fireman, 2d class	May 4, 1917
Peirce, F. E.	Fireman, 1st class	May 4, 1917
Bolton, H. B.	Oiler	May 4, 1917
Truitt, R. E.	Fireman, 3d class	May 4, 1917
Rogers, S.	Chief water tender	May 4, 1917
Speers, A. E.	Fireman, 1st class	May 4, 1917
Johnson, J. F.	Fireman, 1st class	May 4, 1917
Burglund, B. N.	Chief electrician (R.)	May 4, 1917
Mooney, J. J.	Fireman, 2d class	May 4, 1917
Linna, F. A.	S. K. M., 1st class	May 4, 1917
Isakson, E. W.	Yeoman, 2d class	May 4, 1917

SECOND BATTALION.

Band.

Elliott, Joseph Paul	Bandmaster	April 14, 1917
Goen, James Paul	Musician, 1st class	April 14, 1917
Kendricks, Elmer	Musician, 1st class	April 14, 1917
Lindsay, Fred K.	Musician, 1st class	April 14, 1917
Olds, Reginald B.	Musician, 1st class	April 14, 1917
Swain, Howard	Musician, 1st class	April 14, 1917
Wahrenbrook, Elmer	Musician, 1st class	April 14, 1917
Barnhart, Theodore S.	Musician, 2d class	April 14, 1917
Haston, John C.	Musician, 2d class	April 14, 1917
Haston, Joseph B.	Musician, 2d class	April 14, 1917
Perkins, Clarence O.	Musician, 2d class	April 14, 1917
Steward, Harold N.	Musician, 2d class	April 14, 1917
Stevens, Walter L.	Musician, 2d class	April 14, 1917
Thurman, Samuel C.	Musician, 2d class	April 14, 1917
Wilkins, Kenneth D.	Musician, 2d class	April 14, 1917

Third Division (San Diego).

Harvey, M. L.	Boatswain's mate, 1st class	April 14, 1917
Wright, L. L.	Baker, 1st class	April 14, 1917
Elliott, G. M.	Gunner's mate, 2d class	April 14, 1917
Vollmer, A. M.	Yeoman, 2d class	April 14, 1917
Fyfe, H. B.	Yeoman, 2d class	April 14, 1917
Benbrook, L. J.	Pharmacist's mate, 2d class	April 14, 1917
Ford, E. K.	Pharmacist's mate, 2d class	April 14, 1917
Maier, V. H.	Baker, 2d class	April 14, 1917
Aichele, E. H.	Coxswain	April 14, 1917
McClure, F. M.	Coxswain	April 14, 1917
Bayloss, E. C.	Gunner's mate, 3d class	April 14, 1917
Elliott, F. H.	Gunner's mate, 3d class	April 14, 1917
Clark, K. E.	Gunner's mate, 3d class	April 14, 1917
Espinosa, E. J.	Pharmacist's mate, 3d class	April 14, 1917
Burns, W. J.	Ship's cook, 3d class	April 14, 1917
Trittipo, G. E.	Ship's cook, 4th class	April 14, 1917
Tobey, C. P.	Chief machinist's mate	April 14, 1917
Liston, W. R.	Chief machinist's mate	April 14, 1917
Aker, L. M.	Chief machinist's mate	April 14, 1917
Woodward, F. H.	Chief machinist's mate	April 14, 1917
Lovejoy, V. F.	Machinist's mate, 1st class	April 14, 1917
Weiskoff, W. H.	Machinist's mate, 1st class	April 14, 1917
Slocum, F.	Machinist's mate, 1st class	April 14, 1917
Rimby, N. U.	Electrician, 1st class	April 14, 1917
Bullard, O. K.	Electrician, 1st class (R.)	April 14, 1917
Johnson, Chas.	Water tender	April 14, 1917
Russell, L. E.	Water tender	April 14, 1917
Dority, G. H.	Machinist's mate, 2d class	April 14, 1917
McCombs, J. G.	Machinist's mate, 2d class	April 14, 1917
Fenn, T. J.	Coppersmith	April 14, 1917
Hudgins, A. A.	Electrician, 2d class (R.)	April 14, 1917
Adams, J. P.	Oiler	April 14, 1917
Cline, J. C.	Fireman, 1st class	April 14, 1917
Jenkins, S.	Fireman, 1st class	April 14, 1917
Kollar, Marton	Fireman, 1st class	April 14, 1917
Ferguson, H. L.	Fireman, 1st class	April 14, 1917

Third Division (San Diego)—Continued.

Name	Rank or rating	Date of enrollment
Keagle, G. D.	Fireman, 2d class	April 14, 1917
Kerr, A.	Fireman, 2d class	April 14, 1917
Schroffler, G. W.	Fireman, 2d class	April 14, 1917
Weir, W. D.	Fireman, 2d class	April 14, 1917
Agen, J. F.	Seaman	April 14, 1917
Alvarez, E. W.	Seaman	April 14, 1917
Bell, A. J.	Seaman	April 14, 1917
Biermann, F. J.	Seaman	April 14, 1917
Bird, G. W.	Seaman	April 14, 1917
Branson, G. P.	Seaman	April 14, 1917
Connors, P. D.	Seaman	April 14, 1917
Copper, S. R.	Seaman	April 14, 1917
Dieterle, A. O.	Seaman	April 14, 1917
Ely, E. E.	Seaman	April 14, 1917
Frick, A. L.	Seaman	April 14, 1917
Fultz, S. H.	Seaman	April 14, 1917
Hendricks, H. D.	Seaman	April 14, 1917
Howden, D. S.	Seaman	April 14, 1917
Lopez, C. B.	Seaman	April 14, 1917
Nelson, A. L.	Seaman	April 14, 1917
Palmer, A. W.	Seaman	April 14, 1917
Powel, H. V.	Seaman	April 14, 1917
Rogers, L. S.	Seaman	April 14, 1917
Ryan, G. H.	Seaman	April 14, 1917
Saunders, W. B.	Seaman	April 14, 1917
Wright, L. C.	Seaman	April 14, 1917

Sixth Division (Santa Barbara).

Taft, I. L.	Boatswain's mate, 1st class	April 14, 1917
Kilor, C. L.	Gunner's mate, 1st class	April 14, 1917
Randolph, W. J.	Gunner's mate, 1st class	April 14, 1917
Smith, C. H.	Boatswain's mate, 2d class	April 14, 1917
Merrill, C. M.	Boatswain's mate, 2d class	April 14, 1917
Drake, O. P.	Boatswain's mate, 2d class	April 14, 1917
Washburn, O.	Gunner's mate, 2d class	April 14, 1917
Kirsten, O. C.	Quartermaster, 2d class	April 14, 1917
Dickerson, T. D.	Quartermaster, 2d class	April 14, 1917
Forbush, F. W.	Master-at-arms, 3d class	April 14, 1917
Libby, G. C.	Coxswain	April 14, 1917
Brunner, R. M.	Coxswain	April 14, 1917
Cunningham, N. A.	Gunner's mate, 3d class	April 14, 1917
Sloane, C. A.	Quartermaster, 3d class	April 14, 1917
McCalib, W. J.	Yeoman, 1st class	April 14, 1917
Lamb, H. A.	Yeoman, 1st class	April 14, 1917
Selover, A. M.	Yeoman, 3d class	April 14, 1917
Johnson, G. E.	Electrician, 1st class	April 14, 1917
Edmonds, C. N.	Electrician, 2d class	April 14, 1917
Cronдона, F. J.	Electrician, 2d class	April 14, 1917
Bonilla, N. S.	Electrician, 3d class	April 14, 1917
Langmack, H. T.	Electrician, 1st class (R.)	April 14, 1917
Bone, C. M.	Electrician, 2d class (R.)	April 14, 1917
Hackmeir, L.	Machinist's mate, 1st class	April 14, 1917
Goggia, J.	Machinist's mate, 2d class	April 14, 1917
Barker, G.	Machinist's mate, 2d class	April 14, 1917
Seymore, J. B.	Oiler	April 14, 1917
Wilder, R.	Oiler	April 14, 1917
Darling, L. W.	Fireman, 2d class	April 14, 1917
Olds, C. V.	Fireman, 3d class	April 14, 1917
Jaurez, F. J.	Blacksmith	April 14, 1917
Shoemaker, E. F.	Yeoman, 3d class	April 14, 1917
Machado, G. C.	Sailmaker's mate	April 14, 1917
Shoemaker, R. I.	Baker, 1st class	April 14, 1917
Hosser, F.	Ship's cook, 2d class	April 14, 1917
Espinosa, E. J.	Printer	April 14, 1917
Prescott, C. W.	Hospital apprentice	April 14, 1917
Seymour, H. E.	Bugler	April 14, 1917
Plimer, F.	Blacksmith	April 14, 1917
Senich, G. V.	Ship's cook, 2d class	April 14, 1917
Abbott, H. H.	Seaman	April 14, 1917
Allen, A. E.	Seaman	April 14, 1917

Sixth Division (Santa Barbara)—Continued.

Name	Rank or rating	Date of enrollment
Arrowiid, D. A.	Seaman	April 14, 1917
Ayalla, J. P.	Seaman	April 14, 1917
Brunner, A. W.	Seaman	April 14, 1917
Burns, R. G.	Seaman	April 14, 1917
Buckley, C. E.	Seaman	April 14, 1917
Carter, E. T.	Seaman	April 14, 1917
Cota, Adolfa J.	Seaman	April 14, 1917
Cota, Alphonso A.	Seaman	April 14, 1917
Cota, Thomas J.	Seaman	April 14, 1917
Cota, Joseph E.	Seaman	April 14, 1917
Cordero, S. L.	Seaman	April 14, 1917
Crisman, E. C.	Seaman	April 14, 1917
Curtiss, R. M.	Seaman	April 14, 1917
Carrillo, A. J.	Seaman	April 14, 1917
Davis, Jos. F.	Seaman	April 14, 1917
Douglass, R. C.	Seaman	April 14, 1917
Eckman, R. M.	Seaman	April 14, 1917
Foxen, R. J.	Seaman	April 14, 1917
Fuller, C. J.	Seaman	April 14, 1917
Gerow, S. E.	Seaman	April 14, 1917
Graham, E. H.	Seaman	April 14, 1917
Grimos, J. M.	Seaman	April 14, 1917
Harris, H. H.	Seaman	April 14, 1917
Holden, C.	Seaman	April 14, 1917
Jaurez, A. A.	Seaman	April 14, 1917
Kniffen, C. A.	Seaman	April 14, 1917
Kiler, E. L.	Seaman	April 14, 1917
Love, C. W.	Seaman	April 14, 1917
Lopez, V. C.	Seaman	April 14, 1917
Lee, H. E.	Seaman	April 14, 1917
McIntyre, R.	Seaman	April 14, 1917
Mullenary, M. C.	Seaman	April 14, 1917
Murphy, F. P.	Seaman	April 14, 1917
Olds, Earnest A.	Seaman	April 14, 1917
Ortega, J. Y.	Seaman	April 14, 1917
Olivera, D.	Seaman	April 14, 1917
Parker, R. W.	Seaman	April 14, 1917
Phillips, Wm. H.	Seaman	April 14, 1917
Pratt, R. B.	Seaman	April 14, 1917
Pollareno, D. G.	Seaman	April 14, 1917
Pollareno, R. S.	Seaman	April 14, 1917
Romero, E. L.	Seaman	April 14, 1917
Read, C. M.	Seaman	April 14, 1917
Rabels, F. A.	Seaman	April 14, 1917
Rodman, W. C.	Seaman	April 14, 1917
Reiley, F. C.	Seaman	April 14, 1917
Schafer, W. H.	Seaman	April 14, 1917
Stokes, A. C.	Seaman	April 14, 1917
Stein, J. S.	Seaman	April 14, 1917
Sutton, R. H.	Seaman	April 14, 1917
Sangster, R. M.	Seaman	April 14, 1917
Scott, W. W.	Seaman	April 14, 1917
Smilie, R. H.	Seaman	April 14, 1917
Trumbull, H. W.	Seaman	April 14, 1917
Valencia, Jos.	Seaman	April 14, 1917
Weatherbee, W. M.	Seaman	April 14, 1917
Woods, J. A.	Seaman	April 14, 1917
Woods, W. M.	Seaman	April 14, 1917
Ware, Chas.	Seaman	April 14, 1917
Ware, Wm.	Seaman	April 14, 1917

Seventh Division (Los Angeles).

Name	Rank or rating	Date of enrollment
Peroni, P. L.	Chief boatswain's mate	April 14, 1917
Buck, C. J.	Chief Yeoman	April 14, 1917
Freeman, W. F.	Boatswain's mate, 1st class	April 14, 1917
Brown, Larkin H.	Gunner's mate, 1st class	April 14, 1917
Gerum, R. M.	Pharmacist's mate, 1st class	April 14, 1917
Swank, W. E.	Boatswain's mate, 2d class	April 14, 1917
Weeks, J. J.	Boatswain's mate, 2d class	April 14, 1917
Elder, F. M.	Gunner's mate, 2d class	April 14, 1917
Taylor, R. F.	Yeoman, 2d class	April 14, 1917
White, A. W., Jr.	Pharmacist's mate, 2d class	April 14, 1917
Fyson, H. E.	Pharmacist's mate, 2d class	April 14, 1917
Minett, H. E.	Ship's cook, 2d class	April 14, 1917
Hagimidriou, J. G.	Baker, 2d class	April 14, 1917
Carnicle, M. C.	Coxswain	April 14, 1917
Wilson, T. F.	Quartermaster, 3d class	April 14, 1917
Ashcroft, H.	Ship's cook, 3d class	April 14, 1917
Baughn, F. L.	Bugler	April 14, 1917
West, K. N.	Bugler	April 14, 1917
Farnsworth, L. L.	Yeoman, 3d class	April 14, 1917
Bogden, A. E.	Chief quartermaster	April 14, 1917
Crocker, I. C.	Quartermaster, 2d class	April 14, 1917
August, T. H.	Seaman	April 14, 1917
Barnes, Ralph	Seaman	April 14, 1917
Barraolaugh, H. J.	Seaman	April 14, 1917
Bayer, O.	Seaman	April 14, 1917
Buntin, R. E.	Seaman	April 14, 1917
Cleaveland, H. M.	Seaman	April 14, 1917
Cooper, R. W.	Seaman	April 14, 1917
Davis, LeRoy	Seaman	April 14, 1917
Clensay, E. A.	Seaman	April 14, 1917
Dellarocco, D.	Seaman	April 14, 1917
Engmark, A. G.	Seaman	April 14, 1917
Feigley, B. L.	Seaman	April 14, 1917
Feigley, C. A.	Seaman	April 14, 1917
Feigley, E. W.	Seaman	April 14, 1917
Fitch, J. G.	Seaman	April 14, 1917
Gowen, B. L.	Seaman	April 14, 1917
Grundy, H. A.	Seaman	April 14, 1917
Hartman, R. C.	Seaman	April 14, 1917
Hector, A.	Seaman	April 14, 1917
Herendeen, B. R.	Seaman	April 14, 1917
Hollibaugh, E. D.	Seaman	April 14, 1917
Hutchinson, C.	Seaman	April 14, 1917
Humason, B. H.	Seaman	April 14, 1917
Jacanovich, J.	Seaman	April 14, 1917
Malone, B. J.	Seaman	April 14, 1917
Marengo, M.	Seaman	April 14, 1917
Matheny, J.	Seaman	April 14, 1917
Murphy, D. J.	Seaman	April 14, 1917
McMullen, A.	Seaman	April 14, 1917
Perkins, L. H.	Seaman	April 14, 1917
Sherwood, B. W.	Seaman	April 14, 1917
Skinner, G. F.	Seaman	April 14, 1917
Smith, Carey S.	Seaman	April 14, 1917
Stradley, M.	Seaman	April 14, 1917
Sundquist, J. O.	Seaman	April 14, 1917
Sutton, H. F.	Seaman	April 14, 1917
Tibbetts, F. L.	Seaman	April 14, 1917
Webb, R. H.	Seaman	April 14, 1917
Woodhouse, C. L.	Seaman	April 14, 1917

Eighth Division (Los Angeles).

Name	Rank or rating	Date of enrollment
Mudge, W. J.	Chief boatswain's mate	April 18, 1917
Bouldin, K. J.	Boatswain's mate, 1st class	April 18, 1917
Muirhead, R. A.	Carpenter's mate, 1st class	April 18, 1917
Mertz, H.	Painter, 1st class	April 18, 1917
Bland, V. W.	Boatswain's mate, 2d class	April 18, 1917
Nolan, E. P.	Boatswain's mate, 2d class	April 18, 1917
Rider, W. L.	Carpenter's mate, 2d class	April 18, 1917
Clabaugh, J.	Carpenter's mate, 2d class	April 18, 1917
Smith, Theodore	Pharmacist's mate, 2d class	April 18, 1917
Albiez, H. E.	Coxswain	April 18, 1917
Beckstead, M.	Coxswain	April 18, 1917
Johanson, E.	Coxswain	April 18, 1917
Reitzke, E. H.	Electrician, 2d class (R.)	April 18, 1917
Smith, Geo. M.	Gunner's mate, 3d class	April 18, 1917
Kellar, R. W.	Yeoman, 3d class	April 18, 1917
Savage, W. T.	Yeoman, 3d class	April 18, 1917
Benedict, W. R.	Pharmacist's mate, 3d class	April 18, 1917
Kolster, D. A.	Yeoman, 3d class	April 18, 1917
Leo, C. C.	Boatswain's mate, 2d class	April 18, 1917
Seidel, Wm.	Electrician, 2d class (R.)	April 18, 1917
Hunt, M. J.	Yeoman, 2d class	April 18, 1917
Aird, G. T.	Seaman	April 18, 1917
Armer, J. D.	Seaman	April 18, 1917
Beal, C. J.	Seaman	April 18, 1917
Beachert, G.	Seaman	April 18, 1917
Dornberger, F.	Seaman	April 18, 1917
Duncan, W.	Seaman	April 18, 1917
Fleming, F. J.	Seaman	April 18, 1917
Hinson, C.	Seaman	April 18, 1917
Holman, P. A.	Seaman	April 18, 1917
Hornbeck, L.	Seaman	April 18, 1917
Jeter, L.	Seaman	April 18, 1917
Jones, LeRoy	Seaman	April 18, 1917
Johnson, H.	Seaman	April 18, 1917
Johnson, Otto	Seaman	April 18, 1917
Keeton, R.	Seaman	April 18, 1917
Lane, C.	Seaman	April 18, 1917
Morrisette, F. O.	Seaman	April 18, 1917
McCarthy, R.	Seaman	April 18, 1917
McRas, Donald	Seaman	April 18, 1917
Massesso, J.	Seaman	April 18, 1917
Muenzel, C.	Seaman	April 18, 1917
Paige, C.	Seaman	April 18, 1917
Phillips, Eugene	Seaman	April 18, 1917
Phillips, Raymond	Seaman	April 18, 1917
Redd, Jas.	Seaman	April 18, 1917
Rico, T. F.	Seaman	April 18, 1917
Robinson, J. W.	Seaman	April 18, 1917
Smith, Wilber E.	Seaman	April 18, 1917
Templar, W.	Seaman	April 18, 1917
Thompson, Dean	Seaman	April 18, 1917
Viellenave, J.	Seaman	April 18, 1917
Walker, E. C.	Seaman	April 18, 1917

Ninth Division (Los Angeles).

Rendant, H.	Boatswain's mate, 1st class	April 14, 1917
Wilson, C. C.	Boatswain's mate, 1st class	April 14, 1917
Crandall, R. E.	Gunner's mate, 2d class	April 14, 1917
Moore, M.	Yeoman, 2d class	April 14, 1917
Ford, Walter S.	Coxswain	April 14, 1917
Jones, F. P.	Coxswain	April 14, 1917
Moore, H. M.	Gunner's mate, 3d class	April 14, 1917
Rubland, E. F.	Electrician, 3d class (R.)	April 14, 1917
Hochderffer, D. F.	Bugler	April 14, 1917
Lankford, W.	Plumber and fitter	April 14, 1917
Wallace, J. H.	Yeoman, 3d class	April 14, 1917
DuPuy, C. A.	Yeoman, 3d class	April 14, 1917
Robinson, Wm. H.	Chief machinist's mate	April 14, 1917
Brown Wm.	Seaman	April 14, 1917

Ninth Division (Los Angeles)—Continued.

Name	Rank or rating	Date of enrollment
Brown, Jos. E.	Seaman	April 14, 1917
Baker, Wm. L.	Seaman	April 14, 1917
Benson, A. H.	Seaman	April 14, 1917
Bly, R. L.	Seaman	April 14, 1917
Carey, G. V.	Seaman	April 14, 1917
Caldwell, W. J.	Seaman	April 14, 1917
Cassell, R. W.	Seaman	April 14, 1917
Chaney, E. F.	Seaman	April 14, 1917
Cole, J. H.	Seaman	April 14, 1917
Cole, Geo. M.	Seaman	April 14, 1917
Comas, S. F.	Seaman	April 14, 1917
Compton, J. W.	Seaman	April 14, 1917
Culver, C. J.	Seaman	April 14, 1917
Davenport, H. M.	Seaman	April 14, 1917
Everett, D. W.	Seaman	April 14, 1917
Everett, J. J.	Seaman	April 14, 1917
Flippen, L. L.	Seaman	April 14, 1917
Fowks, E. B.	Seaman	April 14, 1917
Griffen, C. W.	Seaman	April 14, 1917
Higgason, L. M.	Seaman	April 14, 1917
Hanson, C. A.	Seaman	April 14, 1917
Hamilton, V. C.	Seaman	April 14, 1917
Hamilton, H. L.	Seaman	April 14, 1917
Hansen, R. P.	Seaman	April 14, 1917
Johnston, C. W.	Seaman	April 14, 1917
Kapshut, C.	Seaman	April 14, 1917
Kastner, B. E.	Seaman	April 14, 1917
King, Jos. M.	Seaman	April 14, 1917
Lampman, E. S.	Seaman	April 14, 1917
Maxey, Y.	Seaman	April 14, 1917
McRae, K. M.	Seaman	April 14, 1917
Montford, E. B.	Seaman	April 14, 1917
Moore, H. B.	Seaman	April 14, 1917
Nores, R. T.	Seaman	April 14, 1917
Organ, R. H.	Seaman	April 14, 1917
Orton, Lloyd	Seaman	April 14, 1917
Olds, R. C.	Seaman	April 14, 1917
Parmenter, B. W.	Seaman	April 14, 1917
Popkin, A. G.	Seaman	April 14, 1917
Popkin, H. W.	Seaman	April 14, 1917
Park, E. A.	Seaman	April 14, 1917
Paquette, R. A.	Seaman	April 14, 1917
Pierce, J. W.	Seaman	April 14, 1917
Plasch, Antone	Seaman	April 14, 1917
Reeves, A. B.	Seaman	April 14, 1917
Salter, E. M.	Seaman	April 14, 1917
Sargent, H. J.	Seaman	April 14, 1917
Smith, LeRoy	Seaman	April 14, 1917
Steckel, C. R.	Seaman	April 14, 1917
Showalter, R. E.	Seaman	April 14, 1917
Smilie, D. S.	Seaman	April 14, 1917
Sungren, Geo.	Seaman	April 14, 1917
Templer, G. L.	Seaman	April 14, 1917
Thurnherr, F. H.	Seaman	April 14, 1917
Van Gassbeck, C. L.	Seaman	April 14, 1917
Wiele, L. D.	Seaman	April 14, 1917

Tenth Division (San Diego).

Name	Rank or rating	Date of enrollment
Heminger, Glen	Master-at-arms, 1st class	April 14, 1917
Boyle, Wm.	Master-at-arms, 1st class	April 14, 1917
Alderman, W. A.	Quartermaster, 1st class	April 14, 1917
O'Neill, C. T.	Carpenter's mate, 1st class	April 14, 1917
Sherer, R. M.	Yeoman, 1st class	April 14, 1917
Brand, K. K.	Yeoman, 1st class	April 14, 1917
Wylie, W. B.	Boatswain, 's mate, 2d class	April 14, 1917
Austin, C. B.	Ship's cook, 2d class	April 14, 1917
Aichele, A. B.	Coxswain	April 14, 1917
Andrew, Geo. J.	Coxswain	April 14, 1917
Hatten, C.	Coxswain	April 14, 1917
Kelly, John N.	Coxswain	April 14, 1917
Jensen, Oscar	Gunner's mate, 3d class	April 14, 1917
Schwarting, H. N.	Gunner's mate, 3d class	April 14, 1917
Hansen, H. W.	Quartermaster, 3d class	April 14, 1917
Keith, H. W.	Quartermaster, 3d class	April 14, 1917
Stephens, J. W.	Electrician, 3d class	April 14, 1917
Sprott, C. B.	Yeoman, 3d class	April 14, 1917
Richards, A. E.	Shipwright	April 14, 1917
Atherton, L.	Bugler	April 14, 1917
Ames, R. W.	Seaman	April 14, 1917
Armstrong, R. V.	Seaman	April 14, 1917
Cannon, G. F.	Seaman	April 14, 1917
Chase, H.	Seaman	April 14, 1917
Cox, B. F.	Seaman	April 14, 1917
Davis, S. E.	Seaman	April 14, 1917
Devine, Geo. V.	Seaman	April 14, 1917
Devine, Wm. G.	Seaman	April 14, 1917
Dyer, C. E.	Seaman	April 14, 1917
Early, M. A.	Seaman	April 14, 1917
Evans, Geo. W.	Seaman	April 14, 1917
Fenn, L. M.	Seaman	April 14, 1917
Flynn, J. L.	Seaman	April 14, 1917
Hambrough, O. W.	Seaman	April 14, 1917
Hill, Wm. C.	Seaman	April 14, 1917
Hudson, C. A.	Seaman	April 14, 1917
Johnson, A. F.	Seaman	April 14, 1917
Klem, C. H.	Seaman	April 14, 1917
Krouse, Wm. G.	Seaman	April 14, 1917
Lane, H. W.	Seaman	April 14, 1917
McGillon, T. F.	Seaman	April 14, 1917
Meck, Normen	Seaman	April 14, 1917
Miller, L. F.	Seaman	April 14, 1917
Moore, H. E.	Seaman	April 14, 1917
Morrissey, T. A.	Seaman	April 14, 1917
Oliver, Robt.	Seaman	April 14, 1917
Palmer, Jas. R.	Seaman	April 14, 1917
Perrenot, A. E.	Seaman	April 14, 1917
Pfahler, M. L.	Seaman	April 14, 1917
Prunty, F.	Seaman	April 14, 1917
Reed, C. C.	Seaman	April 14, 1917
Row, J. E.	Seaman	April 14, 1917
Schwarting, Herbert	Seaman	April 14, 1917
Sepp, Wm. C.	Seaman	April 14, 1917
Sodahl, N. F.	Seaman	April 14, 1917
Valenzuela, Ed.	Seaman	April 14, 1917
Volques, Jos.	Seaman	April 14, 1917
Wedell, G. B.	Seaman	April 14, 1917
Wheeling, W. J.	Seaman	April 14, 1917

Eleventh Division (Los Angeles).

Name	Rank or rating	Date of enrollment
Smith, Walter W.	Boatswain's mate, 1st class	April 14, 1917
Sullivan, H. R.	Carpenter's mate, 1st class	April 14, 1917
Daly, Chas. F.	Yeoman, 2d class	April 14, 1917
Todd, R. M.	Yeoman, 2d class	April 14, 1917
Ammons, E.	Coxswain	April 14, 1917
Trumbull, D. D.	Coxswain	April 14, 1917
Todd, Chas. B.	Yeoman, 3d class	April 14, 1917
Walker, M. L.	Yeoman, 3d class	April 14, 1917
Brown, Merle L.	Painter, 3d class	April 14, 1917
Brown, Cyril E.	Painter, 1st class	April 14, 1917
Critchlow, D. M.	Oiler	April 14, 1917
Fisher, T. A.	Electrician, 2d class (R.)	April 14, 1917
Iliff, H. B.	Fireman, 3d class	April 14, 1917
Albright, K. C.	Seaman	April 14, 1917
Barnes, C. P.	Seaman	April 14, 1917
Bland, H. H.	Seaman	April 14, 1917
Baird, A. A.	Seaman	April 14, 1917
Bonnell, R. J.	Seaman	April 14, 1917
Burton, D. H.	Seaman	April 14, 1917
Canby, J. Y.	Seaman	April 14, 1917
Carr, Phillip	Seaman	April 14, 1917
Collins, J. E.	Seaman	April 14, 1917
Cottrell, W. H.	Seaman	April 14, 1917
Delaguerra, L.	Seaman	April 14, 1917
DeSilva, J. A.	Seaman	April 14, 1917
DeWitt, W. T.	Seaman	April 14, 1917
Dingman, W. H.	Seaman	April 14, 1917
Edwards, Chas.	Seaman	April 14, 1917
Fetterhoff, S. L.	Seaman	April 14, 1917
Gipson, W. C.	Seaman	April 14, 1917
Hall, Henry	Seaman	April 14, 1917
Hennion, H. M.	Seaman	April 14, 1917
Jerrue, W. A.	Seaman	April 14, 1917
Kamp, A. P.	Seaman	April 14, 1917
Kelsey, T. H.	Seaman	April 14, 1917
Leekley, A. A.	Seaman	April 14, 1917
Lind, C. A.	Seaman	April 14, 1917
Lopez, B. D.	Seaman	April 14, 1917
McKinzie, W. D.	Seaman	April 14, 1917
Mays, H. W.	Seaman	April 14, 1917
Meyers, W. R.	Seaman	April 14, 1917
Mowers, R. E.	Seaman	April 14, 1917
Montano, P. B.	Seaman	April 14, 1917
Phillips, F. M.	Seaman	April 14, 1917
Poplin, R. S.	Seaman	April 14, 1917
Rich, C. G.	Seaman	April 14, 1917
Root, A. H.	Seaman	April 14, 1917
Smith, Clinton A.	Seaman	April 14, 1917
Storm, C. E.	Seaman	April 14, 1917
Stribling, W. H.	Seaman	April 14, 1917
Tucker, C. R.	Seaman	April 14, 1917
Valenzuela, J.	Seaman	April 14, 1917
Weigle, R. O.	Seaman	April 14, 1917
Worthington, A. M.	Seaman	April 14, 1917
Wilson, Walter W.	Seaman	April 14, 1917
Yale, E. E.	Seaman	April 14, 1917

Second Engineer Division (Los Angeles).

Name	Rank or rating	Date of enrollment
Haff, G. L.	Chief machinist's mate	April 14, 1917
Moore, W. L.	Chief machinist's mate	April 14, 1917
Lincoln, E. M.	Machinist's mate, 1st class	April 14, 1917
Robie, F. C.	Boilermaker	April 14, 1917
West, Wm. B.	Machinist's mate, 2d class	April 14, 1917
Darlington, H. S.	Machinist's mate, 2d class	April 14, 1917
Kistler, W. W.	Machinist's mate, 2d class	April 14, 1917
Russell, J. A.	Machinist's mate, 2d class	April 14, 1917
Daly, John F.	Water tender	April 14, 1917
Beckham, D. R.	Water tender	April 14, 1917
Bartlett, R. A.	Electrician, 1st class	April 14, 1917
LaLanne, F.	Oiler	April 14, 1917
Sears, D. H.	Oiler	April 14, 1917
Hartford, Geo.	Blacksmith	April 14, 1917
Nelson, J. A.	Oiler	April 14, 1917
Hiner, J. E.	Fireman, 3d class	April 14, 1917
Anderson, A. R.	Fireman, 2d class	April 14, 1917
Gomez, A. J.	Fireman, 3d class	April 14, 1917
Fuchs, C. E.	Fireman, 3d class	April 14, 1917
Dean, C.	Fireman, 3d class	April 14, 1917
Burall, C. R.	Fireman, 3d class	April 14, 1917
Buck, J. A.	Fireman, 3d class	April 14, 1917
Weaver, C. E.	Fireman, 3d class	April 14, 1917
Tyler, H. A.	Fireman, 3d class	April 14, 1917
Owen, C.	Fireman, 2d class	April 14, 1917
Galley, H. O.	Fireman, 3d class	April 14, 1917
Jensen, N. B.	Yeoman, 2d class	April 14, 1917
Wolf, E. N.	Fireman, 3d class	April 14, 1917
Morris, H.	Fireman, 3d class	April 14, 1917
Kolling, R. A.	Fireman, 3d class	April 14, 1917
Smith, Lester B.	Electrician, 2d class (R.)	April 14, 1917
Dowell, F. M.	Chief machinist's mate	April 14, 1917
Cooper, R. F.	Machinist's mate, 1st class	April 14, 1917
Bennett, W. B.	Machinist's mate, 1st class	April 14, 1917
James, A. W.	Water tender	April 14, 1917
Levering, W. K.	Oiler	April 14, 1917
Neimeyer, P. R.	Fireman, 2d class	April 14, 1917
Raymond, J. F.	Fireman, 2d class	April 14, 1917
Misner, J. F.	Fireman, 2d class	April 14, 1917
Talbot, B. E.	Fireman, 2d class	April 14, 1917
Murphy, Everett	Fireman, 2d class	April 14, 1917
Ault, C. F.	Fireman, 2d class	April 14, 1917
Lacy, R. W.	Machinist's mate, 2d class	April 14, 1917
Flippen, R. W.	Fireman, 3d class	April 14, 1917
Spencer, H. C.	Fireman, 3d class	April 14, 1917
Cate, R. W.	Fireman, 2d class	April 14, 1917
Farmer, S. A.	Fireman, 3d class	April 14, 1917

Aeronautic Section, Ninth Division (Los Angeles).

Reynolds, N. C.	Chief machinist's mate	April 14, 1917
Ryan, P. S.	Machinist's mate, 1st class	April 14, 1917
Daum, R. J.	Carpenter's mate, 1st class	April 14, 1917
Generaux, G. D.	Machinist's mate, 2d class	April 14, 1917
Weyse, Julius	Machinist's mate, 2d class	April 14, 1917
Kromer, C. R.	Machinist's mate, 2d class	April 14, 1917
Lucas, Herman	Electrician, 3d class	April 14, 1917
Burns, A. C.	Carpenter's mate, 2d class	April 14, 1917
Miller, H. H.	Electrician, 3d class	April 14, 1917
Coneally, T. J.	Electrician, 3d class	April 14, 1917
Jones, H. M.	Electrician, 3d class	April 14, 1917
Kelly, Chas. A.	Electrician, 3d class	April 14, 1917
King, C. E.	Electrician, 3d class	April 14, 1917
Shultz, Fred	Electrician, 3d class	April 14, 1917
Rodier, B. N.	Carpenter's mate, 2d class	April 14, 1917
Stroud, L. O.	Electrician, 3d class	April 14, 1917
Heerdink, J. L.	Carpenter's mate, 3d class	April 14, 1917
Wheeler, C. O.	Carpenter's mate, 3d class	April 14, 1917
Calloway, S. W.	Machinist's mate, 2d class	April 14, 1917
Persson, C. E.	Seaman	April 14, 1917

Marine Company (Los Angeles).

Name	Rank or rating	Date of enrollment
Lewis, Guy	Gunnery Sergeant	April 17, 1917
Knowlton, H. H.	Sergeant	April 17, 1917
Baraw, A. G.	Sergeant	April 17, 1917
Kettrey, F. E.	Sergeant	April 17, 1917
Timmsen, Ernest	Sergeant	April 17, 1917
Love, E. R.	Corporal	April 17, 1917
Patton, M. C.	Corporal	April 17, 1917
Alber, R. H.	Private	April 17, 1917
Atkinson, G. S.	Private	April 17, 1917
Armstrong, W. D.	Private	April 17, 1917
Baisley, W. H.	Private	April 17, 1917
Barnett, R. S.	Private	April 17, 1917
Billmire, H. A.	Private	April 17, 1917
Bonner, E. E.	Private	April 17, 1917
Bradley, H. H.	Private	April 17, 1917
Brunnworth, A. C.	Private	April 17, 1917
Buck, C. H.	Private	April 17, 1917
Clifton, B. L.	Private	April 17, 1917
Colterjohn, G.	Private	April 17, 1917
Colterjohn, W. P.	Private	April 17, 1917
Connolly, T. H.	Private	April 17, 1917
Crozier, L. B.	Private	April 17, 1917
Dean, L. B.	Private	April 17, 1917
DeFraties, R. C.	Private	April 17, 1917
Dorn, C. E.	Private	April 17, 1917
Dunbar, C.	Private	April 17, 1917
Eastham, E. S.	Private	April 17, 1917
Enos, R. F.	Private	April 17, 1917
Evans, Bernard G.	Private	April 17, 1917
Evans, J. W.	Private	April 17, 1917
Gherkin, C. C.	Private	April 17, 1917
Goodban, J. E.	Private	April 17, 1917
Hale, H. N.	Private	April 17, 1917
Hamman, E. F.	Private	April 17, 1917
Hartley, G. M.	Private	April 17, 1917
Hartley, J. M.	Private	April 17, 1917
Hayes, L. O.	Private	April 17, 1917
Hazzard, I. H.	Private	April 17, 1917
Holland, C. D.	Private	April 17, 1917
Hosier, P. D.	Private	April 17, 1917
Jackson, Morris	Private	April 17, 1917
Jacobson, A. F.	Private	April 17, 1917
Johnson, P. R.	Private	April 17, 1917
Leoper, D. W.	Private	April 17, 1917
Males, L. C.	Private	April 17, 1917
Margolis, Barney	Private	April 17, 1917
May, C. L.	Private	April 17, 1917
Miller, J. L.	Private	April 17, 1917
Neafus, V. L.	Private	April 17, 1917
Nester, John Jay	Private	April 17, 1917
Obert, E. J.	Private	April 17, 1917
Paxson, G. D.	Private	April 17, 1917
Railsback, J. W.	Private	April 17, 1917
Pettigrew, W. H.	Private	April 17, 1917
Rector, C. W.	Private	April 17, 1917
Riggs, Carl	Private	April 17, 1917
Sands, W. J.	Private	April 17, 1917
Shepard, A. C.	Private	April 17, 1917
Smith, Royal B.	Private	April 17, 1917
Staley, T. F.	Private	April 17, 1917
Stanton, C. E.	Private	April 17, 1917
Starr, J. G.	Private	April 17, 1917
Stelle, W. C., Jr.	Private	April 17, 1917
Thompson, A. I.	Private	April 17, 1917
Turner, J. L.	Private	April 17, 1917
Usher, O. B.	Private	April 17, 1917
Van Velzer, E. G.	Private	April 17, 1917
Wagner, N. A.	Private	April 17, 1917
Wellman, F. C.	Private	April 17, 1917
Westbrook, R. H.	Private	April 17, 1917
Whetsel, Earl	Private	April 17, 1917
Whitham, J. R.	Private	April 17, 1917
Wiles, L. W.	Private	April 17, 1917
Willson, T. C.	Private	April 17, 1917

DEATHS.

Brig. Gen. Edwin A. Forbes.

Brigadier General Edwin A. Forbes, The Adjutant General of California, died in San Francisco, on June 18, 1915, after a lingering illness. With respect to the death of General Forbes the following orders were issued from this office:

GENERAL ORDERS, } No. 15. }	STATE OF CALIFORNIA, THE ADJUTANT GENERAL'S OFFICE, SACRAMENTO, <i>June 18, 1915.</i>
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The following is published for the information and guidance of all concerned:

STATE OF CALIFORNIA, EXECUTIVE OFFICE,
SACRAMENTO, *June 18, 1915.*

ORDERS:

Brigadier General *Edwin Alexander Forbes*, The Adjutant General, State of California, died today in San Francisco.

It is given to few soldiers to give up their lives to their State in time of peace. General *Forbes* did this, and his service is none the less glorious than if he had died on the field of battle.

General *Forbes* was skilled as a soldier, kindly and courteous, broad-minded and sympathetic, indefatigable and faithful.

What he accomplished in building and developing the National Guard of California, to the end that should the occasion ever arise, the State may not call in vain, will be a monument to him so long as memory shall remain. A surer, finer, monument no man could ever have.

It is not too much to say that he was beloved by every officer and enlisted man who served with and under him.

His place can not be filled, but he has pointed the way, and his wise and beneficent administration will ever be a guide in the future conduct of the military department of the State of California.

General *Forbes* was born July 20, 1860, at Brandy City, Sierra County, Cal. The ancestors on his father's side were soldiers for many generations among the Highland regiments of the British Army—chiefly the Gordon Highlanders, wherein the grandfather served twenty-one years, taking part in many memorable battles, among them Waterloo. At 18 years of age he was granted a first-grade certificate to teach school. He then taught for three years in Yuba County, and afterward graduated from Hastings Law College, San Francisco, in May, 1884. He was elected District Attorney of Yuba County in 1884, and held that office for four terms, until 1892.

General *Forbes'* military record is as follows: Enlisted in Company E, 1st Artillery, National Guard of California, May 8, 1881; company discontinued, November 9, 1883; re-enlisted in Company C, 8th Infantry, National Guard of California, June 1, 1893; to Captain, September 17, 1894; Captain, Company D, 2d Infantry, National Guard of California, January 22, 1896; Lieutenant Colonel, 2d Infantry, National Guard of California, February 3, 1896; re-elected, March 3, 1900, and May 14, 1904; resigned, July 3, 1907; Brigadier General and The Adjutant General, State of California, January 7, 1911.

Major, 8th California Volunteer Infantry, Spanish-American War, 1898, and until the regiment was mustered out in 1899. During that period of time he commanded the United States Army post at Vancouver Barracks, Washington. He was also in command of troops at Angel Island and Benicia Barracks, Cal.

The funeral will take place from Native Sons of the Golden West Hall, 414 Mason street, San Francisco, at 2 o'clock p. m., June 20, 1915. The personnel of the escort for the funeral will be published in subsequent orders.

The National Flag will be displayed at half-staff on all armories of the National Guard of California, and on naval vessels in use by the Naval Militia of California, for seven days after receipt of this order. This order will be read to each organization of the National Guard and Naval Militia at the first assemblage after its receipt.

HIRAM W. JOHNSON,
Governor.

BY ORDER OF THE GOVERNOR:

C. W. THOMAS, JR.,
*The Assistant Adjutant General,
Acting Adjutant General.*

General Forbes' funeral was held in San Francisco on June 20, 1915, and interment of his remains was made in Holy Cross Cemetery, San Mateo County. The funeral escort was composed of units and detachments of the National Guard and Naval Militia, many of them coming from outlying localities for that duty, pursuant to orders from this office.

General George Stone.

Brigadier General George Stone, retired, died in San Francisco on January 28, 1915. He was Adjutant General of the State from January 21, 1902, to February 15, 1904, on which day his resignation was accepted by the Governor. Regarding General Stone's death, the following orders were issued from this office:

GENERAL ORDERS, }

No. 3. }

STATE OF CALIFORNIA,

THE ADJUTANT GENERAL'S OFFICE,

SACRAMENTO, *February 1, 1915.*

The Commander-in-Chief regrets to announce to the service the death of Brigadier General *George Stone*, N. G. C., retired, and former Adjutant General of this State. He was born in Delaware County New York, May 30, 1843, and died in San Francisco, Calif., January 28, 1915. General *Stone* served his country with distinction in the Civil War from 1861 to the time of his honorable muster out in 1866, in the following grades:

Private, sergeant and 2d lieutenant, 3d New York Volunteer Cavalry; 1st lieutenant, 14th New York Volunteer Cavalry; captain, Company E, 18th New York Volunteer Cavalry; lieutenant colonel 25th Regiment, Corps d'Afrique.

In the military establishment of this state the deceased was lieutenant colonel and engineer officer, Division N. G. C., from July 24, 1895, to October 9, 1897, and Adjutant General from January 21, 1902, to February 15, 1904, on which date his resignation was accepted by the Governor. He was placed on the retired list with rank of brigadier general, February 13, 1907.

BY ORDER OF THE GOVERNOR:

E. A. FORBES,
The Adjutant General.

OFFICIAL:

C. W. THOMAS, JR.
The Assistant Adjutant General.

Major John G. Lee.

Major John G. Lee, Ordnance Department, died in Woodland on December 12, 1916. He had served many years in the State's military forces in various capacities, and his death was a distinct loss to the National Guard of California. Major Lee's funeral, which was held in Woodland, was attended by the Acting Adjutant General and other officers, who, together with Company F, 2d Infantry, of Woodland, escorted the remains to the cemetery.

REORGANIZATION OF NATIONAL GUARD.

As early as December, 1917, and prior to the signing of the armistice, November 11, 1918, and since then, this office endeavored to interest all communities in California to organize National Guard units. Although this office received hearty cooperation from the officials and chambers of commerce of practically all cities, there was a general apathy throughout the State. Feeling the war had ended, enthusiasm in military affairs could not be aroused.

After many months of persistent endeavor the following Infantry companies, A, Los Angeles; B, Sacramento; C, San Francisco; D, San Francisco; E, Los Angeles; F, Santa Ana, and G, Redondo Beach, and First Company, Coast Artillery, San Francisco, have been organized. The dates of organization of these units and others subsequently organized are set forth in detail in Appendix "E."

Interest in the National Guard is gradually increasing and we feel assured all the troops so far allotted to the State of California by the Federal government will be organized by June 30, 1921.

Preparations have been made to examine all those who have been temporarily commissioned as officers of the National Guard. It is our intention to hold examinations during each year so that officers may be examined prior to their being permanently commissioned, in compliance with law. This prevents the necessity of issuing temporary commissions and assures us of having officers who are qualified to fulfill the duties of the offices to which they are commissioned.

When all the troops allotted to the State by the Federal Government have been organized, California will have practically one complete division. In addition to this, there will be fifteen companies of Coast Artillery and several corps and field army units.

This office is continually in receipt of communications from citizens, who served as officers during the World War, expressing their desire to affiliate with the National Guard, and these men are usually business men and citizens who have the confidence and respect of their communities. The State is assured of having its Guard officered by men who will be leaders and fully capable of carrying out all the duties connected with their respective offices.

The Federal Government now provides pay for the National Guard. Each officer and enlisted man is entitled to one day's pay of his rank or grade for one drill period. Amount of this pay per annum is—

Captain	\$794 88
First Lieutenant	462 72
Second Lieutenant	376 96
Sergeant, 1st class.....	223 36
Sergeant, 2d class.....	168 96
Sergeant, 3d class.....	149 12
Sergeant, 4th class.....	115 20
Corporal	94 72
Private, 1st class.....	74 88
Private	64 00

With the pay feature and liberal provisions of the Act of Congress approved June 4, 1920, we now have the hearty cooperation of the War Department, and of the Commanding General of the 9th Corps Area of which area California is a part. The state law provides that all enlisted men of the Guard when attending annual maneuvers shall receive \$1 per day in addition to Federal Government pay. In the past the appropriation has rarely been sufficient and The Adjutant General's office has been compelled to prorate the amount equally among the troops.

It is recommended that an appropriation sufficiently large to pay every member of the National Guard attending the maneuvers the \$1 per day as provided by law, be made by the Legislature.

HIGH SCHOOL CADETS.

The idea of providing military training to young men in the High Schools originated with General E. A. Forbes when he became The Adjutant General in 1911. At that time the Legislature passed a comprehensive High School Cadet Law. This was the first instance in the United States, so far as is known, where an effort was made to organize statewide military training in the schools under the supervision of the head of the State's military department.

The law was carefully prepared in order that there might be proper cooperation between the educational and military departments of the State. The application of the instruction and the enforcing of discipline is rightly left in the hands of boards of education, or the principals of high schools, and they have always shown a splendid spirit of cooperation.

It is the aim of this office not to lay particular stress upon the purely military training, but rather to inculcate in the members of the High School Cadets those qualifications of self-reliance, subordination to recognized authority, and team work.

The military training given causes a more erect carriage of the body, gives strength and directness to all movements, and causes a better co-ordination of mind and body than any other kind of training. It teaches promptness, neatness, and courtesy. It develops quick thinking and alertness of mind and instills respect for law and order. These qualifications necessarily go to make up a good citizen as well as a good soldier.

During each year, when the appropriation permitted, training camps for all cadets covering a five-day period were held. These camps were commanded by selected United States Army or National Guard officers. Rigid camp discipline was at all times maintained and the cadets always returned enthusiastic, and desiring a longer camp period for the following year. This, in spite of the rigid discipline and the fact that practically every moment of time was taken up with drills, physical training, and supervised recreation. This was of such value that it should be provided for each year. The cadets were served a straight army ration. This was always found sufficient and of good quality.

In addition to the field training camp in 1920, camps for instruction in rifle practice were held on the Leona Heights, Oakland, and Eagle Rock, Glendale, Rifle Ranges. The schools were authorized to send one team of five members from each company of cadets. The matches provided for a team championship and State championship, individual, with the United States service rifle, and also provided for a match with the .22 caliber gallery rifle. Coaching was permitted during all the firing. Cadets received splendid instruction and benefited greatly by the encampment.

The team championship was won by Company No. 27, California High School Cadets, of the Dinuba Union High School, the five students making a team average of 81 per cent. The High School Cadet individual championship was won by S. Gonzales, Company 20, San Jose High School, with a score of 131 points out of the possible 150.

We are encouraging gallery practice in all the schools and when the funds permit, will hold annually a State rifle camp of instruction similar to that held during 1920.

Besides teaching boys how to shoot, rifle instruction teaches him how to care for his rifle and how to prevent accidents. This instruction alone will save many youths from accidental death or being maimed, as accidents are always caused through ignorance of the rifle and its possibilities.

In 1919 the Federal Government took over the schools of San Francisco, Oakland, Berkeley, Los Angeles, and Pasadena and reorganized the cadets into the Junior Reserve Officers' Training Units, and while this greatly reduced the number of cadets, it was largely offset at the end of the year by the acceptance of new schools in outlying communities.

The manner in which the high schools and former High School Cadets responded to the call of the Government when war was declared, and the fact that so large a proportion of them were physically qualified, so attracted the attention of the State Senate that in the last session they adopted the following resolution commending the training of High School Cadets and the school authorities for the excellent results obtained.

Below is a copy of the resolution adopted by the Senate:

WHEREAS, From reports furnished The Adjutant General's Office by the various high schools of the State of California, it is shown that from the month of September, 1911, when cadet training was first instituted in California high schools, to the month of September, 1917, one thousand six hundred fifty-five cadets completed their training; that of this number six hundred twenty-five cadets became of age up to and including September, 1918; that the reports further show that one thousand nine hundred six cadets entered the service during the war, indicating that a large percentage enlisted who were not yet twenty-one years of age and who had not yet completed their high school course; that the total number of cadets who had had training, or who were in training up to September 20, 1918, was seven thousand forty-five; that five thousand three hundred ninety of this number were then in the schools, and that a very large number of them were not old enough to enter the service; and it further appearing from said reports that there were one thousand four hundred sixty-five men from the cadets who entered the Army, three hundred seventy-one who entered the Navy, and sixty-one the Marine Corps, and that of this number seventeen became Ensigns in the Navy, five entered West Point, four entered Annapolis, and there were commissioned in the United States Army, one Colonel, eleven Captains, forty-three First Lieutenants, one hundred thirty-seven Second Lieutenants, one hundred nine sergeants, eighty-nine corporals, or a total of two hundred eighteen commissioned officers and one hundred ninety-eight non-commissioned officers; that four hundred sixteen men, or twenty-two per cent of the number of cadets entering our country's service, became officers; and

WHEREAS, Practically every boy who was old enough to enlist, that is 18 years of age or over, entered the service, it demonstrates the physical value of military

training, as nearly all of the cadets and former cadets who applied for admission to the service were accepted as being physically qualified, and it further demonstrates the fact that military training given in the schools was of value to them as individuals as well as of great value to the nation; now, therefore, be it

Resolved, That the Senate by resolution express its approval and appreciation of the splendid results obtained from military training in the high schools of California, and, be it further

Resolved, That this body express to the schools of California its appreciation for the part they have played in providing for this military training, and that a copy of these resolutions be supplied to The Adjutant General's Office, with the request that The Adjutant General by circular letter inform all the schools of this action.

WAR FLAGS.

The colors of the following organizations have been placed in the custody of The Adjutant General, as these organizations were composed wholly or in the greater majority of California men :

National and Regimental Colors of the 159th, 160th, 363d and 364th Infantry Regiments; 18th, 23d, 117th, 316th and 319th Engineer Regiments.

Regimental Colors of the 67th Artillery, Coast Artillery Corps.

National Colors of the 347th Field Artillery.

Battalion Colors (service) of the 363d, 364th Infantry Regiments; 23d and 319th Engineer Regiments; 347th Field Artillery Regiment; 348th Machine-gun Battalion, 322d Field Signal Battalion; Army Artillery Park, First Army.

National and Regimental Standards of the 37th and 144th Field Artillery Regiments.

Regimental Standards of the 143d and 347th Field Artillery Regiments.

National Standards for the 115th, 213th and 322d Field Signal Battalions.

Guidons for Headquarters Troop, 91st Division; Batteries B and D, 37th Field Artillery; Batteries A and D, 39th Field Artillery; Batteries A, C, D and E, 143d Field Artillery; Battery A, 314th Field Artillery; Companies A, B and C, 213th Field Signal Battalion; 160th Ambulance Company.

Pennant for the 65th Field Artillery Brigade.

Flags of the 91st Division Headquarters.

These flags are the property of the Federal Government and are merely issued to the State on Government property returns.

The colors are carefully preserved at the State Arsenal, Sacramento, where they will be retained until a historical room is provided in the new Capitol extension buildings.

The following organizations were composed wholly or in the greater majority of California men and whose flags have not been received. Undoubtedly they will be received later.

National Standard of the 143d Field Artillery Regiment.

Battalion Colors of the 145th Machine-gun Battalion.

Guidons of the Headquarters Troop, 40th Division; 157th and 158th Field Hospital Companies and the 157th and 158th Ambulance Companies; Battery B, 65th Regiment, Coast Artillery Corps.

I desire here to testify to the loyalty, efficiency, and genuine interest manifested by the clerical and other personnel of this office at all times in the work of this Department, especially in connection with the Mexican border movement and during the World War.

LIST OF APPENDICES TO THIS REPORT.

Appendix "A"—List of Adjutants General.

Appendix "B"—Camps, schools of instruction, etc.

Appendix "C"—Statement of appropriations and expenditures for military purposes.

Appendix "D"—List of California men who lost their lives during World War.

Appendix "E"—Reorganization of National Guard.

Appendix "F"—Muster out of certain companies from state service.

Appendix "G"—Organizations, and dates on which they entered Federal service—
World War.

APPENDIX A.

List of Adjutants General.

APPENDIX A.

LIST OF ADJUTANTS GENERAL.

Name	Rank	Date of rank	Term expired
T. R. Persee.....	Brigadier General	April 12, 1850	*Oct. 5, 1850
E. W. McKinstry.....	Brigadier General	April 20, 1851	*1852
William C. Kibbe.....	Brigadier General	May 2, 1852	Dec. 31, 1863
Robert Robinson.....	Brigadier General	Jan. 1, 1864	May 1, 1864
George S. Evans.....	Brigadier General	May 1, 1864	*Nov. 30, 1865
Robert Robinson.....	Brigadier General	Dec. 1, 1865	*April 1, 1866
George S. Evans.....	Brigadier General	April 2, 1865	April 30, 1868
James M. Allen.....	Brigadier General	May 1, 1868	Nov. 30, 1870
Thos. N. Cazneau.....	Brigadier General	Dec. 1, 1870	Dec. 20, 1871
L. H. Foote.....	Brigadier General	Dec. 21, 1871	Dec. 12, 1875
P. F. Walsh.....	Brigadier General	Dec. 13, 1875	Jan. 8, 1880
Samuel W. Backus.....	Major General	Jan. 9, 1880	*June 30, 1882
John F. Sheehan.....	Major General	July 1, 1882	Jan. 10, 1883
George B. Crosby.....	Major General } (Brigadier General)	Jan. 11, 1883	*Oct. 31, 1887
Richard H. Orton.....	Brigadier General	Nov. 1, 1887	Jan. 8, 1891
Charles C. Allen.....	Brigadier General	Jan. 9, 1891	May 24, 1895
Andrew W. Barrett.....	Brigadier General	May 24, 1895	*Dec. 23, 1898
Robert L. Peeler.....	Brigadier General	Dec. 23, 1898	June 5, 1899
W. H. Seamans.....	Brigadier General	June 5, 1899	†Jan. 3, 1902
George Stone.....	Brigadier General	Jan. 13, 1902	*Feb. 15, 1904
Joseph B. Lauck.....	Brigadier General	Feb. 15, 1904	Jan. 7, 1911
Edwin A. Forbes.....	Brigadier General	Jan. 4, 1911	†June 18, 1915
Chas. W. Thomas, Jr.....	Brigadier General	Aug. 19, 1915	*Aug. 20, 1916
James J. Borree.....	Brigadier General	Dec. 16, 1916	Incumbent

*Resigned. †Died.

APPENDIX B.

Camps, Schools of Instruction, Etc.

APPENDIX B.

CAMPS, SCHOOLS OF INSTRUCTION, ETC.

Since November 16, 1914, the various organizations of the California National Guard, and individual officers and enlisted men, have participated in encampments and schools of instruction, as indicated below:

Field or camp service for instruction for field, staff, and non-commissioned staff officers, Band, and 1st, 2d, 3d, 4th, 6th, 7th, 9th, 10th, 11th and 12th Companies, Coast Artillery Corps, and attached sanitary troops, with United States Army troops, at Fort Winfield Scott, California, May 15 to May 29, 1915, inclusive.

Field or camp service for instruction for field, staff, and non-commissioned staff officers, and 5th and 8th Companies, Coast Artillery Corps, and attached sanitary troops, with United States Army troops, at Fort Rosecrans, California, August 8 to August 22, 1915, inclusive.

Camp of instruction for Infantry officers, non-commissioned officers, and certain other enlisted men at Fort Winfield Scott, California, June 6 to June 13, 1915.

Joint camp of instruction and field maneuvers of Headquarters and Troops A, B, and D, 1st Squadron of Cavalry, with United States Army Troops, and instruction for officers and non-commissioned officers, Presidio of Monterey, California, July 6 to July 15, 1915.

Camp of instruction for Cavalry officers, non-commissioned officers, and certain other enlisted men, Troop C, 1st Squadron of Cavalry, Presidio of Monterey, California, July 6 to July 15, 1915.

Joint camp of instruction of Field Hospital, No. 1, and Ambulance Company, No. 1, with like organizations of the United States Army, at Fort Winfield Scott, California, July 5 to July 14, 1915.

Joint camp for field instruction and service practice, 1st Battalion Field Artillery, with like organizations of the United States Army, at Gigling, Monterey County, Battery A, July 7 to July 16, 1915; Battery B, July 18 to July 27, 1915; Battery C, July 28 to August 6, 1915, and battalion headquarters, July 23 to August 1, 1915.

Camp of instruction for officers and non-commissioned officers of sanitary troops, other than those belonging to Field Hospital No. 1, and Ambulance Company No. 1, at Fort Winfield Scott, California, July 5 to July 14, 1915.

Camp of instruction for officers and non-commissioned officers, Machine-gun Company, 7th Infantry, Presidio of Monterey, California, July 6 to July 15, 1915.

Camp of instruction for officers, and non-commissioned officers, and certain other enlisted men, 1st Battalion of Field Artillery, Gigling, California, August 9 to August 23, 1915.

Camp for discipline and instruction, 2d Infantry, and attached sanitary troops, and 1st Separate Company, Infantry, Fort Winfield Scott, California, August 15 to August 22, 1915.

Camp for discipline and instruction 5th Infantry, and attached sanitary troops, Fort Winfield Scott, California, October 24 to October 31, 1915.

Camp for discipline and instruction, 7th Infantry, and attached sanitary troops, Fort Winfield Scott, California, September 5 to September 12, 1915.

Camp for discipline and instruction, 1st Squadron of Cavalry, and attached sanitary troops, at Fort Winfield Scott, California, October 3 to October 9, 1915.

Camp of instruction, Battery C, 1st Battalion of Field Artillery, near Clements, San Joaquin County, California, for four days beginning October 23, 1915.

Field and Camp service for instruction, Headquarters, attached sanitary troops, and all companies, except 5th and 8th Companies, Coast Artillery Corps, with United States Army troops, at Fort Winfield Scott, California, July 9 to July 23, 1916.

Field or camp service for instruction, field, staff, and non-commissioned staff officers, and 5th and 8th Companies, Coast Artillery Corps, with attached sanitary troops, stationed at San Diego, with United States Army troops at Fort Rosecrans, California, July 7 to July 22, 1916.

First Lieutenant Paul J. Weinhagen, and 2d Lieutenant Chas. M. Frost, 5th and 7th Companies, Coast Artillery Corps, respectively, to pursue course of study at Coast Artillery School, Fort Monroe, Virginia, in December, 1916.

Certain non-commissioned officers of Signal Corps, Cavalry, Field Artillery, Coast Artillery, and Engineers, to attend Officers' Reserve Corps Training Camp at Presidio of San Francisco, California, in June, 1916.

Following is a resume of practice cruises, target practice, tours of duty by certain of the personnel of the Naval Militia, etc., performed since November 16, 1914:

Practice cruises and target practice on U. S. S. "Marblehead," U. S. S. "Farragut," U. S. S. "Lawrence," U. S. S. "Hopkins," U. S. S. "Hull," and U. S. S. "Whipple," July 3 to July 18, 1915.

Tour of duty by Lieutenant John A. McGee, 1st Division, as a member of the National Naval Militia Board, at Washington, D. C., beginning December 6, 1915.

Practice cruise on U. S. S. "Oregon," certain organizations, July 15 to July 29, 1916, and other organizations on same vessel, August 5 to August 19, 1916.

Joint camp of instruction with United States Navy personnel, Aeronautic Section, 9th Division, at North Island, Cal., September 9 to September 22, 1916.

Tour of duty for one month by Lieutenant Melville R. Tipton, Passed Assistant Paymaster, and Ensign George S. McGee, Assistant Paymaster, at Navy Pay Officers' School, Washington, D. C., September 15 to October 15, 1916. Lieutenant Tipton also pursued the second course at said school beginning October 16, 1916.

Tour of duty by Lieutenant Commander Cecil C. Dennis, Paymaster, for one month at Naval Pay Officers' School, Washington, D. C., beginning October 16, 1916.

Tour of duty by Commander John A. McGee, Chief of Staff, as a member of National Naval Militia Board, at Washington, D. C., beginning October 15, 1916.

Certain enlisted men of Aeronautic Section, 9th Division, Naval Militia, to pursue course of instruction at Naval Flying School, Pensacola, Florida, for three months beginning December 1, 1916.

Tour of duty by Lieutenant Frank Simpson, Jr., Aeronautic Section, Ninth Division, for the purpose of pursuing a course of instruction at Naval Flying School, Pensacola, Florida, for three months beginning December 1, 1916.

APPENDIX C.

Statement of Appropriations, and Expenditures
for Military Purposes.

APPENDIX C.

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SIXTY-SIXTH FISCAL YEAR, ENDED JUNE 30, 1915.

Salary of The Adjutant General.

To appropriation -----	\$3,600.00	
By E. A. Forbes -----		\$3,480.00
By unexpended balance -----		120.00
	<hr/>	<hr/>
	\$3,600.00	\$3,600.00

Salary of Assistant Adjutant General.

To appropriation -----	\$3,000.00	
By F. F. Canon -----		\$1,583.33
By C. W. Thomas, Jr. -----		1,416.67
	<hr/>	<hr/>
	\$3,000.00	\$3,000.00

Salary of Chief Clerk, Adjutant General's Office.

To appropriation -----	\$1,900.00	
By Howard S. McIntire -----		\$1,900.00
	<hr/>	<hr/>
	\$1,900.00	\$1,900.00

Salaries of Three Clerks, Adjutant General's Office.

To appropriation -----	\$5,100.00	
By Jacob Alexander -----		\$1,700.00
By J. F. Sherburn -----		1,700.00
By H. B. Van Horn -----		1,700.00
	<hr/>	<hr/>
	\$5,100.00	\$5,100.00

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation -----	\$1,500.00	
By Alice M. Coughlin -----		\$1,500.00
	<hr/>	<hr/>
	\$1,500.00	\$1,500.00

Salary of Military Storekeeper.

To appropriation -----	\$1,200.00	
By J. L. Henderson -----		\$1,200.00
	<hr/>	<hr/>
	\$1,200.00	\$1,200.00

Salary of Assistant Military Storekeeper and Porter.

To appropriation -----	\$900.00	
By E. B. Irish -----		\$900.00
	<hr/>	<hr/>
	\$900.00	\$900.00

Postage, Expressage, and Telegraphing, Adjutant General's Office.

To appropriation -----	\$1,000.00	
To emergency fund -----	450.00	
By postage -----		\$500.00
By expressage -----		135.17
By telegraphing -----		290.64
By telephoning -----		471.71
By unexpended balance -----		52.07
	<hr/>	<hr/>
	\$1,450.00	\$1,450.00

Care of State Armory, Cleaning and Transportation of Arms, Traveling and Contingent Expenses of The Adjutant General.

To appropriation	\$3,500.00	
By labor, supplies, and other expenses necessary to maintenance of State Arsenal.....		\$636.59
By drayage and freight charges.....		962.15
By office supplies, equipment, and furnishings, also including water, laundry, etc.		485.07
By stenographic and clerical services (non-statutory).....		338.71
By traveling expenses of the Adjutant General.....		308.70
By miscellaneous expenses.....		520.48
By unexpended balance		248.30
	\$3,500.00	\$3,500.00

Target Practice and Purchase of Medals.

To appropriation	\$10,000.00	
To unexpended balance from sixty-fifth fiscal year.....	1,790.05	
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers.....		\$4,095.03
By expenses of camps of instruction for target practice and rifle competitions, including transportation, subsistence, labor and supplies.....		2,459.81
By purchase of ammunition.....		2,126.02
By medals for proficiency in target practice and for 10, 15, 20, and 25 years active service, N. G. C.		1,785.26
By unexpended balance		1,323.93
	\$11,790.05	\$11,790.05

Allowance, Brigade Headquarters.

To appropriation	\$2,400.00	
By allowance to Headquarters, 1st Brigade.....		\$2,400.00
	\$2,400.00	\$2,400.00

Allowance, Regimental Headquarters and Bands.

To appropriations	\$14,700.00	
By expenditures		\$14,700.00
	\$14,700.00	\$14,700.00

Armory Rents and Other Expenses, National Guard.

To appropriation.....	\$122,500.00	
By quarterly allowances to all companies, troops, batteries, etc., N. G. C., and divisions, Naval Militia.....		\$98,800.00
By annual allowance to all companies, troops, and batteries, National Guard, and divisions, Naval Militia.....		14,000.00
By forage and care of horses.....		1,868.42
By rental of quarters for U. S. Army sergeant-instructors on duty with National Guard.....		951.50
By stenographic and clerical services.....		894.00
By rental of quarters and storerooms, etc.		1,799.32
By physical examination fees.....		133.50
By supplies and equipment, including repairs thereof.....		1,080.87
By drayage, expressage, and freight charges.....		1,050.88
By miscellaneous expenses.....		635.66
By unexpended balance.....		1,285.85
	\$122,500.00	\$122,500.00

Traveling Expenses and Per Diem of Officers and Enlisted Men of National Guard on Detail Duty, also Traveling Expenses of U. S. Army and Navy Officers Detailed for Duty with the National Guard.

To appropriation -----	\$5,000.00	
To emergency fund -----	685.20	
By services and traveling expenses of officers and enlisted men, National Guard, on detail duty -----		\$4,287.65
By services of examining boards -----		715.50
By traveling expenses of U. S. Army and Navy officers and non-commissioned officers on duty with State troops -----		529.75
By unexpended balance -----		152.30
	<u>\$5,685.20</u>	<u>\$5,685.20</u>

Hospital Supplies.

To appropriation -----	\$500.00	
To unexpended balance from sixty-fifth fiscal year -----	253.49	
By expenditures for drugs, medicines, surgical and hospital supplies for field and camp service -----		\$190.44
By unexpended balance -----		563.05
	<u>\$753.49</u>	<u>\$753.49</u>

Furnishing Coal and Other Supplies, and for Repairs to Training Ships, Naval Militia.

To appropriation -----	\$4,000.00	
To unexpended balance from sixty-fifth fiscal year -----	74.76	
By ship chandlery and other supplies -----		\$2,254.82
By subsistence -----		1,027.08
By general repair work -----		718.00
By unexpended balance -----		74.86
	<u>\$4,074.76</u>	<u>\$4,074.76</u>

Purchase of Uniforms and Equipments.

To appropriation -----	\$5,000.00	
To unexpended balance from sixty-fifth fiscal year -----	267.43	
By purchase of various articles of clothing and equipment for National Guard and Naval Militia -----		\$4,404.93
By unexpended balance -----		862.50
	<u>\$5,267.43</u>	<u>\$5,267.43</u>

Expenses of Courts-Martial and Contingent Expenses Thereof.

To appropriation -----	\$500.00	
To unexpended balance from sixty-fifth fiscal year -----	464.19	
By services of court reporters -----		\$106.40
By services and traveling expenses of members of courts-martial, etc. -----		55.40
By unexpended balance -----		802.39
	<u>\$964.19</u>	<u>\$964.19</u>

Expenses of Encampments, Cruises, and Authorized Parades.

To appropriation -----	\$10,000.00	
To unexpended balance from sixty-fifth fiscal year -----	3,933.15	
By expenditures for subsistence, wood, coal, lumber, straw, and other supplies, transportation and other expenses -----		\$8,976.85
By unexpended balance -----		4,956.30
	<u>\$13,933.15</u>	<u>\$13,933.15</u>

Pay of Enlisted Men at Joint Maneuver Camps of National Guard and United States Army, and at Annual Cruises of Instruction of Naval Militia.

To appropriation -----	\$30,000.00	
To unexpended balance from sixty-fifth fiscal year -----	21,361.00	
By pay of enlisted men of Coast Artillery and Naval Militia -----		\$13,844.00
By unexpended balance -----		37,517.00
	<u>\$51,361.00</u>	<u>\$51,361.00</u>

Allowance to Surgeon General.

To appropriation	\$300.00	
By allowance for proper and necessary incidental expenses of Surgeon General's office.....		\$300.00
	<u>\$300.00</u>	<u>\$300.00</u>

Allowance for Officers, Under Section 2078, Political Code.

To appropriation	\$7,500.00	
To unexpended balance from sixty-fifth fiscal year.....	1,019.47	
By allowance to officers for uniforms and equipments.....		\$6,418.63
By unexpended balance		2,100.84
	<u>\$8,519.47</u>	<u>\$8,519.47</u>

Printing, Adjutant General's Office.

To appropriation	\$3,000.00	
To unexpended balance from sixty-fifth fiscal year.....	1,215.86	
By expenditures for printing, binding, ruling, and all other work performed, and materials furnished by the State Print- ing office		\$2,971.58
By unexpended balance		1,244.28
	<u>\$4,215.86</u>	<u>\$4,215.86</u>

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies, and for Promoting Rifle Practice Therein.

To unexpended balance from sixty-fifth fiscal year.....	\$4,752.27	
By expressage		\$90.42
By drayage and freight charges.....		117.13
By telegraphing and telephoning		20.23
By printing		113.23
By traveling expenses.....		618.40
By military clothing, supplies, and equipment.....		1,386.78
By encampment expenses, including subsistence, transporta- tion, supplies, etc.		1,482.54
By marksmanship medals		206.47
By miscellaneous expenses.....		639.86
By unexpended balance		77.21
	<u>\$4,752.27</u>	<u>\$4,752.27</u>

NOTE.—All unexpended balances in the sixty-fifth fiscal year are carried over to and become available for use in the sixty-sixth fiscal year.

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SIXTY-SEVENTH FISCAL YEAR, ENDED JUNE 30, 1916.

Salary of The Adjutant General.

To appropriation -----	\$3,600.00	
By C. W. Thomas, Jr.-----		\$3,120.00
By unexpended balance-----		480.00
	<u>\$3,600.00</u>	<u>\$3,600.00</u>

Salary of Assistant Adjutant General.

To appropriation -----	\$3,000.00	
By C. W. Thomas, Jr.-----		\$400.00
By J. J. Borree-----		1,866.67
By unexpended balance-----		733.23
	<u>\$3,000.00</u>	<u>\$3,000.00</u>

Salary of Chief Clerk, Adjutant General's Office.

To appropriation -----	\$1,900.00	
By Howard S. McIntire-----		\$1,900.00
	<u>\$1,900.00</u>	<u>\$1,900.00</u>

Salaries of Three Clerks, Adjutant General's Office.

To appropriation -----	\$5,100.00	
By Jacob Alexander-----		\$1,700.00
By J. F. Sherburn-----		1,700.00
By H. B. Van Horn-----		850.00
By A. B. Austin-----		826.41
By unexpended balance-----		23.59
	<u>\$5,100.00</u>	<u>\$5,100.00</u>

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation -----	\$1,500.00	
By Alice M. Coughlin-----		\$1,500.00
	<u>\$1,500.00</u>	<u>\$1,500.00</u>

Salary of Military Storekeeper.

To appropriation -----	\$1,200.00	
By J. L. Henderson-----		\$1,200.00
	<u>\$1,200.00</u>	<u>\$1,200.00</u>

Salary of Assistant Military Storekeeper and Porter.

To appropriation -----	\$900.00	
By E. B. Irish-----		\$900.00
	<u>\$900.00</u>	<u>\$900.00</u>

Postage, Expressage, and Telegraphing, Adjutant General's Office.

To appropriation -----	\$1,250.00	
To emergency fund-----	250.00	
By postage-----		\$532.00
By expressage-----		149.14
By telegraphing-----		366.29
By telephoning-----		397.93
By unexpended balance-----		54.64
	<u>\$1,500.00</u>	<u>\$1,500.00</u>

Care of State Armory, Cleaning and Transportation of Arms, Traveling and Contingent Expenses of The Adjutant General.

To appropriation	\$3,500.00	
By labor, supplies, and other expenses necessary to maintenance of State Arsenal.....		\$609.51
By drayage and freight charges.....		989.58
By office supplies, equipment, and furnishings, also including water, laundry, etc.....		720.42
By stenographic and clerical services (non statutory).....		143.83
By traveling expenses of The Adjutant General.....		684.64
By miscellaneous expenses.....		335.54
By unexpended balance.....		16.48
	<u>\$3,500.00</u>	<u>\$3,500.00</u>

Target Practice and Purchase of Medals.

To appropriation	\$10,000.00	
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers.....		\$5,175.10
By expenses of camps of instruction for target practice and rifle competitions, including transportation, subsistence, labor, and supplies.....		2,650.61
By miscellaneous expenses incidental to target practice.....		1,125.10
By unexpended balance.....		1,049.19
	<u>\$10,000.00</u>	<u>\$10,000.00</u>

Allowance, Brigade Headquarters.

To appropriation	\$2,400.00	
By allowance to Headquarters, 1st Brigade.....		\$2,400.00
	<u>\$2,400.00</u>	<u>\$2,400.00</u>

Allowance, Regimental Headquarters and Bands.

To appropriation	\$14,700.00	
By expenditures.....		\$14,700.00
	<u>\$14,700.00</u>	<u>\$14,700.00</u>

Armory Rents and Other Expenses, National Guard.

To appropriation	\$122,500.00	
By quarterly allowances to companies, troops, batteries, National Guard, and divisions, Naval Militia.....		\$101,372.67
By annual allowance to companies, troops, and batteries, National Guard, and divisions, Naval Militia.....		12,960.00
By forage and care of horses.....		1,333.52
By rental of quarters for U. S. Army sergeant-instructors on duty with National Guard.....		994.00
By premiums on bond of officers.....		257.50
By physical examination fees.....		207.00
By stenographic and clerical services.....		1,177.07
By rental of quarters and storerooms, etc.....		612.35
By supplies and equipment, including repairs thereof.....		888.45
By drayage, expressage, and freight charges.....		528.95
By miscellaneous expenses.....		1,183.20
By unexpended balance.....		985.29
	<u>\$122,500.00</u>	<u>\$122,500.00</u>

Traveling Expenses and Per Diem of Officers and Enlisted Men of National Guard on Detail Duty, also Traveling Expenses of U. S. Army and Navy Officers Detailed for Duty with the National Guard.

To appropriation	\$6,500.00	
By services and traveling expenses of officers and enlisted men, National Guard on detail duty.....		\$3,499.57
By services of examining boards.....		435.78
By traveling expenses of U. S. Army and Navy officers and non-commissioned officers on duty with State troops.....		674.55
By unexpended balance.....		1,890.10
	<u>\$6,500.00</u>	<u>\$6,500.00</u>

Hospital Supplies.

To appropriation -----	\$500.00	
By expenditures for drugs, medicines, surgical and hospital supplies for field and camp service-----		\$393.95
By unexpended balance-----		106.05
	<u>\$500.00</u>	<u>\$500.00</u>

Furnishing Coal and Other Supplies, and for Repairs to Training Ships, Naval Militia.

To appropriation -----	\$4,000.00	
By ship chandlery and other supplies-----		\$761.86
By subsistence -----		1,824.98
By general repair work-----		408.00
By unexpended balance -----		1,005.16
	<u>\$4,000.00</u>	<u>\$4,000.00</u>

Purchase of Uniforms and Equipments.

To appropriation -----	\$5,000.00	
By purchase of various articles of clothing and equipment for National Guard and Naval Militia-----		\$548.12
By unexpended balance -----		4,451.88
	<u>\$5,000.00</u>	<u>\$5,000.00</u>

Expenses of Courts-Martial and Contingent Expenses Thereof.

To appropriation -----	\$500.00	
By services of court reporters-----		\$414.50
By unexpended balance -----		85.50
	<u>\$500.00</u>	<u>\$500.00</u>

Subsistence, Supplies, Transportation and Other Expenses Incidental to Encampments and Authorized Parades, National Guard, and Cruises and Authorized Parades, Naval Militia.

To appropriation -----	\$50,000.00	
By expenditures for subsistence, wood, coal, lumber, straw, forage, and other supplies, transportation and other encampment expenses -----		\$22,430.27
By horse hire and other expenses of parades-----		1,000.00
By miscellaneous expenses incidental to mobilization of State troops -----		3,922.81
By unexpended balance -----		22,646.92
	<u>\$50,000.00</u>	<u>\$50,000.00</u>

Pay of Enlisted Men at Joint Maneuver Camps of National Guard and United States Army, and at Annual Cruises of Instruction of Naval Militia.

To appropriation -----	\$30,000.00	
By pay of enlisted men of Coast Artillery and mobile troops of National Guard, also of Naval Militia-----		\$14,107.00
By unexpended balance -----		15,893.00
	<u>\$30,000.00</u>	<u>\$30,000.00</u>

Allowance to Chief Surgeon.

To appropriation -----	\$500.00	
By allowance for proper and necessary incidental expenses of Chief Surgeon's Office-----		\$500.00
	<u>\$500.00</u>	<u>\$500.00</u>

Allowance for Officers, under Section 2078, Political Code.

To appropriation -----	\$7,500.00	
By allowance to officers for uniforms and equipments-----		\$6,272.77
By unexpended balance -----		1,127.23
	<hr/>	<hr/>
	\$7,500.00	\$7,500.00

Printing, Adjutant General's Office.

To appropriation -----	\$3,000.00	
By expenditures for printing, binding, ruling, and all other work performed, and materials furnished by the State Print- ing Office -----		\$2,997.45
By unexpended balance -----		2.55
	<hr/>	<hr/>
	\$3,000.00	\$3,000.00

Special Appropriation for Entertainment of Delegates to Convention of National Guard Association of the United States at San Francisco, and the Reception and Entertainment of Visiting Military Bodies, Organizations, and Delegations to the State of California upon the Occasion of the Panama-Pacific International Exposition. (See Chapter 254, Statutes of 1915.)

To appropriation -----	\$10,000.00	
By expenditures -----		\$5,533.55
By unexpended balance -----		4,466.45
	<hr/>	<hr/>
	\$10,000.00	\$10,000.00

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies, and for Promoting Rifle Practice Therein.

To appropriation -----	\$6,500.00	
By expressage -----		\$58.38
By drayage and freight charges-----		135.33
By telegraphing and telephoning-----		15.21
By printing -----		79.34
By traveling expenses -----		736.14
By military clothing, supplies, and equipment-----		1,697.24
By encampment expenses, including subsistence, transportation labor, and supplies-----		1,962.99
By marksmanship medals -----		105.00
By stenographic and clerical services-----		273.53
By miscellaneous expenses -----		493.55
By unexpended balance -----		943.29
	<hr/>	<hr/>
	\$6,500.00	\$6,500.00

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SIXTY-EIGHTH FISCAL YEAR, ENDED JUNE 30, 1917.

Salary of The Adjutant General.

To appropriation	\$3,600.00	
By C. W. Thomas, Jr.....		\$500.00
By J. J. Borree.....		1,950.00
By unexpended balance		1,150.00
	<u>\$3,600.00</u>	<u>\$3,600.00</u>

Salary of Assistant Adjutant General.

To appropriation	\$3,000.00	
By J. J. Borree.....		\$1,375.00
By H. R. Fay.....		958.33
By unexpended balance		666.67
	<u>\$3,000.00</u>	<u>\$3,000.00</u>

Salary of Chief Clerk, Adjutant General's Office.

To appropriation	\$1,900.00	
By Howard S. McIntire.....		\$1,900.00
	<u>\$1,900.00</u>	<u>\$1,900.00</u>

Salaries of Three Clerks, Adjutant General's Office.

To appropriation	\$5,100.00	
By Jacob Alexander		\$1,700.00
By J. F. Sherburn.....		1,700.00
By A. E. Austin.....		1,416.67
By W. O. Allen.....		283.33
	<u>\$5,100.00</u>	<u>\$5,100.00</u>

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation	\$1,500.00	
By Alice M. Coughlin.....		\$1,500.00
	<u>\$1,500.00</u>	<u>\$1,500.00</u>

Salary of Military Storekeeper.

To appropriation	\$1,200.00	
By J. L. Henderson		\$1,200.00
	<u>\$1,200.00</u>	<u>\$1,200.00</u>

Salary of Assistant Military Storekeeper and Porter.

To appropriation	\$900.00	
By E. B. Irish.....		\$900.00
	<u>\$900.00</u>	<u>\$900.00</u>

Postage, Expressage, and Telegraphing, Adjutant General's Office.

To appropriation	\$1,250.00	
To unexpended balance of emergency fund for sixty-seventh fiscal year		54.64
To emergency fund	1,100.00	
By postage		\$609.00
By expressage		115.59
By telegraphing		924.59
By telephoning		595.00
By unexpended balance		160.46
	<u>\$2,404.64</u>	<u>\$2,404.64</u>

Care of State Armory, Cleaning and Transportation of Arms, Traveling and Contingent Expenses of The Adjutant General.

To appropriation -----	\$3,500.00	
To unexpended balance from sixty-seventh fiscal year -----	16.48	
By labor, supplies, and other expenses necessary to maintenance of State Arsenal -----		\$609.68
By drayage and freight charges -----		167.92
By office supplies, equipment, and furnishings, also including water, laundry, etc. -----		1,207.18
By stenographic and clerical services (non-statutory) -----		959.50
By traveling expenses of The Adjutant General -----		475.37
By miscellaneous expenses -----		83.50
By unexpended balance -----		13.33
	<hr/>	<hr/>
	\$3,516.48	\$3,516.48

Target Practice and Purchase of Medals.

To appropriation -----	\$10,000.00	
To unexpended balance from sixty-seventh fiscal year -----	1,049.19	
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers -----		\$5,958.36
By expenses of camps of instruction for target practice and rifle competitions, including transportation, subsistence, labor and supplies -----		657.63
By medals for proficiency in target practice and for 10, 15, 20, and 25 years active service in National Guard -----		3,521.35
By unexpended balance -----		911.85
	<hr/>	<hr/>
	\$11,049.19	\$11,049.19

Allowance, Brigade Headquarters.

To appropriation -----	\$2,400.00	
By allowance to Headquarters, 1st Brigade -----		1,560.00
By unexpended balance -----		840.00
	<hr/>	<hr/>
	\$2,400.00	\$2,400.00

Allowance, Regimental Headquarters and Bands.

To appropriation -----	\$14,700.00	
By expenditures -----		\$9,216.86
By unexpended balance -----		5,483.14
	<hr/>	<hr/>
	\$14,700.00	\$14,700.00

Armory Rents and Other Expenses, National Guard.

To appropriation -----	\$122,500.00	
To unexpended balance from sixty-seventh fiscal year -----	985.29	
By quarterly allowances to companies, troops, batteries, etc., National Guard, and divisions, Naval Militia -----		\$60,169.16
By annual allowances to companies, troops and batteries, National Guard, and divisions, Naval Militia -----		10,250.00
By forage and care of horses -----		1,198.94
By rental of quarters for U. S. Army Sergeant-instructors on duty with National Guard -----		381.00
By premiums on bonds of officers -----		874.77
By physical examination fees -----		491.00
By stenographic and clerical services -----		1,942.40
By recruiting expenses -----		355.35
By rental of armories and storerooms for property, also expense of upkeep and maintenance of State armories, including repairs, lights, water, supplies, and services of janitors and caretakers -----		18,510.21
By transportation -----		536.85
By telegraphing and telephoning -----		552.42
By drayage, expressage, and freight charges -----		677.27
By supplies and equipment, including care thereof -----		3,025.43
By subsistence -----		399.90
By miscellaneous expenses -----		1,919.06
By unexpended balance -----		22,201.53
	<hr/>	<hr/>
	\$123,485.29	\$123,485.29

Traveling Expenses and Per Diem of Officers and Enlisted Men of National Guard on Detail Duty, also Traveling Expenses of U. S. Army and Navy Officers Detailed for Duty with National Guard.

To appropriation -----	\$6,500.00	
To unexpended balance from sixty-seventh fiscal year -----	\$1,890.10	
By services and traveling expenses of officers and enlisted men, National Guard on detail duty -----		\$3,171.37
By services of examining boards -----		57.00
By traveling expenses of U. S. Army and Navy officers and non-commissioned officers on duty with State troops -----		285.00
By unexpended balance -----		4,875.83
	<hr/>	<hr/>
	\$8,390.10	\$8,390.10

Hospital Supplies.

To appropriation -----	500.00	
To unexpended balance from sixty-seventh fiscal year -----	106.05	
By expenditures for drugs, medicines, surgical and hospital supplies for field and camp service -----		\$300.25
By unexpended balance -----		305.80
	<hr/>	<hr/>
	\$606.05	\$606.05

Furnishing Coal and Other Supplies, and for Repairs to Training Ships, Naval Militia.

To appropriation -----	\$4,000.00	
To unexpended balance from sixty-seventh fiscal year -----	1,005.16	
By ship chandlery and other supplies -----		\$94.35
By subsistence -----		585.71
By general repair work -----		495.19
By unexpended balance -----		\$3,829.91
	<hr/>	<hr/>
	\$5,005.16	\$5,005.16

Purchase of Uniforms and Equipments.

To appropriation -----	\$10,000.00	
To unexpended balance from sixty-seventh fiscal year -----	4,451.88	
By purchase of various articles of equipment for National Guard -----		450.23
By unexpended balance -----		14,001.65
	<hr/>	<hr/>
	\$14,451.88	\$14,451.88

Subsistence, Supplies, Transportation and Other Expenses Incidental to Encampments and Authorized Parades, National Guard, and Cruises and Authorized Parades, Naval Militia.

To unexpended balance from sixty-seventh fiscal year -----	\$22,646.92	
By expenditures for subsistence, wood, coal, lumber, straw, forage, and other supplies, transportation and other ex- penses of encampments and cruises -----		\$1,017.77
By horse hire and other expenses of parades -----		139.35
By miscellaneous expenses incidental to mobilization of State troops -----		3,458.26
By unexpended balance -----		18,031.54
	<hr/>	<hr/>
	\$22,646.92	\$22,646.92

Pay of Enlisted Men at Joint Maneuver Camps of National Guard and U. S. Army, and at Annual Cruises of Instruction of Naval Militia.

To appropriation -----	\$30,000.00	
To unexpended balance from sixty-seventh fiscal year -----	15,893.00	
By pay of enlisted men of Coast Artillery and Naval Militia --		\$16,636.00
By unexpended balance -----		29,257.00
	<hr/>	<hr/>
	\$45,893.00	\$45,893.00

Expenses of Courts-Martial and Contingent Expenses Thereof.

To appropriation -----	\$500.00	
To unexpended balance from sixty-seventh fiscal year-----	85.50	
By unexpended balance-----		\$585.50
	\$585.50	\$585.50

Allowance to Chief Surgeon.

To appropriation -----	\$500.00	
By allowance for proper and necessary incidental expenses of Chief Surgeon's Office-----		\$500.00
	\$500.00	\$500.00

Allowance for Officers, under Section 2078, Political Code.

To appropriation -----	\$7,500.00	
To unexpended balance from sixty-seventh fiscal year-----	1,127.23	
By allowance to officers for uniforms and equipments-----		\$3,988.74
By unexpended balance -----		4,638.49
	\$8,627.23	\$8,627.23

Printing, Adjutant General's Office.

To appropriation -----	\$3,000.00	
To unexpended balance from sixty-seventh fiscal year-----	2.55	
By expenditures for printing, binding, ruling, and all other work performed and materials furnished by the State Print- ing Office -----		\$1,946.41
By unexpended balance -----		1,056.14
	\$3,002.55	\$3,002.55

NOTE.—The mobile troops of the National Guard of California being in the Federal service on the Mexican Border during a portion of the year 1916, and three regiments of California infantry and the California Naval Militia being called into the Federal service during the early part of 1917, accounts for the large unexpended balances remaining in certain appropriations for the sixty-eighth fiscal year.

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies, and for Promoting Rifle Practice Therein.

To appropriation -----	\$6,500.00	
To unexpended balance from sixty-seventh fiscal year-----	943.29	
By expressage -----		\$107.88
By drayage and freight charges-----		108.21
By telegraphing and telephoning-----		10.75
By printing -----		207.77
By traveling expenses -----		43.00
By military clothing, supplies, and equipment-----		4,360.87
By encampment expenses, including subsistence, transporta- tion, labor and supplies-----		1,806.20
By stenographic and clerical services-----		614.17
By unexpended balance -----		184.44
	\$7,443.29	\$7,443.29

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SIXTY-NINTH FISCAL YEAR, ENDED JUNE 30, 1918.

Salary of The Adjutant General.

To appropriation	\$5,000.00	
By J. J. Borree		\$5,000.00
	<u>\$5,000.00</u>	<u>\$5,000.00</u>

Salary of Assistant Adjutant General.

To appropriation	\$3,000.00	
By Herbert R. Fay		\$3,000.00
	<u>\$3,000.00</u>	<u>\$3,000.00</u>

Salary of Chief Clerk, Adjutant General's Office.

To appropriation	\$1,900.00	
By Howard S. McIntire		\$1,900.00
	<u>\$1,900.00</u>	<u>\$1,900.00</u>

Salaries of Three Clerks, Adjutant General's Office.

To appropriation	\$5,100.00	
By Jacob Alexander		\$1,700.00
By J. F. Sherburn		103.89
By W. O. Allen		476.94
By Leighton Roberts		1,563.05
By Alice M. Coughlin		1,223.05
By unexpended balance		33.07
	<u>\$5,100.00</u>	<u>\$5,100.00</u>

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation	\$1,500.00	
By Alice M. Coughlin		\$420.83
By Gertrude A. Bird		1,079.17
	<u>\$1,500.00</u>	<u>\$1,500.00</u>

Salary of Military Storekeeper.

To appropriation	\$1,200.00	
By J. L. Henderson		\$100.00
By E. B. Irish		1,100.00
	<u>\$1,200.00</u>	<u>\$1,200.00</u>

Salary of Assistant Military Storekeeper and Porter.

To appropriation	\$900.00	
By unexpended balance		\$900.00
	<u>\$900.00</u>	<u>\$900.00</u>

Support of the National Guard.

To appropriation	\$150,000.00	
By quarterly allowances to headquarters and companies, troops, and batteries		\$10,663.11
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers		10,708.65
By medals for proficiency in target practice and for active service in National Guard		94.50

Support of the National Guard—Continued.

By rental of armories and storerooms for property, also expense of upkeep and maintenance of State armories, including repairs, supplies, lights, water, and services of janitors and caretakers		\$19,196.15
By traveling expenses and per diem of officers and enlisted men of National Guard, and traveling expenses of U. S. Army officers and non-commissioned officers on duty with National Guard		3,357.80
By military stores, supplies, and equipment		2,518.65
By hire and care of horses for mounted organizations		368.41
By allowance to officers for uniforms and equipments		409.15
By physical examination fees		1,011.50
By recruiting expenses		293.00
By premiums on officers' bonds		504.41
By drayage and freight charges		602.67
By traveling expenses of The Adjutant General		578.76
By labor, supplies, and other expenses necessary to maintenance of State Arsenal		824.30
<i>For support of Adjutant General's Office—</i>		
By postage		612.00
By expressage		287.33
By telegraphing and telephoning		2,112.27
By stenographic and clerical services (non-statutory)		5,477.17
By printing		2,010.00
By office supplies, equipment, and furnishings, also including water, laundry, etc.		3,271.25
<i>For expenses, Adjutant General's Office, in connection with operation of Federal selective draft and registration—</i>		
By stenographic and clerical services		18,193.82
By supplies		1,339.47
By miscellaneous expenses		6,431.92
By unexpended balance		59,133.71
	\$150,000.00	\$150,000.00

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies and for Promoting Rifle Practice Therein.

To appropriation (for two fiscal years)	\$30,000.00	
By expressage		\$360.54
By drayage and freight charges		927.40
By telegraphing and telephoning		212.68
By printing		259.54
By traveling expenses		177.55
By military clothing, supplies, and equipment		5,057.73
By encampment expenses, including transportation, subsistence, labor, and supplies		8,787.03
By miscellaneous expenses		500.00
By unexpended balance		13,717.53
	\$30,000.00	\$30,000.00

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SEVENTIETH FISCAL
YEAR, ENDED JUNE 30, 1919.

Salary of The Adjutant General.

To appropriation	\$5,000.00	
By J. J. Borree.....		\$5,000.00
	\$5,000.00	\$5,000.00

Salary of Assistant Adjutant General.

To appropriation	\$3,000.00	
By Herbert R. Fay.....		\$650.00
By James S. McKnight.....		1,916.67
By unexpended balance.....		433.23
	\$3,000.00	\$3,000.00

Salary of Chief Clerk, Adjutant General's Office.

To appropriation	\$1,900.00	
By Howard S. McIntire.....		\$1,900.00
	\$1,900.00	\$1,900.00

Salaries of Three Clerks, Adjutant General's Office.

To appropriation	\$5,100.00	
By Jacob Alexander.....		\$1,700.00
By Alice M. Coughlin.....		1,275.00
By Gertrude A. Bird.....		425.00
By Leighton Roberts.....		387.22
By Alfred Dalton.....		1,241.94
By unexpended balance.....		70.84
	\$5,100.00	\$5,100.00

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation	\$1,500.00	
By Gertrude A. Bird.....		\$1,125.00
By Louise J. Bogert.....		375.00
	\$1,500.00	\$1,500.00

Salary of Military Storekeeper.

To appropriation	\$1,200.00	
By E. B. Irish.....		\$553.33
By unexpended balance.....		647.00
	\$1,200.00	\$1,200.00

Salary of Assistant Military Storekeeper and Porter.

To appropriation	\$900.00	
By unexpended balance.....		\$900.00
	\$900.00	\$900.00

Support of the National Guard.

To appropriation-----	\$150,000.00	
To unexpended balance from sixty-ninth fiscal year-----	59,133.71	
By quarterly allowances to headquarters and companies-----		\$12,690.00
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers-----		3,844.06
By expenses of camps of instruction for target practice and rifle competitions, including transportation, subsistence, labor, and supplies-----		1,951.96
By medals for proficiency in target practice and for active service in National Guard-----		24.95
By rental of armories and storerooms for property, also expense of upkeep and maintenance of State armories, including repairs, supplies, lights, water, and services of janitors and caretakers-----		17,079.56
By traveling expenses and per diem of officers and enlisted men of National Guard, and traveling expenses of U. S. Army officers and noncommissioned officers on duty with National Guard-----		1,192.35
By military stores, supplies, and equipment-----		10,317.47
By allowance to officers for uniforms and equipments-----		566.69
By physical examination fees-----		282.50
By recruiting expenses-----		156.82
By premiums on officers' bonds-----		146.83
By drayage and freight charges-----		970.38
By traveling expenses of The Adjutant General-----		1,665.60
By labor, supplies, and other expenses necessary to maintenance of State Arsenal-----		368.50
<i>For support of Adjutant General's Office—</i>		
By postage-----		614.00
By expressage-----		356.34
By telegraphing and telephoning-----		2,167.45
By printing-----		1,294.54
By stenographic and clerical services (non-statutory)-----		9,809.41
By office supplies, equipment, and furnishings, also including water, laundry, etc.-----		5,502.39
<i>For expenses, Adjutant General's Office, in connection with operation of Federal selective draft and registration—</i>		
By stenographic and clerical services-----		23,479.17
By supplies-----		919.72
By miscellaneous expenses-----		5,334.05
By unexpended balance-----		108,398.97
	<u>\$209,133.71</u>	<u>\$209,133.71</u>

NOTE.—The large unexpended balance remaining at the close of the seventieth fiscal year in the appropriation for the "Support of the National Guard," is accounted for by the fact that all of the National Guard of California as then existed was drafted into the Federal service on August 5, 1917; otherwise, the amount appropriated would have been inadequate.

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies and for Promoting Rifle Practice Therein.

To unexpended balance from sixty-ninth fiscal year-----	\$13,717.53	
To sale of equipment-----	1,400.00	
By expressage-----		\$185.12
By drayage and freight charges-----		364.23
By telegraphing and telephoning-----		76.69
By printing-----		766.72
By traveling expenses-----		54.79
By military clothing, supplies and equipment-----		13,336.27
By encampment expenses, including transportation, subsistence, labor, and supplies-----		210.00
By stenographic and clerical services-----		120.00
By unexpended balance-----		3.71
	<u>\$15,117.53</u>	<u>\$15,117.53</u>

APPROPRIATIONS AND EXPENDITURES FOR MILITARY PURPOSES.

APPROPRIATIONS AND EXPENDITURES FOR THE SEVENTY-FIRST FISCAL YEAR, ENDED JUNE 30, 1920.

Salary of The Adjutant General.

To appropriation -----	\$5,000.00	
By J. J. Borree-----		\$5,000.00
	<u>\$5,000.00</u>	<u>\$5,000.00</u>

Salary of Assistant Adjutant General.

To appropriation -----	\$3,000.00	
By James S. McKnight-----		\$3,000.00
	<u>\$3,000.00</u>	<u>\$3,000.00</u>

Salary of Chief Clerk, Adjutant General's Office.

To appropriation -----	\$1,900.00	
By Howard S. McIntire-----		\$1,900.00
	<u>\$1,900.00</u>	<u>\$1,900.00</u>

Salaries of Three Clerks, Adjutant General's Office.

To appropriation -----	\$5,100.00	
By Jacob Alexander -----		\$1,700.00
By Arthur S. Tobias -----		221.94
By Alice M. Coughlin -----		1,478.04
By Gertrude A. Bird -----		297.50
By J. F. Sherburn -----		1,402.50
	<u>\$5,100.00</u>	<u>\$5,100.00</u>

Salary of Stenographer and Clerk, Adjutant General's Office.

To appropriation -----	\$1,500.00	
By Louise J. Bogert-----		\$262.50
By Gertrude A. Bird-----		412.50
By Clarissa E. Bowen-----		825.00
	<u>\$1,500.00</u>	<u>\$1,500.00</u>

Salary of Military Storekeeper.

To appropriation -----	\$1,200.00	
By Adolph H. Griesel-----		\$230.00
By J. L. Henderson -----		770.00
By unexpended balance-----		200.00
	<u>\$1,200.00</u>	<u>\$1,200.00</u>

Salary of Assistant Military Storekeeper.

To appropriation -----	\$900.00	
By James Kelliher -----		\$75.00
By Adolph H. Griesel-----		37.50
By Petter Rouning-----		225.00
By unexpended balance-----		562.50
	<u>\$900.00</u>	<u>\$900.00</u>

Support of the National Guard and Adjutant General's Office.

To appropriation	\$210,450.00	
By quarterly allowances to headquarters and companies		\$11,337.00
By rental of land for target ranges and construction of and repairs and improvements to outdoor and indoor target ranges, including services of caretakers		3,594.52
By expenses of camps of instruction for target practice and rifle competitions, including transportation, subsistence, labor, and supplies		1,432.65
By medals for proficiency in target practice and for active service in National Guard		49.00
By rental of armories and storerooms for property, also expense of upkeep and maintenance of State armories, including repairs, supplies, lights, water, and services of janitor and caretakers		20,381.46
By traveling expenses and per diem of officers and enlisted men of National Guard, and traveling expenses of U. S. Army officers and noncommissioned officers on duty with National Guard		1,909.52
By military stores, supplies, and equipment		1,754.07
By allowance to officers for uniforms and equipments		246.65
By physical examination fees		131.00
By recruiting expenses		3,914.60
By premiums on officers' bonds		200.00
By drayage and freight charges		670.48
By traveling expenses of The Adjutant General		1,152.60
By labor, supplies, and other expenses necessary to maintenance of State Arsenal		1,266.57

For support of Adjutant General's Office—

By postage		619.00
By expressage		347.35
By telegraphing and telephoning		1,821.60
By printing		2,288.75
By stenographic and clerical services (non-statutory)		15,977.85
By office supplies, equipment, and furnishings, also including water, laundry, etc.		1,400.82
By miscellaneous expenses		6,881.42
By unexpended balance		133,973.09
	\$210,450.00	\$210,450.00

NOTE.—The unexpended balance in the seventy-first fiscal year is carried over to and becomes available for use in the seventy-second fiscal year. This unexpended balance, however, will be somewhat reduced by the payment of outstanding claims.

Expenses of Organizing, Controlling, Equipping, Instructing, and Maintaining High School Cadet Companies and for Promoting Rifle Practice Therein.

To appropriation (for two fiscal years)	\$75,000.00	
By expressage		\$631.46
By drayage and freight charges		678.46
By telegraphing and telephoning		71.53
By printing		181.77
By traveling expenses		229.30
By military clothing, supplies, and equipment		1,509.29
By encampment expenses, including transportation, subsistence, labor, and supplies		12,060.46
By stenographic and clerical services		431.01
By miscellaneous expenses		586.86
By unexpended balance		58,619.86
	\$75,000.00	\$75,000.00

APPENDIX D.

List of California Men who Lost Their Lives During
World War.

APPENDIX D.

LIST OF CALIFORNIA MEN WHO LOST THEIR LIVES DURING
WORLD WAR.

ARMY.

A

Aadland, Thomas M.-----Veronica Springs
 Abel, Edward H.-----Colton
 Abel, Walter Duncan-----San Marino
 Abramovich, Anton-----San Francisco
 Ackerman, James Alan-----San Francisco
 Ackland, Benj. B.-----Monterey
 Acosta, Paul N.-----Bakersfield
 Acuna, John E.-----San Gabriel
 Adamoli, Matteo-----Surf
 Adams, Adam C.-----Cloverdale
 Adams, Harry D.-----Wiest
 Adams, Herbert H.-----Stockton
 Adams, Lon-----Arlington
 Adelsbach, Harry Ben-----Fresno
 Agard, Virgil W.-----Knights Landing
 Aggeler, Jerrold J.-----Stockton
 Aggio, Pietro-----Duncan Mills
 Ahern, George Calvert-----Santa Barbara
 Ahnefeldt, Ray C.-----Riverside
 Aitken, William H.-----Chico
 Aken, John-----Bakersfield
 Akesson, Bror H.-----Rio Vista
 Alberici, Abramo-----Camino
 Albro, Oscar-----Los Angeles
 Alexander, George-----San Francisco
 Alexander, James P.-----Visalia
 Alexander, James W.-----Oakland
 Alford, Charles V.-----Woodland
 Allard, Frank H.-----San Francisco
 Allen, Fred L.-----Los Angeles
 Allen, Harvey R.-----Madera
 Allen, Jack-----Fresno
 Allen, James F.-----Friant
 Allen, John H.-----San Francisco
 Allen, Thomas-----San Francisco
 Allman, Henry J.-----Rio Vista
 Alm, John G.-----Oroville
 Alstrum, Chester A.-----San Diego
 Altman, Henry-----San Francisco
 Alves, Frank-----Somis
 Alvey, Henry Fowler-----Los Angeles
 Ambler, John H.-----Naples
 Andelstedt, Raymond D.-----San Bernardino
 Andersen, Carl A.-----Fresno
 Anderson, Alfred E. L.-----Alameda
 Anderson, Carl M.-----Porterville
 Anderson, Cecil M.-----Salinas
 Anderson, Charley E.-----Santa Rosa
 Anderson, Ernest F.-----Petaluma
 Anderson, Eugene D.-----Sacramento
 Anderson, Harry F.-----San Francisco
 Anderson, James B.-----Clements
 Anderson, John G.-----Los Angeles
 Anderson, John L.-----Sacramento
 Anderson, John W.-----Los Angeles
 Anderson, Newell O.-----San Pedro
 Anderson, Roy E.-----Brawley
 Anderson, Sidney J.-----Los Angeles
 Anderson, Simeon M.-----San Ramon
 Andrade, Anton B.-----Hayward
 Andrade, Joseph F.-----Santa Clara
 Andrijasevich, Stepan-----Los Angeles
 Annear, Edgar H.-----Modesto

Anthony, Henry-----Porterfield
 Anton, Peter N.-----San Francisco
 Apple, Bert S.-----Williams
 Appling, Marvin C.-----Raymond
 Arathoon, Arathoon A.-----San Francisco
 Arbuckle, Wyatt L.-----Chico
 Armistead, Charles F.-----Los Angeles
 Arms, William S.-----Napa
 Armstrong, Frank T.-----Los Angeles
 Armstrong, Howard C.-----Fresno
 Armstrong, Leonard H.-----San Bernardino
 Armstrong, Ralph S.-----Hayward
 Armstrong, Ray A.-----Bayside
 Armstrong, William S.-----Ornbaun
 Arnet, Anthony L.-----Gridley
 Arrupe, Seferino-----San Pedro
 Arthur, James T.-----Sacramento
 Ash, Norman Perry-----Sacramento
 Ashbrook, Irvin R.-----Oakland
 Aten, Albert B.-----Calipatra
 Atkins, Joseph H.-----Ontario
 Atwater, Jack-----Sacramento
 Auer, Walter S.-----San Francisco
 Aufdermaur, Meinrad-----Pleasanton
 Aug, Charles H.-----Sacramento
 Augustine, Lee C.-----Los Angeles
 Aver, Vernon C.-----San Francisco
 Avilla, Edward-----Cordelia
 Avilla, Frank-----Petaluma
 Axelson, Otto Edward-----El Segundo
 Ayk, Jack-----Manteca

B

Bachant, Jesse R.-----Sanger
 Backus, James Merrill-----Riverside
 Badasci, Soren-----Los Alamos
 Baggett, Monroe J.-----Los Angeles
 Bagiones, John-----Emeryville
 Bagley, Hamilton-----Los Angeles
 Bagwill, Robert L.-----Sacramento
 Bahney, John W.-----Sacramento
 Baillar, Clarence W.-----Berkeley
 Bailey, Lewis N.-----San Francisco
 Bailey, Walker E.-----Oakland
 Bailey, Walter P.-----San Francisco
 Baillairga, Paul M.-----Glendale
 Baird, Glenn D.-----Pomona
 Baird, Maxfield A.-----Corona
 Bajac, Richard P. L.-----Oakland
 Baker, Charles A.-----Oakland
 Baker, Johnnie Ernest-----Cottonwood
 Baker, Livingston L.-----San Francisco
 Baker, Noble Clarence-----San Diego
 Baldi, Gusseppe-----San Jose
 Balfour, Alexander M.-----Oakland
 Ball, Clarence L.-----Glendale
 Ballard, Blackburn W.-----Colusa
 Ballard, Edward W.-----Los Angeles
 Ballew, Albert-----Los Angeles
 Banchemo, August F.-----Napa
 Baratta, Giacomo-----Hanford
 Barbe, Pierre-----San Mateo
 Barber, Lytton P.-----Mill Valley
 Barbera, Felix-----Sonoma

Bare, Mason S.	Los Angeles	Best, Willard R.	Beaumont
Bareilles, Jacques	Oakland	Bet, Ferdinand	San Francisco
Barfield, Walter S.	San Francisco	Betts, Harry	None
Barker, Clayton I.	Lemoore	Bevilacqua, Anthony J.	Colfax
Barker, Voltaire	Hanford	Bevilacqua, Giovanni	San Francisco
Barlow, Harold C.	San Diego	Beyer, George	Trona
Barnes, Eli A.	California	Beyer, Peter	Tassajara
Barnes, Harvey C.	San Jose	Beyer, Robert H.	Wolf
Barnes, Louis	Forest Hill	Biagini, Serverino	San Francisco
Barnes, Raymond R.	Venice	Bickley, Herbert J.	San Francisco
Barnes, Thomas	Los Angeles	Bidwell, Robinson E.	Red Bluff
Barnes, Wilson B.	Pescadero	Bigelow, Gordon	Azusa
Barnett, Clifton F.	San Pedro	Bilderback, Huston L.	Lincoln
Barnum, Clyde L.	San Francisco	Billings, Ernest O.	Sacramento
Barnum, Willard Griswold	Los Angeles	Biondi, Leopold	San Francisco
Barragar, Horace C.	Los Angeles	Birdsong, William M.	Whittier
Barron, Arthur J.	Los Angeles	Bischof, Alfred	Tulare
Barry, David M.	Santa Barbara	Bishop, Lester J.	Marysville
Barry, Gail W.	Berkeley	Black, John D.	San Francisco
Barsaglini, Pietro	Sanger	Black, Ralph C.	San Francisco
Barsch, Harry M.	Los Angeles	Blackburn, Francis	Los Angeles
Bartholomew, Oliver F.	Los Angeles	Blackmar, Maurice R.	Santa Fe Springs
Batchelor, Louis W.	San Francisco	Blair, Bob I.	Lang
Bates, Ernest M.	Stockton	Blair, Clarence J.	Tuolumne
Batt, James M.	Los Angeles	Blake, Louis A.	San Francisco
Battisti, Isidor	San Francisco	Blanchard, Kenneth L.	Berkeley
Bauer, Adolph C. Jr.	Richmond	Blatz, Edgar P.	Pomona
Bauer, Harry	Esparto	Blau, Otto H.	San Francisco
Baus, Hans	San Francisco	Bledsoe, Lawrence E.	Los Angeles
Baxter, Walter	Livermore	Bleistein, William H.	Eureka
Beach, Egbert W.	Piedmont	Blickhahn, Eaton W.	Corona
Beacon, Launcelot H.	Fortuna	Bliss, Vance W.	Santa Cruz
Beal, Ernest Chester	Chinese Camp	Bliss, William P.	Hanford
Bean, Harry Ellsworth	Hollywood	Boardman, Guy W.	Hughson
Bear, Oliver W.	Squaw Valley	Bobb, Eugene A.	San Pedro
Bearup, Carl G.	Doyle	Bobenmoyer, Andy	Stockton
Beasley, Shadworth O.	Sausalito	Bocchini, Adolph	San Francisco
Bedford, Roy	Tulare	Boggiano, John	Stockton
Beebe, Edwin W.	King City	Boggs, Edwin W.	Fresno
Bell, Archibald R.	Oakland	Bokenrager, Robert J.	Los Angeles
Bell, Clifford E.	San Gregorio	Bolin, David R.	Lindsay
Bell, Edward	San Francisco	Boling, Charles A.	Coalinga
Bell, Kenneth	Pasadena	Bolla, Guiseppi	Sacramento
Bell, Spencer M.	Lemon Grove	Bolles, Cecil K.	Los Angeles
Bell, Victor H.	Calexico	Bombem, Luciano A.	Porterville
Bellows, William H.	Woodland	Bonar, Charles M.	Los Angeles
Belshaw, Reuben Lester	Los Angeles	Boncich, Nikola	San Francisco
Benapfl, Roscoe G.	Los Angeles	Bond, Arthur F.	Los Angeles
Benedict, William E.	Beverly Hills	Bondouris, Chris N.	San Francisco
Bennett, Charles W.	Oakland	Bonds, William R.	Coulterville
Bennett, Clinton C.	San Francisco	Bonham, Albert L.	Friant
Bennett, Frank N.	LaJolla	Bonham, Edward C.	Modesto
Bennett, Ira J.	San Diego	Bonnell, Edward E.	Los Angeles
Bennett, John E.	Ojai	Bonner, Glenn J.	Santa Ana
Bennett, Robert J.	San Francisco	Bonser, Clinton L.	Sacramento
Bennett, Robert J.	Los Gatos	Boone, Stanley B.	Bridgeport
Benney, William W.	Willows	Boraschi, Gelindo	Napa
Benson, Arthur W.	Petaluma	Boreich, James	San Pedro
Bentler, George H.	San Jose	Bordson, Trugva	Sutter City
Berdaxaque, Gratien	San Francisco	Borel, Frank J.	San Francisco
Berg, David L.	Fertilla	Borgman, Edward	Exeter
Berges, Gaston J.	San Francisco	Bornstein, Julius	San Francisco
Bergesen, Leland E.	Albany	Borondo, Phillip R.	King City
Bergren, Harold V.	Los Angeles	Borst, Frank S.	San Francisco
Berkey, Peter V.	Colusa	Bosa, Agostino	San Francisco
Berline, Clarence E.	Pasadena	Boss, Jacob J.	Los Angeles
Berman, Henry J.	Stockton	Boston, Robert L.	Oakland
Bernal, Peter F.	San Francisco	Boswell, Claude	Wheatland
Bernard, Harry F.	North San Diego	Boteler, Wheeler A.	Mt. Signal
Berry, Louis E.	Daly City	Bottler, Fred F.	Marysville
Berti, Angelo	Firebaugh	Boudoures, Peter	San Francisco
Besana, Guiseppe	La Honda	Bowdish, George F.	Porterville
		Bower, James R.	Pasadena

Cardinali, Frank Severino	San Francisco	Childers, Lonnie A.	Bradley
Cardoza, Manuel L.	San Diego	Chilen, George W.	Modesto
Cardwell, Guy A.	Le Grand	Chio, James	Salida
Caretti, Joseph A.	Grizzly Bluff	Chiocchio, Crescenzo	Kennett
Carey, Frank J.	San Francisco	Chiosso, Guisepe	San Francisco
Carey, George W.	Sacramento	Chokas, Elias Anastasion	San Bernardino
Carlettilo, Nick	San Francisco	Chrisman, Rowdy C.	Kearney Park
Carlsen, Otto John	Oakland	Christensen, Dennison Ernest	Carpenteria
Carlson, Arthur W.	Modesto	Christensen, Pete	Eagleville
Carlson, George M.	Sacramento	Christodoulou, Manoel S.	Davenport
Carlson, Paul R.	San Francisco	Christopher, Ellis	Vacaville
Carmelo, Chiesa	San Francisco	Christy, Allen	Fresno
Carmichael, Eugene F.	San Francisco	Church, Ward I.	Loyalton
Carney, Hugh L.	Campbell	Ciges, Christ E.	Camino
Carpenter, Bennie	Whittier	Cincotta, Angelo	San Francisco
Carpenter, Fred L.	San Francisco	Cinelli, Albert Dante	Santa Rosa
Carquest, Wilfrid L.	None	Ciravega, Louis A.	Soulsbyville
Carr, Joseph A.	Santa Barbara	Ciucci, Harold B.	San Francisco
Carrell, James R.	Santa Rosa	Clairwood, Francis E.	Ft. Winfield Scott
Carretto, Joe	Floriston	Clarizio, Sarerio	San Francisco
Carroll, Albert Leonard	Los Angeles	Clark, David F.	Calistoga
Carron, Henry	Santa Ana	Clark, Harry H.	Fresno
Carter, Alfred	Oakland	Clark, Henry	Kingsburg
Carter, Carl	Santa Paula	Clark, James H. Jr.	Greenfield
Carter, Carl C.	Fresno	Clark, Joseph	San Luis Obispo
Carter, Louis	Porterville	Clark, Leon L.	San Francisco
Cary, Harold E.	San Francisco	Clark, Smith D.	San Diego
Cary, Thomas J.	Bieber	Clauson, Claus T.	San Pedro
Casajus, John B.	Courtland	Clay, James P.	Santa Monica
Casenave, John E.	Chinese Camp	Clayton, Guy B.	Norwalk
Casey, Henry	Santa Monica	Clayton, James G.	Priest Valley
Cassano, Charles F.	San Francisco	Cleaver, Harrison J.	Vallejo
Cassens, Herman	San Francisco	Clifton, David L.	Los Angeles
Cassidy, John J.	San Francisco	Clingman, Robert W.	Oakland
Castillo, Hallam B.	Los Angeles	Clunie, Thomas J.	Menlo Park
Castro, Louis V.	Hollister	Coburn, Clarence	San Bernardino
Catellini, Bambino L.	San Francisco	Coburn, Clinton K.	Los Angeles
Cater, Myron	Bakersfield	Cody, Henry	San Francisco
Catlin, Samuel L.	Kingsburg	Cogswell, James J.	Los Angeles
Catron, Charles C.	Los Angeles	Cohn, Sol. B.	Oakland
Caulder, Nathan	San Francisco	Colbertaldo, Caesari	South San Francisco
Cavalli, Marco	Santa Barbara	Colburn, Elbert F.	San Jose
Cavallini Charles	Raymond	Cole, Clarence	Onyx
Cazan, Peter	Oakland	Cole, Frederick W.	San Francisco
Cecchi, Colombo A.	Gustine	Coleman, Henry	San Francisco
Centini, Anthony	Oakland	Collas, Crigorios	San Francisco
Chabot, Charles W.	Los Angeles	Collier, Loy H.	Exter
Chaffee, Herbert N.	Pasadena	Collins, John W.	San Bernardino
Chaffey, Glenn W.	Trinidad	Collins, Samuel P.	Coalinga
Chafino, Manuel	Burbank	Collins, Stanley L.	Knight's Ferry
Chamberlain, Thurston R.	Woodland	Collison, John C.	Los Angeles
Chamberlain, William F.	Arcata	Colton, Harry L.	Burbank
Chambers, Harry V.	Oakland	Colvin, Clarence E.	Puente
Chandler, Walter H.	San Francisco	Combs, Emmett M.	Fresno
Chaney, Louis D.	South Santa Cruz	Compton, Clarence	Hanford
Chandre, Jules	Salinas	Compton, William D.	Santa Barbara
Chapart, Jean B.	San Francisco	Condare, Chris H.	Benicia
Chapman, Bruce	Fortuna	Condon, Stephen J.	San Francisco
Chapman, Earl	Los Angeles	Cone, Kenneth A.	Bakersfield
Chapman, Henry H.		Confer, Claud L.	Los Angeles
Chapman, Morrell P.	Los Angeles	Conlon, Bernard L.	San Francisco
Chappell, Forrest O.	La Verne	Connelly, Thomas Joseph	Sacramento
Chase, Ira A.	Los Angeles	Connick, Milton C.	Eureka
Chase, Vernon G.	Coronado	Conniff, Halford R.	San Diego
Chaves, Philip G.	San Francisco	Connolly, Cecil H.	San Diego
Chavez, John	Los Angeles	Connolly, John	San Francisco
Cheatham, Bert	Bakersfield	Conrow, Samuel D.	Riverside
Chesson, Charles F.	Fair Oaks	Cook, Chas. C.	San Jose
Cheula, Silvestro	McCloud	Cook, Harry	Redlands
Chevoya, Clarence	Fresno	Cook, James S.	Annette
Chew, Lee Hong	Locke	Cook, William H.	Cucamonga
Chichilicas, Nicolaos M.	Vallejo	Cooper, Abraham	Los Angeles
Chick, Edward A.	Oakland	Cooper, Charles J.	Los Angeles

Cooper, Everette J.	Flourney	Val Porto, Peter P.	San Francisco
Cooper, Robert S.	San Francisco	Daly, Jesse L.	Los Angeles
Cooper, Robert W.	Oxnard	Daly, J. W.	Stockton
Corey, Clarence L.	Santa Cruz	Dalzin, George	San Jose
Corbin, Carroll D.	Anderson	Damiano, Leo L.	Antioch
Cortopassi, Abdenago	Auburn	Daniels, Carl M.	Marina
Corwin, George R.	Highland	Daniels, Charles E.	Santa Monica
Cosgrave, John V.	Oakland	Daniels, Roy E.	Los Angeles
Costa, Frank S.	Holt	Danley, Vernon J.	Maxwell
Cottrell, David C.	Stockton	Varbinian, Sisok H.	Fresno
Cottrell, Jesse J.	Sunol	Warrell, John E.	San Francisco
Coughlin, Michael J.	Virginia Valley	Warwin, Edwin E.	Thornton
Counts, Henry	Saugus	Washwood, Richard H.	Samoa
Coupe, Richard M.	Tracy	Waubert, Karl H.	Benicia
Couroy, John H.	Maricopa	Wavenport, Cornelius G.	Taft
Courser, Frank M.	San Diego	Wavenport, Earl	Tehachapi
Courtney, Rance	Alameda	Davidson, Gifford C.	Oakland
Covill, William Frank	San Jose	Davidson, John T.	Point Richmond
Cox, Arthur E.	Madera	Davie, Harold A.	Oakland
Coyne, Thomas M.	Oakland	Davies, Oliver W.	Los Angeles
Cozzitorto, Guiseppe	San Francisco	Davin, Amie F.	San Francisco
Craft, Clarence C.	Sisson	Davis, Albert N.	Bakersfield
Craig, Charles M.	Corona	Davis, Cleo W.	Brawley
Craig, George	Clarksville	Davis, Edward J.	Holtville
Craig, Raymond T.	Santa Paula	Davis, Frank G.	Los Angeles
Cramer, Roger K.	Berkeley	Davis, Irwin E.	Oilfields
Crane, William E.	Niles	Davis, Lauren E.	Courtland
Craviotto, Andrea	San Francisco	Davis, Laurence E.	Glendale
Crawford, Charlie	Hanford	Davis, Read C.	Colusa
Creed, Luther W.	El Centro	Davis, Thomas A.	Coalinga
Creighton, Ralph G.	Sanger	Davis, Victor H.	San Francisco
Cress, John J.	Kings River	Davis, William	Manchester
Creswell, Walter Lee	Sonora	Dawson, Harry J.	San Francisco
Crews, Charles Calob	San Jose	Day, Ruel W.	Philo
Crimmings, Ernest F.	San Francisco	Debaigt, Marcel	San Francisco
Crittenden, Alfred D.	Oakland	Debie, Albert	San Francisco
Crococ, John	Mammoth	DeCunha, William P.	Oakland
Crocker, Herbert S.	Camino	DeHaven, Thomas S.	Sacramento
Crockett, Eugene W.	San Francisco	Deitrich, John	San Francisco
Crooker, Albert F.	Taylorville	DeLario, Charles E.	Los Angeles
Crosby, Timothy Warren	Hemet	De la Montanya, Jacques	San Francisco
Crowe, Leland Russell	Stockton	Del Debbio, Guiseppe	Auburn
Crowell, Flemming M.	Los Angeles	DeLoy, Henry	San Francisco
Crowley, William H.	San Francisco	Delray, Edward C.	Fort Jones
Crowley, Albert J.	San Francisco	Del Zotto, Caesar	Martinez
Crowley, Clement I.	San Francisco	De Martini, Henry J.	San Francisco
Crowley, Dennis	Crockett	Deming, Frank L.	San Francisco
Crowley, John M.	San Francisco	Deming, Isaac L.	Mesa Grande
Crum, Forest R.	Whittier	Demuth, William E.	Lancaster
Culhane, George J.	San Francisco	Denham, Frank E.	Santa Rosa
Culver, Harrison W.	Long Beach	Dennison, Frederick C.	San Francisco
Cumming, Albert	Los Angeles	Depianti, Domenico	Richmond
Cummings, Gordon D.	Sebastopol	DeRuchie, Lawrence St. C.	Gridley
Cuneo, Joseph A.	Jackson	De Santi, Narcisco	San Francisco
Cunningham, Lawrence Leroy	Taft	De Santo, Theodore	Los Angeles
Curl, Robert Latta	Glendale	Desmond, James C.	San Francisco
Curotto, Vittorio	Colma	Desouza, Joe A.	Mountain View
Curran, Walter Campbell	Oakland	Devereaux, George E.	San Jose
Currier, Edward D.	Los Angeles	Devincenzi, Vincenzo	Sonoma
Curroto, Virgilio	San Francisco	Devitt, William F.	Santa Cruz
Curry, Charles R.	San Diego	Dewey, Charles M.	Venice
Cutler, James R.	San Francisco	Diangeles, Serafino	San Pedro
Cutter, Howard C.	Eagle Rock	Dias, Edward M.	Richmond
Cykler, Alois J.	San Jose	Diaz, Abraham Jr.	Keeler
Czefezick, Paul	Bakersfield	Dietrick, George A.	Oak Bar
Czolgog, Toney	Los Angeles	Dickson, Samuel J.	San Francisco
		Dill, John N.	Selma
		Dillon, Patrick	Sacramento
		Dillon, William P.	Ferndale
		Dingley, Llewellyn A.	Oakland
		Dingman, Ralph E.	Taft
		Dinn, Pressley	Fresno
		Dinse, Claud J.	Woodland

D

Dadizon, Andres P.	Stockton
Dahl, Albert I.	San Francisco
Dahl, Martin E.	Berkeley
Dalbey, Justin E.	San Diego
Dalceit, Stephen	Napa

Fiscalini, Ottavio	-----	Temecula		
Fischer, Percy J.	-----	Stockton		
Fisher, Arthur E.	-----	Los Angeles		
Fisher, William A.	-----	Stockton		
Fitch, Ernest D.	-----	Zayante		
Fitch, George A.	-----	Manchester		
Fitchett, Roy W.	-----	Bishop		
Fitzgerald, Cloyd	-----	Hardwick		
Fitzgerald, Edward	-----	Oakland		
Fitzgerald, William C.	-----	Los Angeles		
Fitzpatrick, John E.	-----	San Francisco		
Flagg, Elmer H.	-----	San Jose		
Flaskett, Sherman W.	-----	Long Beach		
Fleming, Issac L.	-----	Grass Valley		
Fleming, John V.	-----	Vallejo		
Fleming, William, Jr.	-----	Diablo		
Fletcher, Edwin A.	-----	Alhambra		
Fletcher, Lester L.	-----	Cressey		
Flinn, Hubert Glenn	-----	Los Angeles		
Flitcraft, Elwood L.	-----	Jackson		
Flores, Charles A.	-----	Santa Barbara		
Flores, Teno	-----	Redlands		
Flynn, Thomas A.	-----	Georgetown		
Fontaine, Elbert H.	-----	Caliente		
Fontanella, Charles David	-----	Stockton		
Forbes, Eugene F.	-----	Ione		
Ford, Daniel	-----	Grass Valley		
Ford, John J. Jr.	-----	Pomona		
Ford, Tallis N.	-----	Sunnyvale		
Forker, Albert E.	-----	Little Bear Lake		
Forney, Russell David	-----	Santa Ana		
Forstner, Joseph J.	-----	San Francisco		
Foster, Alfred John	-----	Orland		
Foster, Charles R.	-----	Taft		
Foster, Jesse L.	-----	Santa Ana		
Foster, LeRoy R.	-----	Ripon		
Foster, Morten E.	-----	Dunlap		
Fourl, George T.	-----	Hyde Park		
Fowler, James E.	-----	Lincoln		
Fowler, John W.	-----	Thelma		
Fowler, Leon R.	-----	Los Angeles		
Fox, Elmer	-----	Hughson		
Fox, Murray S.	-----	Venice		
Fox, Paul N.	-----	Los Angeles		
Fox, William P.	-----	San Francisco		
Franceschetti, Eugene	-----	South San Francisco		
Francis, George L.	-----	Farmersville		
Francis, Leon S.	-----	Los Angeles		
Francis, Angelo	-----	San Francisco		
Franco, John	-----	Alamo		
Frandsen, Ingvar M.	-----	Fresno		
Frank, Chauncey R.	-----	San Francisco		
Fransvoog, Harold	-----	Los Angeles		
Frazer, Archibald W.	-----	Sacramento		
Freese, Harry F.	-----	San Francisco		
Freitas, Manuel B.	-----	Los Banos		
Fremel, Wesley Jr.	-----	Richmond		
Frendy, Melvyn L. J.	-----	Grass Valley		
Frerichs, Melvin L.	-----	Byron		
Frese, Clarence B.	-----	Dixon		
Fresher, Elmer L.	-----	Los Gatos		
Frey, August	-----	Lodi		
Frey, Eugene H.	-----	Truckee		
Frietas, George	-----	Danville		
Fritel, Joseph A.	-----	Los Angeles		
Fritch, Arthur W.	-----	Bishop		
Fritz, George	-----	Sacramento		
Frothingham, James M.	-----	Macdoel		
Fruguglietti, Vincent	-----	Hollister		
Frye, Louis L.	-----	Oakland		
Fugazzi, Savio Joseph	-----	Stockton		
Fulton, Hugh B.	-----	Oakland		
			G	
Gabb, George P.	-----	Perris		
Gabel, Thomas A.	-----	Los Angeles		
Gabilan, Paul J.	-----	San Francisco		
Gabriel, Charles B.	-----	San Francisco		
Gabriel, Frank J.	-----	Sacramento		
Gabrielli, John	-----	Sacramento		
Gaffney, Richard A.	-----	Los Angeles		
Gage, Benjamin, F.	-----	Berkeley		
Gage, Henry H.	-----	San Francisco		
Gagen, Lloyd V.	-----	San Francisco		
Galgani, Patrick A.	-----	Santa Monica		
Game, Hubert P.	-----	Oakland		
Ganahl, Frank C.	-----	Los Angeles		
Garbedian, Ben	-----	San Francisco		
Garcia, Ben	-----	Mendigable		
Garcia, James	-----	El Centro		
Garcia, Joe	-----	King City		
Garcia, John	-----	King City		
Garcia, Louis R.	-----	Pomona		
Gard, Frank J.	-----	Glendora		
Gardiner, Russell L.	-----	Oakland		
Gardner, Dayton M.	-----	Rutherford		
Gardner, Douglas O.	-----	Redding		
Gardner, John A.	-----	Los Angeles		
Garrett, James E.	-----	Willow Creek		
Garretty, Charles L.	-----	Santa Cruz		
Garrigues, Samuel C.	-----	Grossmont		
Garrity, Hugh	-----	Taft		
Gass, William H.	-----	Sacramento		
Gaston, Donald F.	-----	Lordsburg		
Gates, Forest F.	-----	Holtville		
Gates, Roy C.	-----	Calexico		
Gatt, Walter J.	-----	Taft		
Gatto, Peter	-----	El Centro		
Gatts, William L.	-----	Los Angeles		
Gavin, Harry	-----	Idria		
Gavin, Raymond F.	-----	Concord		
Gay, Alfred	-----	San Francisco		
Gay, John W.	-----	Pasadena		
Gazanego, John	-----	Grant		
Gengler, Frank R.	-----	Marysville		
Georgakis, James G.	-----	Corona		
George, Barney P.	-----	Imperial		
George, Edmond B.	-----	San Lorenzo		
George, Ralph V.	-----	Cecilville		
Gerdes, August O.	-----	San Francisco		
Gerry, Edmund S.	-----	Ventura		
Ghriest, Charles H., Jr.	-----	Banning		
Giambruno, Isadore	-----	Oakland		
Gianettoni, John	-----	San Luis Obispo		
Gibbes, Cecil P.	-----	Los Angeles		
Gibbons, Richard	-----	Fort Rosecrans		
Gibson, Fred	-----	El Centro		
Giesbrecht, Peter	-----	Bakersfield		
Gilbert, Cornelius A.	-----	Oakland		
Gilbert, Edward E.	-----	Orleans		
Gilbert, Loren L.	-----	Redding		
Gillespie, Alexander S.	-----	Los Angeles		
Gillespie, Harvey E.	-----	San Diego		
Gillespie, Ralph	-----	Lodi		
Gilligan, Harry	-----	Stockton		
Gilligan, Patrick	-----	San Francisco		
Gilmer, Rutledge R.	-----	Los Angeles		
Gilmore, William S.	-----	Berkeley		
Gilson, William S.	-----	Los Angeles		
Gimbel, James J.	-----	Berkeley		
Gimblett, James H.	-----	Los Angeles		
Girado, Samuel	-----	Piute		
Giunchi, Orlando	-----	Nevada City		
Glass, David L.	-----	Seaside		
Gleason, William J.	-----	San Francisco		
Glidden, Kenneth B.	-----	Modesto		

Gnoss, Frank J.	San Francisco		
Godman, Louis K.	Los Angeles		
Goe Rufus N.	San Rafael		
Goelz, Frank E.	Oxnard		
Gogna, Luigi G.	San Anselmo		
Goldberg, Millard Frederick	San Francisco		
Goldie, Roy C.	Los Angeles		
Goldstein, Hyman J.	Oakland		
Golonsbe, George J.	Los Angeles		
Goltz, Herman D.	Moneta		
Gomes, Tony P.	Stockton		
Gomez, Simon	Los Angeles		
Goodale, Alvin C.	Pasadena		
Goodell, Clarence J.	Pomona		
Goodwin, Allan E.	Los Angeles		
Goodwin, Fred	Blue Lake		
Goodwin, Thomas G.	San Francisco		
Goree, Rogers C.	El Centro		
Gorman, Harry C.	Pasadena		
Gorsky, Anthony	Los Angeles		
Gosselin, Alexander	San Francisco		
Gostos, Tom P.	Newcastle		
Gotelli, Michele	Santa Margarita		
Gow, Rexford G.	Eureka		
Grace, Mark D.	Elk Grove		
Graeling, Frederick H.	Sacramento		
Graham, Harold M.	Napa		
Graham, Jack E.	Los Angeles		
Graham, Tolbert P.	Modesto		
Graham, William	Fresno		
Grant, Ward E.	Los Angeles		
Grant, William J.	San Francisco		
Granzella, Agripino	Richmond		
Grassel, Gordon D.	Los Angeles		
Gravatt, George F.	Oakland		
Graves, Thomas	Piedmont		
Gray, Charles W.	Sacramento		
Gray, Ezra	Lanare		
Gray, James	Petaluma		
Grayson, Oliver O.	Woodland		
Greely, Franklin	Santa Maria		
Green, Asa G.	San Francisco		
Green, Oscar E.	Ramona		
Green, Richard Lee	San Francisco		
Greene, Fred L.	San Francisco		
Greene, Logan B.	Pasadena		
Gregory, Edwin L.	Montague		
Gregory, Merle M.	Oakland		
Greiff, Karl L.	Los Angeles		
Griffin, Burwell O. Jr.	Huntington Park		
Griffin, Lee R.	Hayward		
Griffin, Thomas Richard	Oakland		
Griffin, William	San Francisco		
Grimes, George	San Francisco		
Grisedale, Francis T.	E. Bakersfield		
Grooms, Denver L.	Whittier		
Gross, Wilmer J.	San Jose		
Grossland, Bert S.	Venice		
Grotendorf, Fred L.	Los Angeles		
Groteguth, Harry E. E.	Pope Valley		
Grother, Gavert	Pilot Hill		
Grover, Richard B.	Los Angeles		
Grover, William W.	Georgetown		
Groves, William J.	San Francisco		
Guerard, Paul A.	San Francisco		
Guess, John Jr.	El Monte		
Guggenheim, Leon Jr.	Fresno		
Guidi, Pietro	Walnut Grove		
Guido, Ernest E.	Oakland		
Gulick, Oscar	San Joaquin		
Gump, Herbert Z.	Covina		
Gunn, Alvin L.	Alameda		
Gunter, Charles E.	San Francisco		
Gustafson, Carl R. B.	Escalon		
Guyler, Paul E.	Modesto		
		H	
Haave, Sigur	Redding		
Habishaw, Berth J.	Hornet Mine		
Hach, George D.	Pittsville		
Hackler, Charles F.	Millville		
Hackman, Carl W.	San Francisco		
Haddock, James P. Jr.	East San Diego		
Haddox, Milton L.	Puenti		
Hader, Edwin	Los Angeles		
Hadlock, Jesse B.	Bakersfield		
Hagedorn, William	San Francisco		
Hagel, Carl J.	San Francisco		
Hagen, Louis, C. Jr.	El Cerrito		
Hagstrom, Ray A.	Los Angeles		
Hague, William	Grass Valley		
Haines, Richard B.	Aptos		
Hale, Bert J.	Colgate		
Halfmann, Miles P.	Amboy		
Hall, Alfred W.	San Diego		
Hall, Charles G.	Big Oak		
Hall, Earl D.	Marysville		
Hall, George C.	San Francisco		
Hall, John T.	Santa Barbara		
Hallgren, Henry W.	Los Angeles		
Halloran, Mathew M.	Milford		
Halstead, Walter J.	Stockton		
Halvorsen, Harry H.	San Francisco		
Hamblin, William S.	Long Beach		
Hamilton, Douglas O.	San Francisco		
Hamilton, Roy	Woodland		
Hamilton, Sam D.	Stockton		
Hamm, Percy William	Ione		
Hammel, Howard P.	Los Angeles		
Hammell, Clarence H.	Oakland		
Hammer, Earl M.	San Francisco		
Hammons, Carroll C.	Oakland		
Hampton, Robert B.	Richmond		
Handley, Victor Hubert	Berkeley		
Haney, William W.	Bakersfield		
Hankey, Albert H.	Berkeley		
Hanly, William J.	Oakland		
Hanna, Samuel H.	Los Angeles		
Hannay, George E.	Oakland		
Hansen, Edward J.	Collinsville		
Hansen, Frank R.	Oakland		
Hansen, Herman L.	Nicolaus		
Hansen, Lorenz M.	Oakland		
Hansen, Louis A.	Alameda		
Hansen, Soren C.	Petaluma		
Hansen, Theodore T.	San Francisco		
Hanson, Calvin E.	Pasadena		
Hanson, Earl C.	Los Angeles		
Hanvey, William H.	Sacramento		
Hapes, Peter K.	Los Angeles		
Happ, Frank V.	Monterey		
Happich, Peter L.	Los Angeles		
Hardcastle, Chester	Sacramento		
Harden, Albert J.	Lindsay		
Harden, Owen C.	Los Angeles		
Hardie, Archie	San Francisco		
Harding, Jake	Greenfield		
Harding, Stacy L.	Antioch		
Hardy, George W.	Stockton		
Hargens, Ernest	Gonzales		
Harling, Jesse	San Francisco		
Harness, George W.	Fresno		
Harper, Harry	San Rafael		
Harper, Orville S.	Oakland		
Harper, Richard J.	El Cerrito		
Harris, Aaron Samuel	Chico		
Harris, Charles	San Francisco		
Harris, Charles F.	San Francisco		
Harris, Harry L.	San Francisco		
Harris, Lionel H.	Jackson		

Harris, Perry F.	Greenview	Hoagland, Harry H.	Long Beach
Harris, William A.	Los Angeles	Hobuck, Earl A.	Brawley
Harrison, Allwyn W.	Los Angeles	Hochstedler, George R.	Taft
Harrison, Cornelius	Linden	Hodge, Samuel W.	Los Angeles
Harrison, David Clouds	San Francisco	Hodges, Charles W.	Los Angeles
Harrison, Joseph R.	San Francisco	Hodgins, Ernest R.	San Bernardino
Harrity, John F.	San Francisco	Hodgson, Milton B.	Berkeley
Harrower, Alfred D.	Los Angeles	Hoeh, Fred W.	Santa Rosa
Hart, Bert	San Francisco	Hofele, Henry	San Francisco
Hart, William R. W.	Van Nuys	Hoffman, Myron I.	San Francisco
Harter, Clifford C.	Straw	Hofman, Frederick W.	San Jacinto
Hartford, Herman N.	San Jose	Hogle, George B.	Bishop
Hartmann, Ernest C.	San Francisco	Hohn, August	Oakland
Harvey, Herbert H.	Dulzura	Hoisholt, Arne K. E.	Berkeley
Harvil, Thomas G.	Canby	Holden, Robert R.	Willows
Hash, Conrad F.	Visalia	Holdzkom, Paul R.	Stockton
Hastings, Cledith Lavern	Sacramento	Holeton, Arthur J.	San Diego
Hatchett, Roy R.	Dixon	Holland, William J.	Huntington Park
Hatfield, Homer	Fresno	Hollenbeak, Willis	Glenburn
Hatton, Earl F.	Bloomfield	Hollywood, Leonard B.	Alameda
Hauber, Herman A.	Hayward	Hollzer, Maurice	San Francisco
Hauck, George F.	San Francisco	Holman, Joseph D.	Davis
Hauff, Manuel J.	Stockton	Holmes, Arthur L.	San Diego
Havens, Lester D.	Los Angeles	Holmes, Franklin M.	Los Angeles
Hawkins, Dean D.	San Francisco	Holmes, Fred A.	Imperial
Haws, Leonard A.	Yucaipa	Holt, Walter W.	Los Angeles
Hawtrej, Frederick C.	Los Angeles	Hooper, Benjamin K.	Point Loma
Hay, Walter	Laguna	Hooper, William J.	Alameda
Hayes, Louis	Yreka	Hopkins, Dewey G.	Madera
Haynes, Alfred L.	Fresno	Hopper, Lewis W.	Maricopa
Hays, Eugene W.	San Francisco	Hopps, Martin S.	Salinas
Hays, John E.	Berkeley	Horan, Leo P.	San Francisco
Hays, Thomas L.	Los Angeles	Horgan, William J.	San Francisco
Healey, Raymond J.	San Francisco	Hornafins, Harry A.	Los Angeles
Healy, Denis	San Francisco	Hornbeck, Earl E.	Los Angeles
Heaton, Harry J.	San Francisco	Horton, Henry E.	San Francisco
Hedley, Pharaoh N.	Napa	Hoskins, Eddie	San Jose
Heery, Joseph M.	Riverbank	Hosmer, William Ernest	Santa Barbara
Heffernan, William P.	San Francisco	Hough, Walker C.	Agnew
Hegarty, William C.	Nevada City	Hourcaillon, Jean B.	San Francisco
Hegelan, Christ	Woodland	Houston, Allen L.	Redding
Heggie, Reginald M.	Santa Barbara	Houston, Charles J.	Vallejo
Heine, Harry F.	San Francisco	Houx, Wesley M.	Santa Barbara
Heininger, George E.	Oakland	Hovard, Herbert	Lodi
Helenius, Hjalmar	Chico	Hove, Edward	Marysville
Hellman, Grover C.	Hanford	Howard, Bruce	Berkeley
Helm, William P.	Yreka	Howard, Claude C.	San Francisco
Hemphill, Clyde O.	Blue Lake	Howard, Clem	Oakland
Hendricks, Preston F.	Browns Valley	Howard, Ernest J.	Bakersfield
Hendrix, Clinton C.	Los Angeles	Howard, Roy H.	San Francisco
Henegar, Hugh M.	Antioch	Howard, Ward D.	Stanford
Henley, William C.	South Pasadena	Howerton, Jess Carlton	Los Angeles
Herbert, James O.	Auburn	Hoxworth, Charles H.	San Francisco
Herbst, Oscar	San Francisco	Hoy, Carl	Bakersfield
Herrier, George	Oakland	Huddelson, Ralph	Wasco
Herriott, Paul	Oakland	Huddle, Cordas E.	Porterville
Heskett, Forest C.	San Diego	Hudgins, Richard B.	Douglas
Hewitt, Charles W.	Los Angeles	Hudson, Vern A.	Los Angeles
Hicks, William P.	Hopland	Huff, Sterling K.	Tulare
Hiestand, Carroll R.	South San Francisco	Huffington, Charles	Sacramento
Higgins, Eloys J.	Bakersfield	Hugebach, Mathias A. J.	San Jose
Higgins, Hugh V.	Santa Maria	Hughes, Glenn Vernon	Reward
Hilden, Walter A.	Vacaville	Hughes, Hugh P.	San Francisco
Hill, Hedley	Grass Valley	Hughes, Russel	Ukiah
Hill, Ralph W.	Oakland	Hugill, Thomas W.	Lodi
Hill, William H.	San Francisco	Hulbert, Victor	Del Rey
Hill, William W.	Taft	Hunt, Elmer R.	Orange
Hill, Wilmer A.	Chino	Hunt, George E.	Eureka
Hilliard, Bert A.	Brawley	Hunter, William	Weitchepoc
Hinckley, Porter	San Francisco	Hunting, Walter L.	San Francisco
Hines, David J.	San Francisco	Huntington, Cecil S.	San Francisco
Hinkle, Clarence W.	National City	Huntington, William Arthur	San Bernardino
Hintz, Marvin E.	Davis Creek		
Hiskey, Charles T.	Los Angeles	Hurd, Ervin C.	St. Helena

Hurley, Timothy S.-----	Auberry	Johnson, Walter S.-----	San Francisco
Husing, Leonard C.-----	San Francisco	Johnson, William-----	Los Angeles
Husted, Harvey M.-----	San Francisco	Johnson, William T.-----	Los Angeles
Huston, Bud L.-----	Fresno City	Johnston, Donald-----	El Segundo
Hyland, Joseph R.-----	Plymouth	Johnston, Finis E.-----	Atwater
Hyland, William Henry Jr.-----	Los Angeles	Johnston, John H.-----	Madera
I			
Ievers, William H.-----	San Francisco	Johnston, Laurence S.-----	Hanford
Ihde, Walter E.-----	Hanford	Johnston, Marcus J.-----	San Francisco
Ilich, Jerry T.-----	San Diego	Johnstone, William H.-----	Oakley
Ingalls, Earle E.-----	Cambria	Jones, Carl Castlemann-----	Exeter
Ingenlath, Robert Jr.-----	San Francisco	Jones, Clarence L.-----	San Francisco
Inglehart, Delbert E.-----	Los Angeles	Jones, Clarence M.-----	San Francisco
Iopa, Daniel K.-----	Oakland	Jones, Halbert H.-----	Bernardo
Irish, Ernest Percy-----	Los Angeles	Jones, Henry B.-----	San Francisco
Irwin, Bernard-----	Stockton	Jones, Hugo A.-----	Lemoore
Irwin, Charles Ernest-----	Fresno	Jones, James M.-----	San Francisco
Irwin, Elmer F.-----	San Francisco	Jones, Joseph H.-----	Hanford
Irwin, Rubin J.-----	Los Angeles	Jones, Levi P.-----	Los Angeles
Isaacks, Andrew J.-----	San Francisco	Jones, Orvie L.-----	Santa Rosa
Iskw, Edward J.-----	San Diego	Jonsson, Birger W.-----	Oakland
Isreal, John D.-----	San Francisco	Joppa, Albert H.-----	Ferndale
J			
Jackson, Andrew-----	San Francisco	Jordan, Frank-----	Oakland
Jackson, Byron Jr.-----	San Francisco	Jordan, Harvey H.-----	Exeter
Jackson, Lou J.-----	Los Angeles	Joseph, Sidney-----	San Francisco
Jackson, Ray D. S.-----	Santa Monica	Josephson, Edwin B.-----	Los Angeles
Jacobs, Elmer G.-----	Huntington Park	Judd, Francis L.-----	Oakland
Jacobson, Alfred W.-----	Selma	Judd, James C.-----	Sacramento
Jacobson, Arthur C.-----	Fresno	Jurdana, Joseph-----	Raymond
Jacobson, Henry A.-----	San Francisco	Juryevich, John-----	Bolocklala
Jacobson, Leonard-----	Eureka	Justeson, Barney T.-----	Gridley
Jacomini, Clement Jr.-----	Pasadena	K	
Jacquemet, Leon August-----	San Francisco	Kafader, Emery L.-----	Fort Bidwell
Jagow, Edwin W.-----	Los Angeles	Kahl, Howard-----	Taft
Jake, Frank W.-----	Crescent City	Kahl, James Clarence-----	Jamestown
James, Arthur-----	Buckeye	Kaikas, Athanasios-----	San Francisco
James, Bennie-----	Los Angeles	Kane, Alexander G.-----	Arcata
James, Frederick P.-----	Oakland	Kanode, Milton I.-----	Los Angeles
James, Thomas H.-----	San Diego	Kaphan, Jerome-----	Oakland
Janke, Herbert Frank-----	San Diego	Karas, Charles P.-----	Camino
Jantzen, Arthur-----	Artesia	Karkane, Hjalmar-----	San Francisco
Jeffers, Amzi H.-----	Redlands	Kasnestis, Mike-----	Sacramento
Jenkin, Albert J.-----	Oakland	Kaspar, Edmund T.-----	Stockton
Jenkins, Clarence C.-----	Salinas	Kasten, Brock F.-----	Los Angeles
Jenkins, Clyde G.-----	Chico	Kaster, Addie S.-----	Fresno
Jenkins, Lyonell Eugene-----	Los Angeles	Kates, Murray L.-----	Los Angeles
Jennings, Michael S.-----	Redlands	Katz, Maurice-----	San Francisco
Jensen, Edward-----	San Francisco	Kauffman, Joseph Leon-----	Los Angeles
Jensen, Hans A.-----	Oakland	Kavanagh, Martin H.-----	Fresno
Jensen, Hilmer W.-----	Sebastopol	Kavier, Lois J.-----	San Francisco
Jensen, Willis E.-----	Los Angeles	Kawin, Abe E.-----	Los Angeles
Jensene, Peter M.-----	Eureka	Kay, John-----	San Francisco
Jessel, Albert-----	San Francisco	Keefe, Dennis I.-----	San Francisco
Jewett, George D.-----	Berkeley	Keeley, Julius O.-----	Lindsay
Jicha, Frank V.-----	Korbel	Keenan, Patrick J.-----	Pt. Richmond
Joffre, Antoine-----	Sacramento	Keene, Oscar D.-----	Vallejo
Johns, Allen W.-----	San Diego	Keifer, Vaughn-----	Hammonton
Johnson, Arthur E.-----	San Francisco	Keller, John C.-----	Oakland
Johnson, Benjamin-----	Los Angeles	Kelley, Chester J.-----	Porterville
Johnson, Carl A.-----	Los Angeles	Kellog, Ernest L.-----	Santa Ana
Johnson, Charles D.-----	Turlock	Kellogg, Ralph E.-----	Pasadena
Johnson, Clyde H.-----	Los Angeles	Kells, Clark-----	Oakland
Johnson, Edmund A.-----	Fresno	Kelly, Francis M.-----	Oakland
Johnson, Elso S.-----	San Francisco	Kelly, James P.-----	Calipatria
Johnson, Fred C. C.-----	Coalinga	Kelly, Robert E.-----	Oakland
Johnson, George H.-----	Oakland	Kelly, Walter L.-----	San Francisco
Johnson, Henry E.-----	Comptche	Kelly, William Francis-----	San Francisco
Johnson, Howard O.-----	Los Angeles	Kelly, William P.-----	San Francisco
Johnson, John A.-----	Santa Ana	Kelly, Wm. P.-----	San Francisco
Johnson, Jarvis J.-----	San Jose	Kemp, Bartlett W.-----	Calipatria
Johnson, Robert-----	Los Angeles	Kengla, Louis E.-----	Los Angeles
		Kennedy, Lawrence S.-----	Pt. Richmond
		Kennell, George-----	Hanford
		Kenney, Walter P. A.-----	San Francisco

Kent, Charles J.	San Francisco	La Frens, Ernest J.	Los Angeles
Kerr, James N.	Los Angeles	Lagomarsino, Stefano	San Francisco
Kerr, Ralph S.	Berkeley	Lagragren, William Rudolph	Hillsboro
Kessler, James A.	Modesto	Lake, Thomas J.	Calexico
Ketler, William B.	San Francisco	Lamb, Andrew J.	Los Angeles
Keys, Mark Butler	Los Angeles	Lambert, Frank	Los Angeles
Kikuchi, Siakichi	Monterey	Lambert, Frederick L.	Sacramento
Kimber, Arthur C.	Palo Alto	Lambert, George	Fresno
King, Oren H.	Los Angeles	Lambert, Wesley N.	Riverside
King, Otto R.	San Francisco	Lamp, Walter	Oakland
King, Thomas A.	Grafton	Lampher, Henry	San Luis Rey
Kingery, Ralph T.	Ontario	Lanata, Angelo G.	Hanford
Kingsley, Sherwood L.	Los Angeles	Landin, Herbert	Bishop
Kingston, Paul	San Diego	Landis, Samuel	Santa Barbara
Kinnear, James S.	Newman	Landry, William J.	San Francisco
Kintzi, Otto E.	Reedley	Lane, John L.	Los Angeles
Kirk, Christ	Los Angeles	Lanferman, Michael A.	Los Angeles
Kirk, Theodore T.	Covina	Lang, Jacob G.	San Francisco
Kirkpatrick, Roscoe C.	Long Beach	Langan, Gurdon S.	Roseville
Kirwan, James J.	Los Angeles	Langenbach, Paul J.	Live Oak
Kitt, Don H.	Los Angeles	Lankenau, George	San Francisco
Kitts, Walter T.	Los Angeles	Lanphear, Oliver M.	Red Bluff
Klein, Adam	Stockton	Lapsley, Harry W.	San Diego
Kleist, Clifford D.	Los Angeles	Larsen, Fred	Walnut Grove
Kling, Fitzhugh L.	Los Angeles	Larsen, Lars P.	Stockton
Klonowski, Joseph	Floriston	Larsen, Peter W.	San Miguel
Knechtel, Gordon V.	San Francisco	Larson, Elmer G.	Fresno
Kneebone, William Henry	Spenceville	Larson, Gustav L.	Patterson
Knight, Charles B.	Los Angeles	Larson, Peter	Alameda
Knight, John C.	Fowler	Larson, William	Birds Landing
Knuckles, Walter A.	Summit	Larrabee, Frank H.	Los Angeles
Knox, Merton H.	Redwood City	Larrecon, Henry John	San Francisco
Knox, Paul S.	Ventura	Larrecq, John P.	Los Angeles
Knudson, Arthur L.	Oakland	Lasar, Gerald	San Francisco
Koenig, William H.	Modesto	Latkoski, Joseph	Crockett
Koethen, Theodore C.	Los Angeles	LaToske, George H.	Los Angeles
Kohl, Henry	Fresno	Latlin, Harry M.	Pomona
Kohlmeier, Carl L.	Los Angeles	Laughlin, James R.	Brawley
Konekamp, Henry	Bradley	LaVigne, John A.	San Diego
Korte, Bernard F.	St. Helena	Lawlor, Reuben	Oakland
Krake, Frederick M.	Pasadena	Lawrence, Joel H.	Independence
Kramer, Frank A.	San Francisco	Lawson, Roy E.	Manchester
Krause, Otto	San Francisco	Lawson, William H.	San Bernardino
Kravarites, Demetrios E.	Oakland	Leach, Eric E.	Los Angeles
Kreh, Edward C.	Petaluma	Leach, Larkin W.	Stockton
Kremer, Henry J.	Montecito	Leahy, John L.	Anderson
Krenz, Walter	San Francisco	Leak, Jay C.	Salida
Kress, Lawrence	Melones	Leatherwood, Clyde E.	Santa Ana
Kretcher, Alvinza	Plymouth	Lecornu, Herman G.	San Francisco
Kriegel, Eddie C.	Nevada City	L'Ecuycr, Alfred H.	San Francisco
Krippner, William H.	San Francisco	Ledford, William R.	Yorkville
Kroeker, Henry E.	Reedley	Lee, George M.	Crockett
Krokos, Matheos D.	Sacramento	Lee, Raymond A.	Burlingame
Kronmann, Henry F.	Arcata	Lefler, Harry S.	Redlands
Krook, Lenus G.	San Francisco	Legal, Clarence V.	Berkeley
Kroutch, Frank J.	Rio Vista	Leggett, Perry J.	Visalia
Kruger, Frederick H.	Alameda	Legnito, Frank A.	San Francisco
Kruletz, Bert	Los Angeles	Lehnberg, Archie E.	Los Angeles
Krumm, Charles H.	Pasadena	Leight, Ben M.	San Francisco
Krumrak, George A.	San Francisco	Leisure, Everett R.	Berkeley
Kuckenbaker, Lester	Laton	Lenihan, Thomas J.	San Francisco
Kuhnle, Edward H.	Oakland	Lent, Garland (Francis)	Sacramento
Kunstle, Edward F.	Sacramento	Leonard, Roscoe J.	Orland
Kuntz, Edward F.	Sacramento	Leonne, John	Glendale
Kuykendall, Henry E.	National City	Lertora, Albert L.	Jamestown
		Leslie, Clyde M.	San Diego
		Leslie, Fred G.	Rio Vista
		Leslie, William	San Francisco
		Less, Samuel	Daly City
		Levengood, Clark W.	Ontario
		Levy, Eugene I.	Los Angeles
		Lewis, Andell J.	Lompoc
		Lewis, Bert	Copperopolis
		Lewis, Charles	San Francisco

L

Laboa, Manuel P. Hanford
 Laborde, Jean San Francisco
 Lacey, Howard F. Concord
 LaCross, Clarence J. Visalia
 Ladeen, Samuel Sacramento
 Laderoot, Paul Merce San Diego
 Lady, Walter O. Sacramento

Malott, Chester D.	Fresno City	Meyer, Marion	Corcoran
Manchester, Clarence W.	Ft. Bragg	Meyer, Otto C. W.	San Francisco
Manderville, Neil L.	Fresno	Meyers, Paul	Yosemite Valley
Mangan, Timothy	San Francisco	Mialocq, Louis	San Francisco
Manha, Maurice F.	Los Gatos	Michael, John	Sacramento
Manhart, George W.	San Francisco	Mickelotti, John	Bonny Doon
Mankins, William W.	Red Bluff	Middleton, Edmond D.	McCloud
Mann, Frank W.	Saratoga	Miguez, Fernand J.	Calexico
Mann, William Herbert	Oakland	Mikkelsen, Johannes S.	Del Rey
Mannhart, Elwyann H.	Berkeley	Millard, Forrest	Sacramento
Manning, Frederick E.	San Diego	Millener, Harry A.	San Francisco
Manning, William Bethel	San Francisco	Miller, Alton	Olney
Manriquez, William	Puente	Miller, Arthur R.	Colusa
Mansfield, Harold H.	Weaverville	Miller, Floyd V.	Brawley
Maple, Arthur B.	Los Angeles	Miller, Franklin N.	San Francisco
Marano, Di Martino	Kennett	Miller, George	Sacramento
March, George S.	Orosi	Miller, Harry	Oil Center
Marchoni, George F.	Turlock	Miller, Harry	Los Angeles
Marcucci, Abram P.	Schellville	Miller, Harry A.	Oakland
Mareucci, John	Oakland	Miller, James P.	Avon
Marcus, Emil C.	Los Angeles	Miller, James R.	Woodbridge
Marcus, Mishu	Sacramento	Miller, Lonzo A.	Hume
Maresi, Mario	Nevada City	Miller, Louis W.	Montague
Margadio, Tony	Oakland	Miller, Oscar F.	Los Angeles
Mariante, John L.	Sacramento	Miller, Sylvester	Oroville
Marinos, Nick	San Francisco	Miller, Virgil H.	Los Angeles
Marion, Henry George	San Francisco	Miller, William C.	Banning
Marks, Edward C.	Los Angeles	Miller, William D.	San Diego
Marlin, Evan Sturgeon	Capitola	Mills, Howard D.	Riverside
Mar Quer, Manuel	Redlands	Mills, Percy A.	Penngrove
Marraco, Dominique	San Francisco	Millsap, Ernest H.	Los Angeles
Marsh, James W.	San Francisco	Minck, William B.	Los Angeles
Marshall, George L.	Standard	Miner, Wallace H.	Los Angeles
Martin, Henry F.	Tustin	Misfeldt, Henry F.	Dixon
Martin, John J.	Los Angeles	Mitchell, Darrell C.	San Joaquin
Martin, Leon	Berkeley	Mitchell, Dewitt C.	San Diego
Martin, Philip C.	Palo Alto	Mitchell, Frank R.	San Francisco
Martin, Ralph H.	San Francisco	Mitchell, Lorenzo	Vallejo
Martin, Reuel	Fresno	Mittel, Ernest F.	Modesto
Martin, Walter H.	Los Angeles	Molles, DaCosta Joan	Bolinas
Martin, William B.	Oakland	Mock, Frank G.	San Francisco
Martinez, Frank	Redlands	Monet, John Baptist	San Francisco
Maschio, Mario	Oakland	Monga, Chester	Colma
Mason, Robert D.	Oakland	Monize, Tony	East Oakland
Masterson, Barton William	East Oakland	Monson, Emanuel A.	Berkeley
Mathews, Daniel J.	San Francisco	Montague, Latney Y.	Holtville
Mathews, Geo V.	Mt. Dome	Montoya, Phillip B.	Holt
Matos, Anthony R.	San Francisco	Mooney, Arthur N.	San Martin
Mattson, Harry Martin	San Francisco	Mooney, John J. L.	Sierra Madre
Mauberret, Adolph L.	San Francisco	Moore, Arle F.	Fullerton
Maxson, Harold F.	Los Angeles	Moore, Harold J.	Live Oak
Maxwell, Chas. A.	Roosevelt	Moore, John W.	San Diego
Maxwell, Roy Benton	Sacramento	Moore, William A.	San Francisco
Maxwell, Vernie C.	Monticello	Moorman, Roy E.	El Centro
Mazzina, Vittorio	Sherwood	Moran, William H.	Grass Valley
Mead, James H.	Stockton	Morchio, Antonio	Colma
Meade, Norman G.	Los Angeles	Morey, Clyde L.	Santa Rosa
Meadows, Harold W.	San Francisco	Morgan, Albert J.	Clayton
Meadows, Thomas M.	Adams Springs	Morgan, John H.	San Francisco
Mearis, Carl R.	Riverside	Morgan, Lewis E.	Los Angeles
Mechelke, Fred	Huntington Park	Morgan, Verner I.	Oakland
Meder, Alva Joseph	Napa	Morin, Adrian L.	San Francisco
Medley, Victor W.	San Francisco	Moritz, Raymond C.	Ontario
Meech, George W.	San Diego	Morken, Henry	Oakland
Mehos, Chrest	South San Francisco	Morris, Charles J.	Los Angeles
Mehrtens, Rudolph C.	San Francisco	Morris, Elden G.	Bakersfield
Meigs, Bert W.	Visalia	Morris, Fred L.	Los Angeles
Mendenhall, Jesse J.	Red Bluff	Morris, James F.	Chico
Menetrey, Charles L.	San Francisco	Morris, Louis J.	San Mateo
Menges, Henry H.	San Francisco	Morris, Munson V. K.	San Francisco
Merrell, Harry D.	San Francisco	Morris, Tony	Dutons Landing
Mesa, Domingo G.	Montecito	Morrissey, Kenneth C.	Orland
Messersmith Douglas	Stockton	Morse, Newell M.	Oakland
Metcalf, George R.	Brockman	Mortensen, John P. F.	Fresno
Meyer, Lester L.	Glendale		

Mortensen, Oscar S.	Terminous	Noble, Adam C.	San Francisco
Morton, John C.	San Francisco	Nolan, Harry B.	San Francisco
Morton, Oliver T.	San Francisco	Nonnenmann, Albert W.	San Francisco
Mortorff, Earl M.	San Diego	Nonnenmann, Gustave J.	San Francisco
Moser, Newton August	San Francisco	Nordin, Nels	Eureka
Mosher, James C.	San Francisco	Nonella, Steve J.	Cordelia
Moskowitz, Isador W.	San Francisco	Norman, Douglas D.	Oakland
Moss, Frank	San Jose	Norton, Otis Kane	Oakland
Moulton, Wesley N.	Los Angeles	Norton, William Lee	Marysville
Mowers, Roy A.	Los Angeles	Novak, Frank E.	San Diego
Moyer, Fredrick	Chico	Nunan, Joseph D.	San Francisco
Mueller, Harry H.	San Francisco	Nunes, Alfred	Irvington
Mulhall, James F.	San Francisco	Nunes, Frank F.	Palo Alto
Mullin, Isadore M.	Los Angeles	Nutter, George F.	Pasadena
Munford, Edward S. Jr.	Menlo Park		
Munger, Arthur D.	Sacramento	O	
Murdoch, Harry W.	Fresno	O'Byrn, Albert	Los Angeles
Mure, Salvatore	San Jose	O'Connell, Maurice J.	Sacramento
Murphy, Alfred J.	San Francisco	O'Connell, Michael J.	Berkeley
Murphy, William S.	San Francisco	O'Connor, George	San Francisco
Murr, Russell A.	Napa	O'Donnell, Thomas A.	Clovis
Murray, Clifford J.	North Columbia	O'Hanlon, William H.	San Francisco
Murray, Gerald J.	Los Angeles	O'Hara, Shedrick O.	Eureka
Murray, James W.	Bakersfield	O'Neil, David G. Jr.	Oakland
Murray, John	San Francisco	O'Neill, Charles J.	San Francisco
Murray, Phillip	Stockton	O'Neill, James Sarsfield.	Sacramento
Murrin, Frank J.	San Jose	Oates, Morley S.	Oakland
Musgrove, George E.	Ontario	Oberg, Nye G.	Delano
Muzzall, Cleatis E.	Claremont	Oberrauer, Carlton S.	Oakland
Myers, Freddie W.	Lower Lake	Ogello, Michele	Adams Springs
Myers, Robert F.	Valleton	Odum, Charles Luther	Brawley
		Oefinger, Arthur H.	Los Angeles
N		Ogden, William A.	Hanford
Nabors, Wesley G.	Riverside	Ohm, John	Arbuckle
Nagels, Harvey	Orland	Ohman, Arnold H.	Berkeley
Narvies, Daniel	San Jose	Ohnsorg, Norman L.	Sisson
Nash, Frederick J.	San Francisco	Oldham, Albert B.	Bakersfield
Natali, Pietro	Half Moon Bay	Oliva, Hugo C.	San Francisco
Nathan, Edward	San Francisco	Oliver, William F.	Woodland
Naylor, Francis V.	Buena Park	Olliffe, Roland H.	Napa
Neagle, Maurice	San Francisco	Olsen, Carl	Stockton
Needham, Clyde W.	Lodi	Olsen, Peter	Ferndale
Neergaard, Harold C.	Arroyo Grande	Olson, George H.	Chino
Neilon, Charles R.	Yreka	Olson, Jackie S.	Red Bluff
Neish, David C.	San Francisco	'Ontiveros, Mike	Sisquoc
Nella, Antonio	Valley Ford	Oomen, Thomas	Fresno
Nellis, Frank H.	San Francisco	Ordaz, William	Santa Barbara
Nellson, James W.	Santa Cruz	Ordway, Frank A.	Monterey
Nelson, Arthur J.	Victorville	Orear, Clifford Talmage.	Berkeley
Nelson, Harry Samuel	San Diego	Ormonde, Manuel F.	San Luis Obispo
Nelson, Herbert A.	Colma	Ortiz, Manuel M. A.	Los Angeles
Nelson, Olaf E.	Stockton	Osterloh, Conrad	Oakland
Nelson, Theodore V.	Moneta	Otto, John A.	Los Angeles
Nelson, Wesley A.	Maxwell	Overall, George W.	San Diego
Nesbitt, William J.	Penngrove	Overton, Hugh E.	Chico
Nethaway, Dean B.	Los Angeles	Owen, Raymond C.	Los Angeles
Nettik, Frank	San Francisco	Owen, Robert N.	Porterville
Netzer, William L.	Sanger	Owens, Benjamin F.	Berkeley
Neugass, Mervyn	San Francisco		
Nevius, Ruliff	Los Angeles	P	
Newell, Fred F.	Coalinga	Pachmayr, Frank J.	San Francisco
Newington, Roy E.	Fresno	Pack, Sterling W.	Ceres
Newton, James B.	Anaheim	Pagano, Guido D.	San Francisco
Newton, John F.	Sacramento	Page, Dan	Yountville
Nichols, Joseph F.	Mendocino	Pahl, George J.	Stockton
Nicholson, Moody	San Francisco	Painter, Fred E.	Los Angeles
Nicholson, Thomas R.	Los Angeles	Paicurich, George T.	San Francisco
Nielsen, Niel C.	Stockton	Palermo, Salvatore	Los Banos
Nielson, Niels J.	Fresno	Palmer, Bert	Folsom
Niendick, Harry H.	San Francisco	Palmer, Frank J.	Santa Marguerita
Nilsen, Karl	Eureka	Palmer, Lester E.	Los Gatos
Niosi, Tony	Los Angeles	Palmerlee, Chester C.	Long Beach
Nixon, William C.	San Francisco	Palumbo, Domnick	Los Gatos

Parrish, Claud	Twain	Perry, Manuel Q.	King City
Panella, Alfred H.	Sausalito	Perry, William J.	San Francisco
Panizzardi, Hector L.	San Francisco	Perry, William S. Jr.	Berkeley
Pannell, Thomas	Whittier	Peselli, Ernest	San Francisco
Panossian, Puzant	Fresno	Peter, Sidney H.	Los Angeles
Pappassi, Charles Henry	San Jose	Peters, Gordon A.	San Rafael
Parades, Antone	New Almaden	Peters, Thomas W.	Pomona
Paredes, Dolores E.	Palm	Peters, William L.	Los Angeles
Parcel, Daniel	Woodlake	Petersen, Nelson James	Anderson
Parenti, Amedeo	Half Moon Bay	Petersen, Vernon A.	Selma
Parke, Charles H.	Oakland	Peterson, Arthur L.	Los Angeles
Parker, Clair D.	Santa Cruz	Peterson, Carl E.	San Francisco
Parker, Francis Louis	Los Angeles	Peterson, Edward Albert	San Diego
Parkinson, Royal A.	Antioch	Peterson, Henry F.	Oakland
Parodi, Giovanni	Napa	Peterson, John Henry	San Francisco
Parratt, Edmund A.	San Francisco	Peterson, Oscar	San Francisco
Parrish, Claud	Twain	Peterson, Peter J.	Petaluma
Parrish, Frank A.	Independence	Peterson, Peter N.	Newman
Parrott, Joseph A.	San Mateo	Peterson, William	Danville
Parsons, Roy J.	San Francisco	Petie, Eugene E.	San Diego
Partsch, Herman D.	Berkeley	Petrie, Fred	Ontario
Pasha, Joseph R.	Long Beach	Pettitt, Roscoe N.	Moreno
Pashote, John E.	Milpitas	Peyton, Laurence R.	Los Angeles
Passerini, Frank	San Francisco	Phennig, William A.	Los Angeles
Pastel, Jack J.	San Francisco	Phillips, Milton W.	Chula Vista
Pastor, Holman	San Francisco	Pico, Manuel J.	Los Alamos
Pate, Dewey Sampson	Chino	Pielop, Edwin P.	Burrell
Patnoe, Frank	Tracy	Pierce, John H.	Clovis
Patocka, Frank	Chico	Pierce, Virgil E.	Lodi
Paton, William R.	Encinitas	Pierce, William	Millville
Patt, Henry H.	San Francisco	Pieruccioni, Alibrando	San Francisco
Patta, Victor S.	Sacramento	Pinkham, Albert L.	Grass Valley
Pattee, Edgar Lawrence	San Francisco	Pinnola, Paul J.	San Jose
Patten, Charles R.	Stockton	Pinto, Angelo R.	San Jose
Patterson, Arthur Kimball	San Francisco	Piper, Earl C.	Del Rey
Patterson, Beaven E.	Dunsmuir	Pipkin, Duff	San Jose
Patterson, Lawrence L.	Slough House	Pistone, Andrea	Santa Cruz
Patterson, Newton M.	San Francisco	Pitsenbarger, Robert R.	Los Angeles
Patterson, William	San Diego	Pitts, Burrell	Callahan
Patterson, Will O.	Los Angeles	Poindexter, Frederick	Stockton
Paulson, Hans H.	Selma	Polich, Ivan J.	Eureka
Pauly, Charles W. Jr.	San Diego	Polites, Semaon A.	Santa Barbara
Payne, Claude A.	Oakland	Polloreno, Frank	San Jacinto
Peacock, Leroy	Wineville	Poole, Horatio Devon	Marysville
Pearce, Zeno W.	Oakland	Poore, Raymond	Pasadena
Pearsall, Raymond B.	San Francisco	Poppleton, Glenmore M.	Mountain View
Pearson, Caleb W.	Redlands	Popson, John	San Francisco
Pearson, George H.	Paradise	Port, Sam A.	San Francisco
Pearson, James C.	San Francisco	Porta, Antonio	Aptos
Pearson, Meredith M.	Taft	Porter, Charles F.	Madera
Pedersen, Chr.	Saratoga	Porter, Grover T.	San Diego
Pedranti, Constantine	Olema	Porterfield, George H.	Mendocino
Pedrioli, Louis	San Francisco	Posner, Abram	San Diego
Pedrotti, Faust F.	Loyalton	Possenban, Constante	Porterville
Pelphrey, Joe B.	Coalinga	Potts, Norman H.	Camino
Pena, Bassilio	Mokelumne Hill	Poulos, Nick	San Francisco
Pennington, Frank R.	Delano	Pourroy, John P.	Milpitas
Penoli, Necomede	Elk	Powell, Ballard B.	Sacramento
Peralta, Romaldo	Idria	Powell, Charles K.	Claremont
Perdue, Claude C.	Los Angeles	Power, Michael	Los Angeles
Perdue, Silas	Salinas	Powles, Henry	Los Angeles
Peri, Charles J.	San Lucas	Pozzi, Laurance	Fresno
Perin, Domenico	San Mateo	Prader, Joe	San Jose
Perkins, Albert G.	San Francisco	Pratt, Albert A.	Santa Barbara
Perkins, Albert W.	Grass Valley	Pratt, Wm. B.	Pasadena
Perkins, Clarence B.	San Francisco	Pravico, Nikola	Los Angeles
Perkins, George O.	San Pedro	Pray, Joseph	Redlands
Perou, Charles A.	Brawley	Precht, Hans	Oakland
Perreria, John P.	Mission San Jose	Predmore, Wesley C.	San Francisco
Perry, Arthur M.	Los Angeles	Preston, Archibald E.	Los Angeles
Perry, Charles	Eureka	Prestridge, John B.	Richmond
Perry, Fred A.	Sacramento	Price, James Nathaniel	Los Angeles

Prime, Wendall F.-----	Los Angeles	Richardson, Ernest O.-----	Yucaipa
Prince, George Seymour-----	San Francisco	Richardson, Paul F.-----	Fresno
Proschold, Aubrey A.-----	Pasadena	Richardson, Russ R.-----	San Francisco
Proudfit, Montgomery H.-----	Los Angeles	Richeson, Franklin Carter-----	Dinuba
Provansal, John A.-----	Ontario	Richter, Albert-----	San Rafael
Puccinelli, John-----	San Francisco	Richter, Benj. A.-----	Palo Alto
Pumphrey, Homer T.-----	El Centro	Ridding, Robert-----	Alameda
Purdy, George R.-----	Pond	Riddle, Harry W.-----	El Centro
Purvis, John S.-----	Hanford	Riggs, Samuel F.-----	San Francisco
Putnam, Edgar F.-----	Redlands	Riley, Wilfrid L.-----	Alameda
Pyers, Earl L.-----	San Bernardino	Rines, Ernest H.-----	San Jose
		Ringer, Ira R.-----	Los Angeles
		Rios, Longino Miguel-----	Lompoc
		Riscioni, George D.-----	Petaluma
		Risdon, Jack-----	Santa Barbara
		Rissi, Bernard-----	Los Angeles
		Ritchie, David A.-----	Sacramento
		Roach, Emmet A.-----	San Francisco
		Robert, Leon-----	Los Altos
		Robb, Eugene L.-----	San Pedro
		Robbins, George W.-----	Los Angeles
		Roberson, Burton-----	Pleymo
		Roberts, Antone V.-----	Visalia
		Roberts, Edgar E.-----	Chico
		Roberts, Harold William-----	San Francisco
		Roberts, Harry J.-----	San Francisco
		Robertson, Walter P.-----	San Francisco
		Robinson, Glen H.-----	Pescadero
		Robinson, Frank L.-----	Huntington
		Robinson, Leslie L.-----	Shafter
		Robrecht, Albert-----	Watsonville
		Rocha, Eriberto C.-----	Los Angeles
		Rochester, Nathaniel N.-----	Santa Ana
		Rockafellow, Buford R.-----	Riverside
		Roderick, Albert J.-----	San Francisco
		Rodgers, Joe-----	San Anselmo
		Rodgers, William F.-----	Douglas City
		Rodman, George A.-----	Denair
		Rodriques, Joseph P.-----	Salinas
		Rogers, George L.-----	Hollywood
		Rogers, James-----	Grass Valley
		Rogers, Richard F.-----	Oakland
		Rogers, William C.-----	Los Angeles
		Romano, Angelo P.-----	San Francisco
		Romero, Raymond-----	Monterey
		Romos, Rollie E.-----	Berkeley
		Rood, Arthur G.-----	Oakland
		Rook, William L.-----	Coalinga
		Roome, Harry V.-----	Los Angeles
		Roosevelt, Clyde-----	Needles
		Rose, Arvel O.-----	San Jose
		Rose, Donald L.-----	Merced
		Rose, John P.-----	Centerville
		Rose, Joseph C.-----	Irvinton
		Rose, Joseph L.-----	Santa Clara
		Rose, Manuel R.-----	Milpitas
		Rosen, Abe-----	Los Angeles
		Rosenberg, James-----	San Francisco
		Rosenthal, Emanuel E.-----	Oakland
		Rosenthal, Leo-----	San Francisco
		Rosenthal, Robert R.-----	San Francisco
		Ross, Arthur S.-----	Los Angeles
		Ross, George W.-----	Oakland
		Ross, Karl E.-----	Stockton
		Ross, Norman J.-----	San Diego
		Ross, William Jr.-----	Fresno
		Rossi, Rene-----	Petaluma
		Rossi, William C.-----	Lodi
		Roth, Albert (Valentine)-----	Grafton
		Roth, Ralph R.-----	Los Angeles
		Roth, William H.-----	San Francisco
		Roveda, Pompeo-----	Richmond

Q

Quattrin, Giovanni-----	Kingsburg
Quigg, Francis W.-----	San Francisco
Quinn, James J.-----	San Francisco
Quirolo, Steve C.-----	Jackson
Quirolo, Angelo-----	San Francisco

R

Radovich, John-----	Fresno
Rago, Frank H.-----	Vacaville
Rainbow, Lee-----	Fort Yuma
Raisner, Charles C.-----	Redlands
Raisner, William H.-----	Corning
Rames, Manuel-----	Chualar
Ramirez, Patricio T.-----	Hueneme
Randolph, John C.-----	Red Bluff
Rasmussen, Arthur N.-----	Ferndale
Rasmussen, Christian A.-----	Fresno
Rasmussen, Max E.-----	Antelope
Ratcliffe, Eugene W.-----	Dixon
Rathbone, Homer T.-----	Long Beach
Rawley, Gordon-----	Los Angeles
Rayborn, Owen-----	Lost Hills
Reynolds, Irving Todd-----	Quincy
Readinger, Douglas H.-----	San Diego
Reams, Mannie E.-----	Santa Rosa
Ream, William R.-----	San Diego
Reavis, Floyd E.-----	Santa Cruz
Reberio, Joe S.-----	Watsonville
Rebottaro, Victor-----	Calistoga
Record, Perry B.-----	San Jacinto
Redding, Earl W.-----	Richmond
Redner, Joseph H.-----	San Francisco
Reed, Cyrus Merle-----	Delano
Reed, Geo. W., Jr.-----	Los Angeles
Reed, Gurney I.-----	Venice
Reed, Maurice A.-----	Fresno
Rees, William P.-----	Redondo
Reeves, Alfred V.-----	San Francisco
Reeves, William E.-----	San Luis Obispo
Regallo, Henry J.-----	Dos Palos
Regan, Edward-----	Hollister
Reilly, Thomas-----	San Francisco
Reinicke, Joe R.-----	Fullerton
Reinlander, Edward A.-----	Sacramento
Reis, Jose M.-----	Lemoore
Remani, Frederick W.-----	Crockett
Renner, Samuel J.-----	Berkeley
Rettig, Arthur W.-----	Oakland
Revaz, Emanuel C.-----	San Leandro
Reynders, Anthony W.-----	Berkeley
Reynolds, Edward-----	Sacramento
Reynolds, Frank S.-----	Bakersfield
Reynolds, Huston J.-----	Los Angeles
Rhodes, Marvin D.-----	Brawley
Rhodes, Olien O.-----	Stockton
Rhodimer, Lewis V.-----	San Diego
Rice, Joseph S.-----	Westwood
Richards, Robert H.-----	Los Angeles
Richards, Sampson-----	Sanger

Sigourney, Charles L.	Oakland	Solus, Joseph Jr.	Montague
Sigurd, Anton	Sunnyvale	Sommer, Henry O.	Alameda
Sikes, Howard R.	San Pedro	Sommer, Julius M.	San Francisco
Silberstein, Morris	San Francisco	Sooter, Noble C.	San Francisco
Sill, Samuel T.	Perris	Soper, Claude Clay	Sutter City
Silva, Frank	Ager	Soria, David	San Luis Obispo
Silva, Frank N.	Centerville	Sorlie, Adolph	Los Angeles
Silva, Joe V.	Bayside	Sorrick, William Jay	Lemoore
Silva, John J.	Petaluma	Souza, Constantine	Gustine
Silva, Joseph	Fort Jones	Souza, Manuel A.	Hanford
Silva, Ruben Lester	Albany	Sparks, Charles E.	San Francisco
Silveria, William E.	Fairfield	Spears, Matthew J.	Point Richmond
Silverthorn, Alfred E.	San Francisco	Speckman, Henry J.	San Pedro
Silvestra, Joseph	Los Banos	Speed, John W. Jr.	Santa Maria
Simi, George R.	San Francisco	Speizer, Philip M.	San Francisco
Simington, George S.	Sacramento	Spence, Paul B.	Monrovia
Simmons, John E.	Oakland	Spencer, Arthur J.	Lodi
Simmons, Melvin K.	Fairfield	Spencer, Joseph M.	Grass Valley
Simon, Herbert J.	San Francisco	Spenger, Donald S.	Modesto
Simpson, Charles	Oakland	Sperry, Frank E.	Vernalis
Simpson, George L.	Riverside	Spiering, Emil H.	San Francisco
Simpson, John R.	Escondido	Spingola, Joseph V.	San Jose
Simpson, Sidney W.	Wrights	Spolino, Arturo	Valley Ford
Simpson, William E.	Bakersfield	Sprague, Alton	Glendale
Singleton, Drue D. H.	San Francisco	Spurgeon, Lucius B.	Lincoln
Sissel, John V.	Gazelle	St. Clair, George E.	San Francisco
Sivley, Dewey D.	Stockton	Stafford, Philip W.	Sacramento
Skewes, Ernest	Yucaipa	Stagg, Earl M.	Tuolumne
Skifich, Mate	San Pedro	Stahl, Edgar F.	Los Angeles
Skinner, James	Weldon	Stallings, Glenn O.	San Francisco
Slack, George E.	Long Beach	Stamogianis, Xenofon	San Francisco
Slater, Donald D.	Oakland	Stamper, Clyde R.	Lockeford
Sleeper, Guy E.	East Oakland	Staples, Guy W.	Linden
Sleppy, Kirby B.	Los Angeles	Stark, Leroy H.	Los Angeles
Slifer, Hiram J.	Burlingame	Starr, Lue Ellis	Susanville
Slinkard, Rex R.	Los Angeles	Stavrakis, Steffen	San Francisco
Smart, Arthur C.	Oakland	Stearn, Joseph H.	Los Angeles
Smillie, Carl J.	San Diego	Stearns, Gustavis C.	San Francisco
Smith, Archie L.	Sacramento	Stedman, Arthur E.	Alameda
Smith, Belden B.	Hanford	Stedman, Oliver J.	Lathrop
Smith, Charles M.	Selma	Steed, Jesse M.	Los Angeles
Smith, Chester Victor	Red Bluff	Steele, Henry A.	San Francisco
Smith, Chris J.	Woodland	Steers, Guy W.	Long Beach
Smith, Clarence F.	Los Angeles	Steiger, Russell	San Francisco
Smith, George	San Luis Obispo	Stein, Erwin E.	Los Angeles
Smith, George Jr.	Williams	Steiner, Peter F.	Paso Robles
Smith, George H.	Placerville	Steinman, Charles L.	Visalia
Smith, George H.	Sacramento	Stender, George R.	San Francisco
Smith, Ira M.	Santa Clara	Stephens, Clare S.	Oakland
Smith, James Bell	Los Angeles	Stephens, Floyd A.	Taft
Smith, Joseph F.	Galt	Stephens, Isaac W.	Seeley
Smith, Lester L.	Santa Rosa	Stephens, Samuel J.	San Francisco
Smith, Paul D.	Banning	Stephenson, John M.	Sacramento
Smith, Rhodes R.	Truckee	Stephenson, Lewis P.	Oxnard
Smith, Samuel W.	Banning	Stephenson, Wayne	Bakersfield
Smith, Sidney W.	San Diego	Stevens, Benjamin A.	Oakland
Smith, Stanley D.	San Francisco	Stevens, Edward J.	San Francisco
Smith, Thomas P.	Santa Rosa	Stevens, Frank T.	Los Angeles
Smith, Thurlow Weed	San Francisco	Stewart, Ben F.	Los Alamos
Smith, Wallfred R.	Sacramento	Stewart, Ernest R.	Los Angeles
Smith, Walter J.	Los Angeles	Stewart, Lyell R.	San Francisco
Smithers, John Edward H.	Los Angeles	Stirling, Ray J.	Los Angeles
Smyer, John M.	Le Grande	Stock, Ernest H.	Eureka
Smyth, Edward J.	Pasadena	Stocking, Braddock G.	San Francisco
Snider, Dan W.	Los Angeles	Stoffel, Peter	Anaheim
Snider, Roy Nicholas	Pilot Hill	Stokes, Joe	Hollister
Snyder, Colonel H.	Stockton	Stone, Edward	Sacramento
Snyder, John M.	Los Angeles	Stone, George W.	Oakland
Snyder, Ross	U. S. Army	Stone, William E.	Orwood
Sobrero, Louis W.	Genesee	Stone, William F.	Los Angeles
Soeth, John W.	Willows	Storm, George P.	San Francisco
Solari, Angel	Oakland	Storrs, James	Happy Camp
Solari, David	Pittsburg	Stout, Forrest E.	San Francisco

Stover, Fred E.	.....	Sonora	Thomason, Naakon	.....	Eureka
Stover, Roy A.	.....	El Centro	Thompson, Cecil A.	.....	Hanford
Stowers, Gordon	.....	Oakland	Thompson, Cecil E.	.....	Fellows
Stoy, David F.	.....	San Francisco	Thompson, Charles H. Jr.	.....	Berkeley
Straker, Charles Edward	.....	San Diego	Thompson, Frank H.	.....	Los Angeles
Strohmeier, Edward Joseph	.....	San Francisco	Thompson, George A.	.....	Alderpoint
Strong, Wiley L.	.....	Los Angeles	Thompson, Raymond	.....	Los Angeles
Stroupe, Donald C.	.....	Alameda	Thompson, William A.	.....	La Grange
Struckmeier, Robert J.	.....	San Francisco	Thomsen, Harry S.	.....	Arcata
Studebaker, Floyd A.	.....	Richmond	Thomson, Chester L.	.....	Los Angeles
Stuettig, Herman	.....	Winton	Thomson, Fred G.	.....	Saratoga
Stull, Bertram L.	.....	Los Angeles	Thornton, Howard A.	.....	Redlands
Stump, John S.	.....	Lindsay	Thorpe, Harvey L.	.....	Los Angeles
Sturla, John George	.....	Gilroy	Thorsen, Henry	.....	Modesto
Sturla, Pietro	.....	San Francisco	Thrapp, Frank O.	.....	Los Angeles
Sturtevant, Robert S.	.....	Daly City	Threlfall, Thomas	.....	Stockton
Stutsman, Richard L.	.....	Santa Rosa	Tift, Perry W.	.....	Los Angeles
Suderman, Aaron B.	.....	Reedley	Tilford, George M.	.....	San Francisco
Suggett, Archie D.	.....	Sacramento	Timosci, John L.	.....	San Jose
Sullivan, Cornelius	.....	Alameda	Tipton, Melville R.	.....	Los Angeles
Sullivan, Dan	.....	San Francisco	Titl, Ward	.....	Modesto
Sullivan, Frank J.	.....	Sacramento	Toby, Willard	.....	Taylorville
Sullivan, Grover	.....	Montebello	Tognotti, Gugliemo	.....	Healdsburg
Sullivan, Jeremiah	.....	(U. S. Army) Los Angeles	Toland, James S.	.....	Oroville
Sullivan, John	.....	Salinas	Toll, Herbert	.....	Oakland
Sullivan, John J.	.....	San Francisco	Toller, Paul C.	.....	San Francisco
Sullivan, John Q.	.....	Lost Hills	Tonin, Olivo	.....	Pescadero
Sullivan, Tom J.	.....	San Francisco	Torongo, Howard W.	.....	San Francisco
Sullivan, Wm. A.	.....	Ceres	Tosh, Peter Edgar	.....	Crows Landing
Summers, Clement M.	.....	San Francisco	Toste, Frank B.	.....	San Jose
Summers, Rudolph L.	.....	Hobart Mills	Totterdell, George A.	.....	Oakland
Sutherland, Eldred A.	.....	Sacramento	Towler, Herbert J.	.....	Imperial
Swan, Glenn V.	.....	Berkeley	Townsend, Emon R.	.....	Blue Lake
Swango, Clay E.	.....	Los Angeles	Townsend, Richard W.	.....	Sacramento
Sweeney, Albert H.	.....	Oakland	Traill, James G.	.....	Bakersfield
Sweeney, Donald M.	.....	Bakersfield	Travis, Frank A.	.....	Vallejo
Sweeney, James C.	.....	Berkeley	Traynham, Henry V.	.....	Prize
Sweeney, Lawrence E.	.....	San Francisco	Tredway, Edward E.	.....	Pasadena
Sweeney, Ray	.....	Porterville	Tredway, Will I.	.....	Lodi
Sweet, Ora A.	.....	Crockett	Tremayne, Fred	.....	Monterey
Sweetnam, John M.	.....	Sebastopol	Trimberger, Henry J.	.....	Lodi
Swenson, A. E.	.....	Oakland	Trombly, Charles H.	.....	Los Angeles
Symmes, Earle	.....	Willow Creek	Troncy, Noel	.....	San Francisco
T					
Taber, Harmon R.	.....	Capay	Trower, Homer	.....	Fresno
Tacagni, Angelo	.....	Pixley	Troy, Martin	.....	Lodi
Tagliaferri, Benardo	.....	Santa Maria	Trumble, Charles E.	.....	Dunsmuir
Talbot, Bryan P.	.....	Elmira	Tucker, Charles L.	.....	Los Angeles
Taliberti, Louis	.....	Los Angeles	Tucker, Charles M.	.....	Los Angeles
Tambures, Anastasios	.....	San Luis Obispo	Tucker, Herbert J.	.....	San Francisco
Tarson, Harry	.....	Los Angeles	Tucker, Thomas	.....	Susanville
Tarwater, Albert W.	.....	Huasna	Tumilson, Carl M.	.....	Blythe
Tasulis, Samuel G.	.....	San Francisco	Tupper, George	.....	Long Beach
Tate, Walter H.	.....	Ontario	Turino, Frank	.....	San Francisco
Tate, Warren C.	.....	Los Angeles	Turner, Guy A.	.....	Hercules
Taussig, Aaron	.....	San Francisco	Turner, Harry C.	.....	Los Angeles
Taylor, Edward M.	.....	Junction City	Turner, Leo L.	.....	Kingsburg
Taylor, Verne I.	.....	San Jose	Turri, Clement	.....	San Luis Obispo
Taylor, Walter J.	.....	Lakeside	Tuyn, Cornelis W.	.....	Merced
Teernstra, Roy H.	.....	San Francisco	Twombly, Henry C.	.....	Pasadena
Terra, Frank J.	.....	Etna Mills	Tye, Elmer A.	.....	Brawley
Thalman, Chauncey C.	.....	Stockton	Tyroler, John L.	.....	Los Angeles
Therol, Nester	.....	San Francisco	Tyrrell, Harold H.	.....	Madera
Thoemmel, John J.	.....	San Francisco	U		
Thomas, Charley M.	.....	Marysville	Uhles, Herman	.....	Madera
Thomas, David A.	.....	Alhambra	Umsted, Rolla P.	.....	Los Angeles
Thomas, Frank	.....	Los Angeles	Underhill, Thomas M.	.....	Mariposa
Thomas, Frank Gustave	.....	Bakersfield	Underwood, Edward A.	.....	San Francisco
Thomas, Harry E.	.....	Benicia	Underwood, William	.....	Ft. Winfield Scott
			Urbandescheck, Richard	.....	Eureka
			Urschel, Jacob S.	.....	Victorville

V

Vacarella, Nick J. ----- San Jose
 Vacchieri, Ernesto ----- Santa Rosa
 Vail, Howard L. ----- Pasadena
 Valant, Manuel G. ----- Oakland
 Valdez, Robert C. ----- Pomona
 Valentine, Dudley B. ----- Oakland
 Valenzuela, Marciano ----- El Monte
 Van Aken, John B. ----- San Francisco
 Van Den Berg, Edward R. ----- Santa Monica
 Vanderporten, Emanuel ----- Los Angeles
 Van Dusen, Roy ----- Stockton
 Van Dyke, Fred ----- Ukiah
 Vanfosse, Jesse P. ----- Alton
 Van Horn, Laurence J. ----- San Jose
 Van Lew, Elmer E. ----- Grafton
 Van Mourik, John ----- Oakland
 Van Nest, Raymond Herold ----- San Francisco
 Van Noy, Lee V. ----- Dinuba
 Van Pelt, George R. ----- San Francisco
 Vargas, Manuel J. ----- Sunnyvale
 Vargus, George Brown ----- Hercules
 Varney, George F. ----- Los Angeles
 Varney, Kit R. ----- San Francisco
 Vassar, Erven E. ----- Hopland
 Vassej, Peter A. ----- Vallejo
 Vaughn, Clay W. ----- Oxnard
 Veale, Hugh F. ----- Santa Ana
 Veary, John R. ----- Stockton
 Vegelin, Max ----- San Francisco
 Venutil, Clarence C. ----- San Francisco
 Venzor, Daniel ----- Santa Barbara
 Verbeck, Hugo A. ----- San Francisco
 Verne, Cesar ----- San Francisco
 Vickers, Roy William ----- San Diego
 Vidaillet, Achille ----- Buttonwillow
 Vieira, Frank C. ----- Oakland
 Vignoli, Carlo ----- South Dos Palos
 Villalovoz, Chris S. ----- Huntington Park
 Vincelet, Arthur S. ----- Acampo
 Vincent, Albert ----- Los Angeles
 Vincent, James ----- Polson
 Vint, Hugh A. ----- San Francisco
 Vinther, Claudius T. ----- Berkeley
 Voigt, Edgar H. ----- Los Angeles
 Von Berg, Emil ----- Santa Rosa
 Vosler, Everett A. ----- Sacramento
 Voss, Joseph A. A. ----- San Francisco
 Vukorich, Marko ----- Amador

W

Wahl, Gustav A. ----- Sacramento
 Waldschmidt, Rudolph H. ----- Los Angeles
 Wales, Edward V. ----- San Diego
 Walker, Charles Albert ----- Bakersfield
 Wall, Earnest W. ----- Sacramento
 Wall, John A. ----- Alturas
 Wallace, John A. ----- Los Angeles
 Wallen, John ----- San Pedro
 Waller, Charles S. ----- Hilts
 Waller, Guy Leo Edward ----- San Francisco
 Waller, Howard E. ----- Bieber
 Wallis, Barney C. ----- Taft
 Wallner, Hugo F. ----- Sacramento
 Walsh, Edward M., Jr. ----- Oakland
 Walsh, Elmer E. ----- Oakland
 Walsh, James T. ----- San Francisco
 Walsh, John A. ----- Oakland
 Walsh, Martin ----- Richmond
 Walters, Alfred L. ----- Elsinore
 Walters, Earl F. ----- Los Angeles
 Walton, Leslie E. ----- North Sacramento
 Ward, James J. ----- Ft. McDowell

Ward, John J. ----- San Francisco
 Ward, Leslie L. ----- Taft
 Wardlow, David S. ----- Los Angeles
 Warren, James L. ----- San Francisco
 Warth, Darcy DeMar ----- Sawtelle
 Washburne, Frank E. ----- Los Angeles
 Wass, Ambrose A. ----- Santa Cruz
 Waterhouse, Clark B. ----- Saratoga
 Waterman, Nelson C. ----- Van Trent
 Waters, Edward J. ----- Roseville
 Waters, Will ----- San Francisco
 Watkins, Charles E. ----- Modesto
 Watson, Charlie I. W. ----- San Francisco
 Watson, George W. ----- Clipper Gap
 Watson, William O. ----- San Francisco
 Watts, Hall W. ----- Long Beach
 Waugh, Orville J. ----- Oxnard
 Way, Travis S. ----- Oakdale
 Wayman, Thomas Francis ----- Modesto
 Wayne, Charles L. ----- Ft. Jones
 Wayne, Harold F. ----- Berkeley
 Weaver, Homer ----- San Francisco
 Weaver, William I. ----- Turlock
 Webb, Henry W. ----- Glendale
 Weber, Harry J. ----- San Francisco
 Weber, Jacob ----- Redondo Beach
 Weber, Paul ----- Los Angeles
 Webster, Harold J. ----- Santa Barbara
 Webster, John P. ----- Rialto
 Weeks, Bert O. ----- Modesto
 Weeks, William J. ----- Watsonville
 Weidenbach, Roy ----- Los Angeles
 Weir, Clifford H. E. ----- San Francisco
 Welch, George N. ----- Brawley
 Welin, Albert F. ----- Rio Vista
 Weller, Elisha B. ----- Ukiah
 Wells, Sylvester ----- Calexico
 Wendt, Harvey F. ----- Los Angeles
 Wenks, Floyd T. ----- Fresno
 Wentling, Charles ----- San Francisco
 Wermith, Joe ----- San Pedro
 Weseloh, Edward F. ----- Orange
 West, Charles A. ----- Los Angeles
 West, James W. ----- Eureka
 West, Roy B. ----- Alhambra
 Westcott, Clyde L. ----- Los Angeles
 Westerman, Louis V. ----- San Francisco
 Westlein, Fred J., Jr. ----- Chico
 Wetherbee, Albert C. ----- San Francisco
 Weyhe, William E. ----- Forestville
 Weylandt, Lester L. ----- Peters
 Wheaton, Jesse R. ----- Redlands
 Wheeler, Levi L. ----- Los Angeles
 Wheeler, Moulton W. ----- San Diego
 Wheeler, Samuel E. ----- Santa Monica
 Whipp, Homer D. ----- Pomona
 Whitaker, Samuel N. ----- San Francisco
 Whitcomb, Daniel H. ----- Sebastopol
 White, Albert P. ----- Fort Jones
 White, Edward J. ----- Grass Valley
 White, Henry C. ----- San Francisco
 White, Horace E. ----- Oakland
 White, Lewis E. ----- Ukiah
 White, Lewis E. ----- Redding
 White, Orris A. ----- Walker
 White, Thomas R. ----- Sacramento
 White, William O. ----- Marysville
 White, William S. ----- Portola
 White, William V. ----- Lodi
 Whitney, William E. ----- Oakland
 Whitworth, Walter ----- Los Angeles
 Widenham, John M. ----- Los Angeles
 Wiens, Gary ----- Los Angeles

NAVY.

A

Albright, William Harry.....San Francisco
 Allen, Leonard St. Clair.....Oakland
 Anderson, Albert Robert.....Colusa
 Anderson, Earl.....Eureka
 Anderson, Earl Edward.....Oakland
 Auerbach, Paul Harold.....San Francisco

B

Badger, Elbridge Lee.....College City
 Baker, Jesse Edgar.....Berkeley
 Baker, Paul.....Hollister
 Ballard, Silas Martin.....Redlands
 Banbury, Howard George.....San Francisco
 Barnbrock, Adolph.....Los Angeles
 Barney, Edward Selby.....Berkeley
 Barnhart, Theo. Sidler.....Los Angeles
 Barrett, Jason Allen.....San Francisco
 Barton, Raymond Welles.....Altadena
 Baume, Thomas Austin.....Vallejo
 Baumer, Joseph Anton.....Hollywood
 Bellotina, Louis.....San Bernardino
 Bennett, Irie James.....San Francisco
 Bernard, Frank Matthew.....Oakland
 Bigger, Joseph Alvin.....San Francisco
 Blaine, Clyde Chester.....Lomita
 Blair, Frank Perry.....Los Angeles
 Bobo, Raymond.....E. Auburn
 Bogue, Henry Virgil.....Los Angeles
 Bolles, Richard Benauph.....Long Beach
 Bowser, James Monroe.....San Francisco
 Boyle, Patrick.....Vallejo
 Bradley, George Frederick.....San Francisco
 Brock, McKinley Parker.....Berkeley
 Brooks, Jonathan.....Redlands
 Brown, Allie Richard.....Vallejo
 Brown, Clifford Wiley.....San Francisco
 Brown, Millard Fletcher.....Stockton
 Bruce, Frank.....Napa
 Bruker, Francis Hobart.....San Francisco
 Brunell, Andrew Roy.....Alameda
 Brunner, Frank.....San Francisco
 Burren, Charles Colbertson.....Los Angeles
 Burton Walter Carl.....Vallejo

C

Carnall, Milton Page.....San Francisco
 Carpenter, Ross Niles.....San Francisco
 Carrier, Paul Excina.....Stockton
 Carrothers, George Love.....Los Angeles
 Cartwright, William Lester.....Fresno
 Caughell, Jewel Nelson.....Santa Maria
 Chapman, James F.....San Francisco
 Christiansen, Rushmer C.....Berkeley
 Churchill, Melda Beatrice.....San Francisco
 Clary, Roy Athold.....Santa Barbara
 Clark, Edison Maynard.....San Diego
 Clark, John Edward.....Los Angeles
 Clynes, John William.....Oakland
 Coble, John Fielding.....Potter Valley
 Coffin, Henry Sidney.....La Mesa
 Comstock, Guy Alton.....Oakland
 Coon, Jack Mervyn.....Guerneville
 Corley, Irvin Jefferson.....Valley Center
 Corson, Harry LeRoy.....Vallejo
 Courteney, Gordon Trevor.....San Diego
 Cousins, Lee.....Sisson
 Cowan, James Allen.....Coalinga
 Cowles, Roy Francis.....Vallejo
 Crane, Daniel Bruce.....Los Angeles

D

Crane, Thomas Joseph.....Los Angeles
 Croskey, Hubert Hope.....San Diego
 Crudo, Eugenio C.....San Diego
 Cullen, Paul Joseph.....Oakland
 Cummins, Lawney Lawrence.....Eureka
 Cushman, William Rogers.....San Diego

Darling, Leon Wallace.....Summerland
 Davidson, Verden Orval.....Bolinas
 Davis, Densel Lee.....Los Angeles
 Davis, Harry Matthews.....Redondo Beach
 Day, Alvin George.....Hollister
 DeFreitas, John.....San Francisco
 Deming, Fred Pinckard.....Oakland
 DeVoe, Bernard Eugene.....Long Beach
 Dicken, George William.....Los Angeles
 Dombrowski, Marion Michel.....Los Angeles
 Duarte, Joseph Angelo.....San Francisco
 Dumar, William Kirk.....San Francisco
 Dunbar, Norman.....Santa Clara
 Dunn, Charlie.....Fullerton
 Dunn, Marvin Madden.....San Francisco
 Dykeman, John Joseph.....San Francisco

E

Eagle, Fred.....Healdsburg
 Edwards, John Alexander.....Los Angeles
 Ely, George Samuel Barnard.....Oakland
 Emerson, Jack Lorentz.....Ocean Park
 Erwin, John Hamelton.....Los Angeles
 Eustice, Raymond George.....Oakland

F

Farnsworth, Harold F.....Colusa
 Farrell, Floyd Raymond.....Roseville
 Fenner, Carl.....Geyserville
 Fiddes, Ralph Douglas.....San Francisco
 Field, Frank Jay.....Oakland
 Figueiredo, Joseph Louis.....San Francisco
 Fisher, Lorin Herbert.....Alameda
 Flynn, Frank.....Fresno
 Fogarty, Nicholas.....Los Angeles
 Foreman, Frank Palaran.....Los Angeles
 Fournier, William James.....Mount Bullion
 Friedman, Myron Samuel.....Los Angeles

G

Gale, Clarence Joaquin.....San Diego
 Garmes, John.....Petaluma
 Gates, James Lewis.....Stockton
 Gaudian, Benjamin Ferdinand.....Los Angeles
 Glau, Joseph Harry.....Los Angeles
 Goode, Lorne A.....San Jose
 Gordon, Edward Carl.....Los Angeles
 Graham, Ivan Montrose.....San Diego
 Grassel, Gordon Douglas.....San Pedro
 Gray, Lawrence.....Marysville
 Griffin, Edward Lenwood.....Fowler
 Grillo, Jimmy Mike.....Pittsburg
 Grubb, Richard Uriah.....Alameda
 Guerin, Ivan Hugh.....Los Angeles

H

Halford, William.....Oakland
 Halstead, Cliff Frank.....Rolph
 Hamer, Paul Milvin.....Downey
 Harris, John Marshall.....Madera
 Harrison, Mark Jennings.....San Francisco
 Harvey, George Goodsell.....Sacramento

Haswell, Gouverneur K.-----Santa Barbara
 Hatch, William Dwight-----Vallejo
 Heaney, Francis Joseph-----San Francisco
 Heap, Bert-----San Bernardino
 Heard, Claude Harwood-----Redondo Beach
 Heroux, Joseph Adolphe-----Los Angeles
 Heron, Kenneth-----San Francisco
 Heslep, Walter James-----San Francisco
 Hickey, Earl David-----Stockton
 Hickey, Jason-----San Diego
 Higgins, Harold Leroy-----Berkeley
 Hilzinger, Joseph T., Jr.-----San Francisco
 Hoadley, Mervyn J.-----San Jose
 Hoag, Chester Turner, Jr.-----Hollywood
 Hoberg, Karl-----San Francisco
 Holmes, Loren Pittenger-----Oakland
 Holly, Leo Melvin-----Los Angeles
 Hostetter, Adrian Earl-----Los Angeles
 Hubbard, Frank-----Vallejo
 Hummer, George Joseph-----San Diego
 Hurst, William Joe-----San Francisco

J

Jacobs, George William-----Geyserville
 Jacobi, Stanley Alan-----San Francisco
 Jeken, John Fred-----San Bernardino
 Johnson, Albert-----San Francisco
 Johnson, Anton Frederick-----San Diego
 Johnson, Arthur Albert-----Richvale
 Johnson, Arthur Edwin-----Watsonville
 Johnson, Arthur James-----San Diego
 Johnson, Harry McKinley-----Davis
 Johnson, Leslie Eugene-----Hamilton City
 Jones, Roland Frank-----San Francisco
 Jordan, Lewis Sidney-----San Francisco

K

Kahler, Floyd Earl-----Los Angeles
 Kaiser, Welch Norman-----Los Angeles
 Keiran, Richard Tuson-----San Francisco
 Kelly, John Joseph, Jr.-----San Francisco
 Kemp, Henry-----Oakland
 Kemp, Thos. D.-----Glen Ellen
 Kennon, Stanley William-----Santa Ana
 Kenyon, John-----Oakland
 Kerns, Roy Holden-----Berkeley
 Ketele, Harold Moughan-----Long Beach
 King, Claude-----Ramona
 King, James Edward-----Woodsboro
 King, James Nathaniel-----Fillmore
 King, Judson Rufus-----San Diego
 King, Saurin Donahue-----Hollister
 Kofahl, Henry Clay-----Fellows
 Krause, Lester Edmond-----San Jose
 Kreh, Carl Herman-----Mare Island
 Kronnick, Arthur Clifford-----Los Angeles
 Kruzka, Frank Joseph-----Vallejo
 Kuerzel, Albert Oscar-----Oakland
 Kulli, Emal Charles-----Los Angeles

L

Lackland, Forest Guy-----Vallejo
 La Fargue, Louis-----Vallejo
 Landstrom, Stanley Ervin-----San Jose
 Land, Harry Alfred-----Los Angeles
 Lanthier, Lawrence Joseph-----Hollister
 Lantz, Perry Eugene-----Riverside
 Larsen, Edward Andrew-----Loomis
 Lawson, Millard Ernest-----Boonville
 Lawson, Milton C.-----San Francisco
 Lawson, Robert J.-----San Francisco
 Lay, Lewis Sterling-----San Francisco
 Leckie, James-----Oakland

Lefavor, Frederick Herbert-----San Rafael
 Leitch, Geo. Emerson-----San Pedro
 Leiva, Francis Randolph-----Los Angeles
 Lewis, Gaylord Judde-----Weitchpec
 Ley, Herman Henry-----Yorba Linda
 Lindstrom, Robert-----Altadena
 Lombardo, Joseph-----San Francisco
 Loomis, Alvah Everetts-----Los Angeles
 Lyall, Sidney Henry-----Verona
 Lycke, Adolph Nelson-----Stockton
 Lynch, Michael James-----San Francisco

M

Mackeans, Harold V.-----Santa Rosa
 Magruder, Samuel S.-----San Francisco
 Marcus, Arnold-----Mill Valley
 Marmion, James-----San Francisco
 Mathieu, Julien, Jr.-----Oakland
 McComb, Joe Gillis-----Oceanside
 McConnell, Jesse Howard-----San Diego
 McCormick, Frank Henry-----Oakland
 McCully, Rawson Clarence-----Los Angeles
 McGhee, Robert Montgomery-----Los Angeles
 McGrath, George Joseph-----Los Angeles
 McRae, Duncan Archie-----San Francisco
 Macedo, Thomas Raymond-----Hayward
 Maroon, Claude Leslie-----Vallejo
 Martinez, Manuel Josph-----Lankershim
 Matz, Roy Gustav-----San Francisco
 Maurer, John Sherman-----Ontario
 Merriam, Roy Stuart-----Hickman
 Mettastadt, Clinton Harris-----San Francisco
 Metz, Grover Edwin-----San Francisco
 Michelsen, Oswald B. J.-----San Francisco
 Millar, William Thomas-----San Francisco
 Miller, Archie Anderson-----Lakeside
 Miller, Carl August-----Santa Rosa
 Miller, Elwood Hubert-----Reedley
 Miller, Frank Calvin-----Santa Barbara
 Mitchell, Robert George-----Fairfax
 Moody, John Kenneth-----Berkeley
 Moon, Albert Tilton-----San Francisco
 Moore, David Brooks-----San Diego
 Morgan, Wanfred Abram-----San Francisco
 Morton, Oren Edward-----Bishop
 Murphy, Frank Joseph-----San Diego
 Murray, John Joseph-----Menlo Park

N

Nanscawen, Reginald Howard-----Englewood
 Neale, George Cameron-----Sacramento
 Neel, Frank Garnett-----Los Angeles

O

O'Donovan, Daniel-----San Francisco
 Offutt, Lewis-----San Francisco
 Osako, Sono-----Vallejo
 Osuna, Alexander Lee-----Palu

P

Palm, Lester Rude-----Broderick
 Parks, Robert Nathan-----San Diego
 Payne, Albert Limuel-----San Diego
 Petrone, Genevieve Josephine-----San Francisco
 Pittman, Allen Wallace-----Maricopa
 Pollitt, Chalmer Lewis-----Los Angeles
 Pometta, James John-----Benicia
 Prather, Dewey Ray-----San Diego
 Pritchard, William Henry-----Plymouth

Q
 Questo, Clarence George.....Altaville

R
 Rankin, Julian Cecil.....Santa Rosa
 Rau, George James.....Oakland
 Rausch, Leland Caster.....Rialto
 Reed, Harry Clifton.....San Pedro
 Reeves, George Washington, Jr.....Coronado
 Reid, Paul William.....Newbury
 Reimann, Walter A.....Windsor
 Reimoehl, Walter Alfred.....San Francisco
 Reyes, Benigno.....San Francisco
 Reynolds, Fred Thomas.....Sacramento
 Riley, Edward Lawrence.....Los Angeles
 Rivers, James.....San Diego
 Roberts, Thomas Edison.....Oxnard
 Roberts, William Wilmer.....Point Loma
 Rochet, James Francis.....Blue Lake
 Roe, John James.....San Francisco
 Roehrig, Harold Livermore.....Pasadena
 Russ, Inyo Atherton.....San Francisco
 Russell, John Edgar.....San Francisco
 Ryan, Edward.....San Francisco

S
 Sanborn, Frank Leavitt.....Armona
 Scanlon, Matthew.....Santa Rosa
 Schenck, Harry Peter.....San Francisco
 Schmid, Karl Ernest.....San Jose
 Schuler, Louis Baptiste.....Sacramento
 Scobey, John.....Forest Knolls
 Scott, Ray Elworth.....San Pedro
 Semerau, Henry.....San Francisco
 Severance, Frederick Alonzo.....Santa Cruz
 Sexton, Leslie Cyril.....San Francisco
 Shepherd, Adrian Madison.....San Francisco
 Sidey, David Wilbur, Jr.....Los Angeles
 Simpson, Hubert Harmon.....Corning
 Smith, Elbert Peshine.....Merced
 Smith, Eugene Patrick.....San Francisco
 Smith, Frank Lester.....Angels Camp
 Smith, Harry Leroy.....Huntington Beach
 Smith, William Munroe.....San Diego
 Soares, Marion.....Niles
 Sojka, Rudolph.....San Francisco
 Sousa, John Pacheco.....Oakland
 Sparks, James Alsworth.....Sierra Madre
 Sponogle, Beverly Charles.....San Francisco
 Stafford, Walter Edgar.....Santa Ana
 Startzman, Clarence Joseph.....Sacramento
 Stauffer, Charles Percy.....Los Angeles
 Stem, Oliver Clarence.....Ventura
 Steele, Andy.....San Francisco
 Stewart, Charles Enoch.....San Francisco

Stewart, Guy Raymond.....Los Angeles
 Stolman, Jonas Teadore.....Caruthers
 Stough, Dudley.....Vallejo

T
 Taylor, John.....Warner Springs
 Tenney, Lawrence Victor.....Los Angeles
 Terry, Earl Shore.....Glendale
 Thomas, Chauncey.....Pacific Grove
 Timm, Rufus Ernest.....Oakland
 Todhunter, Lillie Catherine.....Sacramento
 Toerpe, Arthur B.....Long Beach
 Togni, Walter Henry.....Visalia
 Trever, George Arthur.....San Diego
 Tyrrell, Clarence Ellis.....Berkeley

U
 Underwood, William Arthur.....Whittier

V
 Vail, William Joseph.....San Francisco
 Vance, Edward Milton.....S. Pasadena
 Vanderwhite, Leon Bryant.....San Francisco
 Van Fleet, Ray Henry.....Glen Ellen
 Vanoni, George Washington.....Middletown
 Vice, Thomas Anthony.....San Francisco
 Vincent, Charles Fridley.....Redondo Beach

W
 Walsh, John James.....San Francisco
 Walter, Earl Clapp.....San Francisco
 Walworth, Karl Allen.....Vallejo
 Warford, Lewis Sylvester.....Alameda
 Weber, Charles Joseph.....Mountain View
 Wenzel, George Elwood.....San Francisco
 Werner, Edward Albert.....Berkeley
 White, George William.....San Francisco
 Wigmore, John.....Los Angeles
 Wilkinson, Edward Watson.....Pasadena
 Williams, Benjamin Franklin.....Merced
 Williams, Edward Lamar.....San Francisco
 Wilson, Walter Otis.....Los Angeles
 Wilson, William.....Los Angeles
 Winkle, Albert G.....Pasadena
 Wood, William Henry.....Santa Cruz
 Woodfield, Walter Lincoln.....San Francisco
 Wooley, Albert Fred.....San Jose
 Wornell, George.....San Francisco
 Wreath, George Clarence.....Oakland
 Wright, Clyde Avon.....San Diego
 Wyatt, Clyde William.....Los Angeles

Y
 Young, Ralph Clark.....Oakland



STANLEY RING, JUNIOR DESIGNER. (Completed since June 26, 1929.)



Club House, Stan. Golf Course, Green Heights, Oakland.

MARINE CORPS.

<p>A</p> <p>Auer, Charles.....Bakersfield</p> <p>B</p> <p>Babcock, Robert C.....San Francisco Balzer, Eugene Ignatius.....San Francisco Blackden, Earl Benjamin.....Taft Blodget, Lewis Jefferson.....Folsom Booth, Lawrence Duncan.....Los Angeles Bosch, Frank.....Vineburg Bragg, Ray Turner.....San Diego Buckley, Raymond.....San Francisco Burchardi, Adolph Christian.....Solvang</p> <p>C</p> <p>Carson, William Arthur.....Redlands Chaffee, Wallace Hyde.....Ventura Christensen, George Gurney.....Santa Ana Church, Lorin Jasper.....Oakland Clark, Ernest Clyde.....Mariposa Clausen, Clyde Lawrence.....Aromas Cook, Claude Thompson.....Taft Couch, William.....Palo Alto</p> <p>D</p> <p>Davidian, Dickran Theodore.....Reedley Davis, Ernest Webster.....Stockton Davis, William Loyd.....Sonora Dennis, Raymond Laverette.....Fresno Devine, Ralph.....Los Angeles Dickinson, Howard Henry.....Alameda Divine, Louis Sharp.....Vallejo Duffin, Arthur Thomas.....San Francisco Dunleavy, Thomas Richard.....San Francisco</p> <p>E</p> <p>Edgar, Ernest Draper.....Bakersfield Elliott, Leonard John.....Selma Enos, Ray Frederick.....Glendale Erickson, Donald Edward.....Los Angeles Estes, Jasper Norten.....Arbuckle</p> <p>F</p> <p>Fehr, John Dave.....San Francisco Foren, Irving Walter.....Los Angeles</p> <p>H</p> <p>Hageman, Warren Robert.....Rosedale Hegewald, Edward Thomas.....Redlands Hickey, Joseph William.....Alameda Husted, Chester Seth.....Corona</p> <p>I</p> <p>Irwin, William.....Oakland Ish, Rex Whitfield.....Sacramento</p> <p>J</p> <p>Jensen, Jens Jacob.....Redding Jeppeson, Henry.....Fresno Jones, Theron Oscar.....Whittier Jordan, John Henry.....Oakland</p>	<p>K</p> <p>Kanouse, Simon Wightman.....Redondo Beach Kidwell, Paul Mcgraph.....Berkeley Kilduff, David R.....Los Angeles</p> <p>L</p> <p>Lancaster, Elmer Nelson.....Alliance Lent, Vernon Jefferson.....Salinas Lockwood, Harry Muir.....Puente Loper, David William.....Los Angeles</p> <p>M</p> <p>MacCauley, John Leo.....San Jose MacDonald, Lloyd Proctor.....Oakland McColm, William J.....Los Angeles McCurry, Lewis Melton.....Wheatland Mattson, James.....Los Angeles Mignacco, Attilio John.....San Francisco Moles, Jacob Hawthorne.....Hollywood</p> <p>P</p> <p>Pleisch, Cecil Winford.....Anderson Price, Ivan Leo.....Long Beach Prosser, Fred Ellsworth.....Fresno</p> <p>R</p> <p>Resendes, William James.....Bodega Roberts, Harry Calvin.....Fresno Rodgers, John Wiley.....San Diego Rozell, Clarence Otto.....Orange Rutledge, Lance.....San Francisco</p> <p>S</p> <p>Seale, Clyde Wesley.....Los Angeles Sheets, Scott McCallister.....Bakersfield Simonds, Albert C.....Los Angeles Smith, Nathan Jarrat.....San Francisco Snover, Oscar.....Stockton Souza, Manuel, Jr.....Cambria Sowell, Vernon Lynn.....Lemoore Stone, Ailen Wesley.....Stockton Stover, John Oscar.....San Diego Strain, John Howard.....San Gabriel Sturges, Thomas Angelo.....San Francisco</p> <p>T</p> <p>Taggart, Frederick Polk.....Berkeley Thompson, Tommy Alexander.....Orland Trapp, Donald Leo.....El Toro Trinka, Frank.....Tehachapi</p> <p>W</p> <p>Waterhouse, Hascall F.....Oakland Wayman, Harry Westley.....Salinas Webster, Robert Lionel.....Paso Robles Wegis, Fred William.....Rosedale Williams, George.....Del Monte Wilson, Robert Donald Abercrombie..... Bakersfield Wilson, Robert Harold.....Long Beach</p>
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APPENDIX E.

Reorganization of National Guard.

APPENDIX E.

NEW ORGANIZATIONS.

The following organizations were mustered into the service of the State between November 16, 1914, the date of the last report of this office, and the first call for State troops in connection with the World War, March 25, 1917, and between the latter date and June 30, 1920.

Name of organization	Locality	Date of muster in
9th Division, Naval Militia	Los Angeles	Nov. 19, 1914
*1st Separate Company, Infantry	Visalia	April 13, 1915
Machine Gun Company, 5th Inf.	San Francisco	Dec. 28, 1915
Machine Gun Company, 2d Inf.	Sacramento	Jan. 25, 1916
10th Division, Naval Militia	San Diego	Jan. 26, 1916
†1st Separate Company, Infantry	Red Bluff	Feb. 3, 1916
Aero Section, 9th Division, N. M.	Los Angeles	Mar. 3, 1916
‡1st Marine Company, N. M.	Los Angeles	Mar. 24, 1916
Company I, 2d Inf.	Watsonville	May 22, 1916
Company I, 5th Inf.	Livermore	June 21, 1916
Company B, 2d Inf.	Richmond	June 24, 1916
Company A, Engineers	Sacramento	July 21, 1916
13th Co., Coast Artillery Corps	Los Angeles	Sept. 21, 1916
14th Co., Coast Artillery Corps	Los Angeles	Sept. 22, 1916
15th Co., Coast Artillery Corps	Los Angeles	Sept. 23, 1916
16th Co., Coast Artillery Corps	San Pedro	Sept. 24, 1916
17th Co., Coast Artillery Corps	Hollywood	Sept. 24, 1916
18th Co., Coast Artillery Corps	Los Angeles	Sept. 26, 1916
19th Co., Coast Artillery Corps	Los Angeles	Sept. 27, 1916
20th Co., Coast Artillery Corps	Los Angeles	Sept. 29, 1916
21st Co., Coast Artillery Corps	Los Angeles	Sept. 30, 1916
22d Co., Coast Artillery Corps	Los Angeles	Oct. 4, 1916
23d Co., Coast Artillery Corps	Long Beach	Oct. 6, 1916
24th Co., Coast Artillery Corps	Monrovia	Oct. 6, 1916
Headquarters, 2d Coast Defense, Command, Coast Artillery Corps	Los Angeles	Oct. 11, 1916
Company B, Engineers	Los Angeles	Oct. 12, 1916
Sanitary Detach., 2d Coast Def. Command, Coast Artillery Corps	Los Angeles	Oct. 31, 1916
Band, 2d Coast Def. Command	Los Angeles	Jan. 1, 1917
11th Division, Naval Militia	Los Angeles	April 9, 1917
Ambulance Company No. 2	Los Angeles	April 28, 1917
2d Engineer Division, Naval Militia	Los Angeles	§
Company C, Engineers	Los Angeles	May 28, 1917
Machine Gun Troop, 1st Sq. Cav.	Fresno	July 16, 1917
Field Hospital Co., No. 2	San Jose	July 25, 1917
Battery F, 1st Field Artillery	Los Angeles	July 25, 1917
Battery E, 1st Field Artillery	Oakland	July 26, 1917
Battery D, 1st Field Artillery	San Diego	July 26, 1917
Supply Co., 1st Field Artillery	San Diego	Aug. 2, 1917
Headquarters, 1st Field Artillery	Oakland	Aug. 3, 1917
Headquarters Co., 1st Field Artillery	Oakland	Aug. 3, 1917
Headquarters, 2d Field Artillery	San Francisco	Aug. 4, 1917
Headquarters Co., 2d Field Artillery	San Jose	Aug. 4, 1917
Supply Co., 2d Field Artillery	San Francisco	Aug. 4, 1917
Battery A, 2d Field Artillery	San Francisco	Aug. 4, 1917
Battery B, 2d Field Artillery	San Francisco	Aug. 4, 1917
Battery C, 2d Field Artillery	Santa Barbara	Aug. 4, 1917
Battery D, 2d Field Artillery	Los Angeles	Aug. 4, 1917
Battery E, 2d Field Artillery	San Francisco, Los Angeles and Fresno	Aug. 4, 1917
Battery F, 2d Field Artillery	Northern and Central California localities	Aug. 4, 1917

*Subsequently designated as Company D, 2d Infantry.

†Subsequently designated as Company H, 2d Infantry.

‡Expanded from Marine Section, 7th Division, N. M. C.

§This division was mustered into the service of the State shortly prior to the call into Federal service of the Naval Militia, April 6, 1917, in connection with the World War, but none of its papers, which were taken with the division when it entered Federal service, have been received at this office, although efforts have been made to obtain them.

NEW ORGANIZATIONS—Continued.

Name of organization	Locality	Date of muster in
^a 1st Separate Company, Inf.....	Los Angeles	Dec. 3, 1917
^b 2d Separate Company, Inf.....	Los Angeles	Dec. 5, 1917
^c 3d Separate Company, Inf.....	Los Angeles	Dec. 13, 1917
^d 4th Separate Company, Inf.....	Los Angeles	Dec. 15, 1917
^e 5th Separate Company, Inf.....	Sacramento	Jan. 9, 1918
^f 6th Separate Company, Inf.....	Fresno	Jan. 17, 1918
^g 7th Separate Company, Inf.....	Visalia	Jan. 30, 1918
^h 8th Separate Company, Inf.....	Stockton	Feb. 9, 1918
9th Separate Company, Inf.....	Los Angeles	Feb. 12, 1918
10th Separate Company, Inf.....	Fresno	Feb. 26, 1918
11th Separate Company, Inf.....	Alameda	Mar. 9, 1918
12th Separate Company, Inf.....	Modesto	Mar. 9, 1918
13th Separate Company, Inf.....	San Francisco	Mar. 10, 1918
14th Separate Company, Inf.....	San Francisco	May 6, 1918
15th Separate Company, Inf.....	Los Angeles	July 25, 1918
16th Separate Company, Inf.....	Riverside	Aug. 5, 1918
17th Separate Company, Inf.....	Santa Ana	Aug. 19, 1918

^aMustered into State service as Company A, Infantry.

^bMustered into State service as Company B, Infantry.

^cMustered into State service as Company C, Infantry.

^dMustered into State service as Company D, Infantry.

^eMustered into State service as Company E, Infantry.

^fMustered into State Service as Company F, Infantry.

^gMustered into State service as Company G, Infantry.

^hMustered into State service as Company H, Infantry.

On July 22, 1919, the designations of the 2d, 5th, 13th, 14th, 15th and 17 Separate Companies, Infantry, were changed to Companies A, B, C, D, E, and F, respectively, and organized as the 1st Separate Battalion of Infantry.

On August 16, 1919, Companies E and F were separated from the 1st Separate Battalion of Infantry and redesignated as Companies E and F, Infantry, California National Guard. This rearrangement was made necessary for the purpose of conforming to the Tables of Organization issued by the War Department.

Company G, Infantry, Long Beach, was mustered into the service of the State on June 1, 1920.

The 1st Company, Coast Artillery Corps, San Francisco, was mustered into the service of the State on June 16, 1920.

APPENDIX F.

Muster Out of Certain Companies from State Service.

APPENDIX F.

COMPANIES DISCONTINUED.

The following organizations were mustered out of the State Service between November 16, 1914, and the date of this report.

Name of organization	Locality	Date of muster out
*Company D, Inf. (unassigned)-----	Redding -----	Oct. 29, 1915
*Company H, 2d Inf.-----	Tulare -----	April 15, 1916
*Company L, 2d Inf.-----	Bakersfield -----	May 22, 1916
*Company I, 5th Inf.-----	Livermore -----	June 15, 1916
*Company B, 2d Inf.-----	Willow -----	June 20, 1916
§8th Separate Company, Inf.-----	Stockton -----	April 28, 1918
§1st Separate Company, Inf.-----	Los Angeles -----	Oct. 7, 1918
†16th Separate Company, Inf.-----	Riverside -----	Feb. 14, 1919
†6th Separate Company, Inf.-----	Fresno -----	Feb. 20, 1919
†7th Separate Company, Inf.-----	Visalia -----	Feb. 18, 1919
†10th Separate Company, Inf.-----	Fresno -----	Feb. 20, 1919
†4th Separate Company, Inf.-----	Los Angeles -----	Feb. 18, 1918
†12th Separate Company, Inf.-----	Modesto -----	Mar. 12, 1919
*3d Separate Company, Inf.-----	Los Angeles -----	July 25, 1919
*9th Separate Company, Inf.-----	Los Angeles -----	July 25, 1919
§11th Separate Company, Inf.-----	Alameda -----	Sept. 24, 1918

*Fell below standard of efficiency.

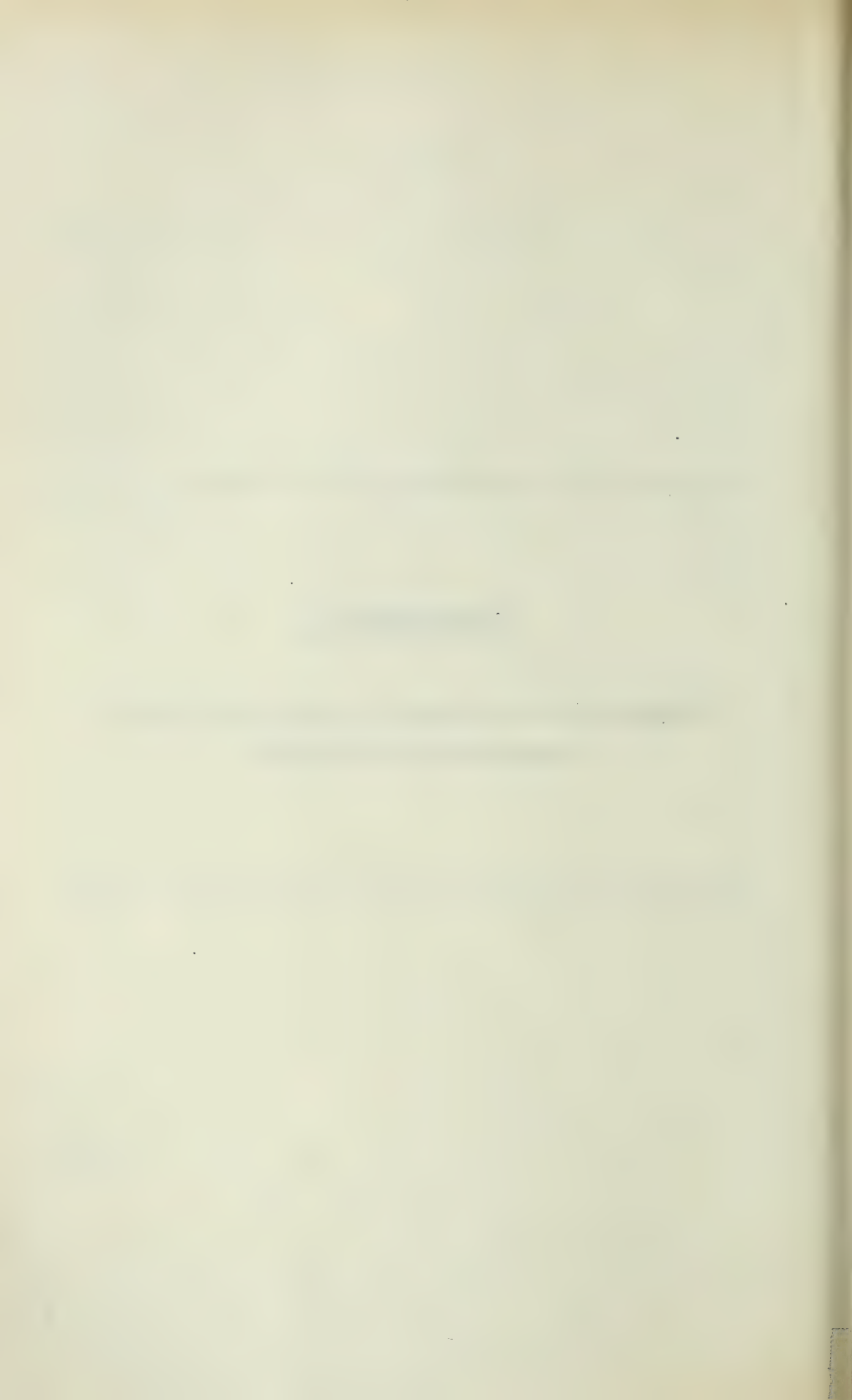
§Company almost depleted by the draft for the World War.

†Lack of interest on part of enlisted men and community.

‡Fell below minimum strength.

APPENDIX G.

Organizations, and Dates on which they Entered
Federal Service—World War.



APPENDIX G.

ORGANIZATIONS, AND DATES ON WHICH THEY ENTERED FEDERAL SERVICE—WORLD WAR.

HEADQUARTERS AND COMPANIES A, B AND C, FIRST BATTALION OF ENGINEERS, LATER KNOWN AS SECOND BATTALION, 117TH ENGINEERS, UNITED STATES ARMY.

Major Jay A. Given.	First Lieutenant George W. Wade.
Captain Alexander M. Barton.	Second Lieutenant George W. Crowell.
Captain Herlwyn R. Green.	Second Lieutenant Peter R. Gadd.
First Lieutenant Raymond M. Dickerson.	Second Lieutenant Carl R. Shaw.

Company A.

(Called into Federal Service June 20, 1917.)

Captain Jay A. Given.	Private Nelson E. Dean.
First Lieutenant Alexander M. Barton.	Private Joseph L. Declusin.
Second Lieutenant Wallace A. Mason.	Private Leon H. DeLaney.
First Sergeant Daniel J. Collins.	Private Joseph A. Devine.
Mess Sergeant Robert B. Young.	Private Joseph P. Douglass.
Supply Sergeant James V. Guthrie.	Private John B. Dyer.
Sergeant Edward R. Baker.	Private Theodore G. Elwert.
Sergeant Edward E. Peterson.	Private Ralph F. Fischer.
Corporal Chester E. Crawford.	Private Delbert L. Fisk.
Corporal Robert E. Donovan.	Private Arthur F. Folck.
Corporal Edgar C. Eaton.	Private Harry J. Ford.
Corporal Edward J. Jones.	Private Verne F. Fowler.
Corporal Victor U. Wyatt.	Private William H. Gass.
Cook Alexandre Chabre.	Private Byron F. Giles.
Cook James E. Cruzan.	Private Clyde H. Giles.
Bugler Lawrence A. Waugh.	Private Charles P. Goodman.
Private, first class, Chester C. Allen.	Private Emil F. Graffigna.
Private, first class, Lee C. Anderson.	Private John J. Gussenbauer.
Private, first class, Thomas F. Casey.	Private Herbert G. Hahn.
Private, first class, Arthur A. Clements.	Private Enoch Hurt.
Private, first class, Don A. Cuthbert.	Private Howard R. Hamilton.
Private, first class, Joseph B. Dostal.	Private Arthur H. Hanley.
Private, first class, Max W. Feilbach.	Private Edward G. Hart.
Private, first class, Noel H. Jacks.	Private Howard W. Hart.
Private, first class, Alvy E. McKay.	Private Jesse B. Hatch.
Private, first class, Winfred T. Shifflett.	Private Frederic F. Hochdoerffer.
Private, first class, Thorbjorn G. Skedsmo.	Private Raymond M. Houk.
Private, first class, Harry O. Woolrich.	Private Frank Hunt.
Private George Adams.	Private John H. Hurner.
Private Thomas Anderson.	Private Robert H. Ingleston.
Private James B. Araujo.	Private William L. Irwin.
Private Edward M. Ayers.	Private Herbert W. Jennings.
Private Robert W. Argall.	Private Lester E. Johnston.
Private Albert W. Barber.	Private Bernard J. Jones.
Private Gerald J. Barry.	Private William C. Jones.
Private William D. Bennie.	Private William V. Kellogg.
Private Felix A. Bettelheim.	Private Eric M. Ketyley.
Private Robert M. Bettelheim.	Private Joseph J. Keno.
Private Lester T. Bishofberger.	Private William P. Knight.
Private James E. Black.	Private Edward Lazenby.
Private Harry W. Boggess.	Private Clifton G. Landreth.
Private John E. Bogue.	Private Ralph H. Lee.
Private David Bohlin.	Private Marian B. Logan.
Private William Board.	Private John B. MacDonald.
Private Irwin D. Bostwick.	Private Harlan W. Major.
Private Charles E. Bowman.	Private Charles E. Manouk.
Private Austin J. Brennan.	Private Joseph C. Marchand.
Private Reed C. Brown.	Private Creede L. McArthur.
Private Walter B. Brown.	Private William McCants, Jr.
Private Earl E. Burlington.	Private Clyde A. McKea.
Private James F. Clausen.	Private Cyrus C. McLaughlin.
Private Walter C. Carr.	Private Peter J. McLaughlin.
Private William E. Coffman.	Private James A. Moody.
Private Richard S. Cohn.	Private Arthur M. Mullen.
Private James O. Crane.	Private Ira J. Mullen.
Private Charlie R. Cunningham.	Private Victor H. Myers.
Private Francis M. Cunningham.	Private Clyde W. Needham.

Company A—Continued.

Private William H. Oloff.	Private Harry A. Truman.
Private Ira F. O'Neill.	Private Frank Van Guelder.
Private Frank Polkinghorn.	Private Harry C. West.
Private Roy M. Polkinghorne.	Private John W. Willett.
Private Jackson C. Reid.	Private Ashley V. Worley.
Private Ernest C. Stover.	Private Fred L. Yeomans.
Private Jess E. Taylor.	

Company B.

(Called into Federal Service July 10, 1917.)

Captain James Irvine.	Private Charles R. Compton.
Second Lieutenant John E. Rockhold.	Private Edwin R. Compton.
Sergeant, first class, Verne T. Bunker.	Private Elmer E. Curtis.
Sergeant, first class, William Hunter.	Private John J. Davis.
Supply Sergeant John E. Adams.	Private Chrity Dennison.
Mess Sergeant Victor Freeman.	Private Fred J. Desch.
Sergeant Earl R. Bunker.	Private William F. De Wolf.
Sergeant Jere L. Foutz.	Private John H. Dressler.
Sergeant St. Clair Ireland.	Private Ralph N. Edmundson.
Sergeant Eugene Jester.	Private Irvin F. Eiling.
Sergeant Dugald A. MacLachlin.	Private Clarence B. Esse.
Sergeant John R. Reed.	Private Martin A. Evans.
Sergeant Harvey H. Steinberger.	Private Wade V. Fallis.
Sergeant John Wirsching.	Private Edward H. Fleming.
Corporal Harold E. Barnett.	Private Robert H. Fletcher.
Corporal Arthur C. Brown.	Private Lloyd A. French.
Corporal Wilfred C. Byram.	Private Philip A. Fraisse.
Corporal Wilford C. Fairchild.	Private Tracy H. Fulton.
Corporal LeRoy Dawson.	Private Verne J. Gay.
Corporal Milton S. Kimball.	Private Elmer M. Gee.
Corporal Aurelius Kinsey.	Private Thomas E. Gill.
Corporal Frank A. Schwarz.	Private John C. Gillham.
Corporal Manuel A. Tresoti.	Private Harry J. Griffin.
Cook Warren D. Mendenhall.	Private Claude H. Grisby.
Cook Victor A. Shultz.	Private Robert H. Gwynn.
Cook Albert M. Sied.	Private Robert W. Hamsher.
Bugler Clyde O. Duckworth.	Private Harry W. Harsha.
Bugler Rollo T. Fanshier.	Private John W. Hasemeier.
Private, first class, Harold R. Adams.	Private Lester D. Havens.
Private, first class, Albert H. Anderson.	Private Joseph K. Hawkins.
Private, first class, Reuel K. Attwood.	Private Thomas A. Hervey.
Private, first class, Irving F. Brown.	Private Archie M. Hillman.
Private, first class, William J. Clark.	Private Charles T. Hiskey.
Private, first class, John D. Gilboe.	Private Nelson T. Hofrieter.
Private, first class, Barnett L. Haskell.	Private Hubert Holdway.
Private, first class, Theodore Koethen.	Private Morton A. Holmes.
Private, first class, John D. Pickarts.	Private Ralph M. Hultz.
Private, first class, Frank E. Ritchey.	Private Robert J. Irvine.
Private, first class, Howard B. Rockhold.	Private Louis J. Jennings.
Private, first class, De Witt W. Sheriger.	Private Joseph F. Jensen.
Private, first class, Thomas C. White.	Private Harry R. Jenson.
Private Arthur V. Ackland.	Private Robert C. Johnson.
Private Raymond E. Adelmeyer.	Private John M. Jones.
Private Charles C. Alden.	Private George D. Jordan.
Private Herbert R. Anderson.	Private Theodore J. Josalle.
Private Leonardo B. Arnold.	Private James I. Keith.
Private Claude F. Atherton.	Private Fred R. Kerlin.
Private Charles T. Atkins.	Private James N. Kerr.
Private George H. Atkinson.	Private Stanley R. Kerr.
Private Charles E. Baker.	Private Jesse A. Kirk.
Private Lyman D. Balkema.	Private William E. Kneen.
Private Harold L. Beckley.	Private Walter P. Lacy.
Private Earl Beckwith.	Private Robert R. Leib.
Private John B. Bengochea.	Private Arthur F. Lind.
Private Clarence M. Bjerke.	Private Henry H. Linville.
Private Richard T. Blow.	Private Otho G. Lord.
Private John E. Boyle.	Private Richard W. Mason.
Private Arthur T. Brett.	Private John McKay.
Private Henry E. Carle.	Private Benjamin Medley.
Private Clyde M. Carroll.	Private Edwin L. Miller.
Private Robert L. Clark.	Private Seaward J. Miller.

Company B—Continued.

Private Efren Montijo.
 Private Hugh B. Moor.
 Private John J. Morrisy.
 Private Robert H. Mulks.
 Private Adolph A. Munich.
 Private John C. Olsen.
 Private Charles Orser.
 Private Fred E. Painter.
 Private J. Elwin Peters.
 Private John E. Peterson.
 Private William W. Phillips.
 Private Charles E. Pierce.
 Private Charles A. Pollock.
 Private Roydon O. Pool.
 Private Joseph Pray.
 Private Herbert E. Rankin.
 Private Francis W. Riley.
 Private Arthur A. Roesser.
 Private Warren F. Rogers.
 Private Clyde M. Rosenberg.

Private Edward C. Simpson.
 Private Arthur L. Smith.
 Private Weimer J. Smith.
 Private Dave W. Stilwell.
 Private Herbert S. Swanson.
 Private Frank L. Taylor.
 Private John M. Terrass.
 Private David R. Wahlberg.
 Private Joseph W. Wallblom.
 Private Joseph Ward.
 Private Harry C. Webb.
 Private Dudley B. Wheelock.
 Private Frank Whitmore.
 Private Wilbur K. Whitmore.
 Private Julius C. White.
 Private Chester A. Williamson.
 Private William Williamson.
 Private Grover C. Wilson.
 Private Kenneth K. Wright.
 Private Gay Young.

Company C.

(Called into Federal Service August 5, 1917.)

Captain Edward B. Hayden.
 First Lieutenant Theodore T. Kirk.
 First Lieutenant Fred W. Pettit.
 Second Lieutenant Gordon M. Davidson.
 Sergeant Edmond D. Backus.
 Sergeant Francis C. Cowley.
 Sergeant Eugene L. Christian.
 Sergeant Arthur C. Davis.
 Sergeant Hugh B. Freeman.
 Sergeant Samuel W. Hodge.
 Sergeant Edward S. Jewell.
 Sergeant William B. Jevne.
 Sergeant John C. McCoy.
 Sergeant Alonzo B. McAdams.
 Sergeant Herbert A. Reif.
 Sergeant Earl B. Rakestraw.
 Sergeant Justice B. Severance.
 Sergeant John R. Slaughter.
 Sergeant Harry B. Woody.
 Corporal Adolfo J. Bernal.
 Corporal Vaughn Coombs.
 Corporal Fred Livingston Clock.
 Corporal Harold W. Cook.
 Corporal George F. Carter.
 Corporal Wallace Dunlop.
 Corporal Gabriel W. D'Agay.
 Corporal Garnett L. Evans.
 Corporal Horace A. Jackson.
 Corporal Don H. Kitt.
 Corporal Louis E. Kengla.
 Corporal Gordon Rawley.
 Corporal Milton M. Stack.
 Corporal Roy E. Williams.
 Corporal Roy E. Wickstrom.
 Cook James E. Dimond.
 Cook Fred Gallagher.
 Horseshoer Bliss H. Forbes.
 Saddler Charles B. Keesey.
 Bugler Wilbur A. Gervais.
 Bugler Herman W. Steiden.
 Private, first class, B. Douglas Balthis.
 Private, first class, Edgar M. Bandy.
 Private, first class, Lawrence E. Bledsoe.
 Private, first class, Richard O. Carey.
 Private, first class, Joseph H. Cowley.
 Private, first class, John G. Fox.
 Private, first class, Warner H. Grassell.

Private, first class, John E. Green.
 Private, first class, Harvey L. Gunn.
 Private, first class, Harry S. Harris.
 Private, first class, William R. W. Hart.
 Private, first class, Alva L. Huffman.
 Private, first class, Guy A. Lawton.
 Private, first class, Frank J. Marshall.
 Private, first class, Harry C. Reid.
 Private, first class, George B. Simpson.
 Private, first class, Grant G. Speer, Jr.
 Private, first class, Harold E. Stilwell.
 Private, first class, Frank Stirk.
 Private, first class, Harold St. John.
 Private, first class, George Van Norman.
 Private, first class, John S. Waller.
 Private, first class, Charles E. Wells.
 Private, first class, Asie G. Williams.
 Private, first class, W. Clyde Williams, Jr.
 Private Lucien W. Aitken.
 Private Joe J. Allegretti.
 Private Boyd W. Allison.
 Private George L. Alton.
 Private Fred A. Armstrong.
 Private Lewis J. Ashby.
 Private Clarence B. Barnes.
 Private Thomas Barnes.
 Private Leslie E. Battelle.
 Private Rae E. Bell.
 Private Morris Beller.
 Private Arthur R. Benton.
 Private Abraham Berkowitz.
 Private George Beyer.
 Private John Bonetto.
 Private William E. Braun.
 Private Merritt A. Brown.
 Private Lawrence R. Burkhalter.
 Private Lyle H. Burks.
 Private Byron Burns.
 Private Frederick Burt.
 Private Philip Burton.
 Private Carl G. Busch.
 Private Claude Buzard.
 Private Edward J. Burlingham.
 Private Harold O. Barton.
 Private Glen R. Benning.
 Private Allison S. Brockway.
 Private Edward R. Bunbury.

Company C—Continued.

Private Alfred M. Butler.
 Private Chad F. Calhoun.
 Private George A. Carter.
 Private Nelson A. Cliff.
 Private James G. Calderwood.
 Private Robert E. Campbell.
 Private Harold A. Cassidy.
 Private Herman J. Chapple.
 Private Alexander Chisholm.
 Private Hooper D. Churchill.
 Private Fred H. Chaffee.
 Private Herbert A. Clark.
 Private Frank E. Cline.
 Private Harmon W. Cloud.
 Private Roy C. Coleman.
 Private Harold F. T. Colling.
 Private Will W. Colton.
 Private Ned Connor.
 Private Lee D. Cook.
 Private Walter T. Cook.
 Private Edward J. Corella.
 Private Samuel W. Corrio.
 Private Frank M. Corryell.
 Private Daniel G. Crawford.
 Private John S. Culiver.
 Private Irving S. Curtis.
 Private Alexander P. Daniels.
 Private Joseph B. De Soto.
 Private James M. Durham.
 Private William P. Emerson.
 Private Ralph H. East.
 Private Arthur Emery.
 Private Francis E. Eyman.
 Private Jack E. Fallon.
 Private Ben J. Farrell.
 Private Hamilton Finley.
 Private Arthur E. Fisher.
 Private Sam D. Fraser.
 Private James G. Francis.
 Private Arthur Fiveson.
 Private Hubert B. Frazier.
 Private William C. Glaze.
 Private Thomas F. Goupil.
 Private William D. Grow.
 Private Jack B. Garrison.
 Private Charles G. Girdlestone.
 Private Leopold Glaser.
 Private George Golden.
 Private Stanley C. Gorman.
 Private Charles C. Gray.
 Private Alonzo Guirado.
 Private John H. Haisch.
 Private Ray W. Hays.
 Private Frank Henry.
 Private Thomas F. Hesketh.
 Private Sheldon R. Hickox.
 Private John G. Hill.
 Private Hageman E. Hilty.
 Private Olin M. Holmes.
 Private Mathias Honness.
 Private George Hydell.
 Private John O. Hoge.
 Private Sylvam A. Irvine.
 Private Harold M. Jeancon.
 Private Carl A. Johnson.
 Private Victor Johnson.
 Private James F. Keithly.
 Private Leo Kind.
 Private Lawrence W. P. Kingsbury.
 Private Thomas C. Knight.
 Private Leon Koopman.
 Private Clinton A. Langstaff.
 Private Aubrey J. Lee.
 Private James F. Littell.
 Private Orville D. Littlejohn.
 Private Sydney Livingston.
 Private Charles H. Long.
 Private Austin E. Longcroft.
 Private Andrew J. Landwehr.
 Private Donald H. Lingle.
 Private Lowry O. Lonquist.
 Private Charles R. Lucas.
 Private Oscar A. Lund.
 Private John Luquet.
 Private John B. Mann.
 Private Kent K. Martin.
 Private Walter G. Michel.
 Private Harry W. Mitchell.
 Private Daniel W. Millane.
 Private Griffith A. Miller.
 Private Douglas H. Moore.
 Private Horace Munger.
 Private Robert D. McArthur.
 Private William H. Mead.
 Private Harold A. Merriman.
 Private Albert N. J. Merryman.
 Private Emil Michels.
 Private William Michels.
 Private Lyman McFall.
 Private Edwin D. McKenney.
 Private Ray McCormick.
 Private Astor W. McDermed.
 Private John G. Milton.
 Private William T. McFie.
 Private Donald McCloud.
 Private Forrest M. Nance.
 Private Harry M. Nelson.
 Private Fred C. Newton.
 Private Joseph A. Norse.
 Private Samuel W. Newland.
 Private Richard L. Patterson.
 Private Rolin B. Phipps.
 Private Herman Plotkin.
 Private Morris Plotkin.
 Private Allen M. Pope.
 Private Parley Pratt.
 Private James M. Putman.
 Private Andrew L. Peters.
 Private Dave W. Peterson.
 Private Jay K. Reinhart.
 Private Cass Rawley.
 Private Calvin H. Raynor.
 Private Edward B. Regan.
 Private Russell Reid.
 Private Harry O. Rettig.
 Private John F. Reynolds.
 Private Robert P. Reynolds.
 Private Francis M. Rhodes, Jr.
 Private Edwin L. Robinson.
 Private Irwin A. Ronald.
 Private Elmer C. Roswurm.
 Private Philip G. Rush.
 Private Edwin J. Sadler.
 Private Jesse E. Sanders.
 Private Harold C. Schellenbach.
 Private Anthony Sisto.
 Private Russell B. Smith.
 Private Sydney J. Smith.
 Private John M. Snyder.
 Private Everett B. Stanford.
 Private Clarence Stonebarger.
 Private Kenneth A. Sutherland.
 Private William L. Schellenbach.
 Private Furman Teale.

Company C—Continued.

Private Seymour D. Tenney.
 Private Carl P. Terrass.
 Private Archie Thompson.
 Private Harry Thompson.
 Private Arthur R. Taylor.
 Private James T. Todd.
 Private Louis Vautrot.
 Private Arza J. Veatch.
 Private Clarence Waite.
 Private John W. Walsh.

Private Harry A. Watchlow.
 Private Frank M. Weeks.
 Private Harold B. Wells.
 Private Howard Whitney.
 Private Albert K. Winegard.
 Private Elwyn D. Wulsten.
 Private Howard R. Wyberg.
 Private Joseph Willis.
 Private John H. Wood.

Field Company B, Signal Corps.

(Called into Federal Service August 5, 1917.)

Captain Edward V. Orr.
 First Lieutenant Charles Duren matt.
 First Lieutenant William E. Godsell.
 Master Signal Electrician Frank M. Koch.
 Sergeant, first class, Harold M. Johnson.
 Sergeant, first class, Harry J. Unger.
 Sergeant, first class, Clarence E. White.
 Sergeant, first class, Richard W. Weatherbe.
 Sergeant, first class, Russell G. Smith.
 Sergeant Reginald W. Goldwater.
 Sergeant Albert H. McBride.
 Sergeant James L. Montague.
 Sergeant Clarence E. Reid.
 Corporal Lester G. Glasson.
 Corporal Thomas E. Hooper.
 Corporal Don L. Hartford.
 Corporal Hedley L. Mero.
 Corporal William J. O'Keefe.
 Corporal James A. Perry.
 Corporal Martin Schram.
 Corporal Gustav H. Springman.
 Corporal Oliver G. Swenson.
 Corporal Robert P. Scott.
 Cook D'Arcy R. Lambert.
 Cook Nathan Shapiro.
 Horseshoer Salvador R. Cassilas.
 Prvt., 1st class, Bartholomew P. Oliver, Jr.
 Private, first class, David R. Owens, Jr.
 Private Edward J. Alden.
 Private Henry E. Bellerve.
 Private Ralph D. Berry.
 Private Rufus J. Blitch.
 Private Fred H. Brown.
 Private Robert A. Bryan.
 Private Louis P. Carlson.
 Private Robert L. Clark.
 Private Horace D. Coyne.
 Private Charles M. Crocket.
 Private Percy A. Davies.

Private William A. Davis.
 Private Harry S. Ebner.
 Private Harold F. Gardner.
 Private Lloyd A. Gielow.
 Private G. Harold Griffin.
 Private Russell G. Haskins.
 Private Lloyd Johnson.
 Private Franz G. Johnson.
 Private Robert Kafka.
 Private Louis P. Kerner, Jr.
 Private Harold B. Landon.
 Private Charles G. Landresse.
 Private John B. Mallon.
 Private Bertrand P. Martin.
 Private Earl R. McDowell.
 Private Irwin Miller.
 Private Raymond J. Mullin.
 Private Walter H. Needy.
 Private Otto J. Novotny.
 Private George R. O'Connor.
 Private John W. Pearson.
 Private William H. Phipps.
 Private James J. Quinn.
 Private George E. Russell.
 Private Warren F. Sanford.
 Private Edward F. Seagrave.
 Private Robert M. Sherrard.
 Private Frank A. Smith.
 Private Herbert E. Smith.
 Private Wallace A. Stephen.
 Private Lester W. Stewart.
 Private Raymond S. Thompson.
 Private Roy B. Tittel.
 Private Harry E. Topping.
 Private Allan Vishoot.
 Private Stephen A. Wight.
 Private Marshall B. Williams.
 Private Louis H. Winters.
 Private Harold J. Miskel.

Field Hospital Company No. 1.

(Called into Federal Service August 5, 1917.)

Major Charles W. Decker.
 First Lieutenant Lawrence J. Butka.
 First Lieutenant David C. Farnsworth.
 First Lieutenant Foster M. Hull.
 First Lieutenant Egbert E. Moody.
 First Lieutenant Elliott P. Smart.
 Sergeant, first class, Hazel C. Hickman.
 Sergeant Frederick S. Patch.
 Cook Frank J. Hitchin.
 Cook Clayton E. Thomasson.
 Horseshoer Orion B. Dawson.
 Private, first class, James H. Ashton.

Private, first class, Esmond R. Arthur.
 Private, first class, Lisle E. Bagwill.
 Private, first class, Loyal W. Gage.
 Private, first class, Floyd L. Hatfield.
 Private, first class, Leroy W. Huer.
 Private, first class, Elmer R. Jones.
 Private, first class, Hugh C. Marshall.
 Private, first class, James A. Pease.
 Private, first class, Harold E. Pratt.
 Private, first class, Thomas C. Stephens.
 Private, first class, Roy L. True.
 Private, first class, Rudolph G. Vejar.

Field Hospital Company No. 1—Continued.

Private, first class, Howard A. Wood.
 Private Glenn Anderson.
 Private George W. Bassett.
 Private Thomas P. Batchelor.
 Private Frank Becker.
 Private John L. Blake.
 Private George K. Bridwell.
 Private Frank E. Brock.
 Private Archie P. Brown.
 Private Paul P. Brown.
 Private James A. Burchiel.
 Private Arthur E. Carr.
 Private Alonzo W. Case.
 Private Roy E. Charleston.
 Private John Coombe.
 Private Leland S. Curley.
 Private Howard J. Davis.
 Private Lannes E. Davis.
 Private Percy F. Eddy.
 Private Jesse M. Few.
 Private Joseph H. Harper.
 Private Wilbur Q. Holcom.
 Private Perley Holder.
 Private Jacob L. Huff.
 Private Robert E. Hughes.
 Private Ray D. Huston.
 Private Charley Jensen.
 Private Van Ness L. Lathe.
 Private Oliver Leftwick.
 Private James R. Lowe.

Private Harold H. Luetke.
 Private Oscar M. McAulay.
 Private Joseph E. McCarthy.
 Private John L. McDaniel.
 Private Carl F. Miller.
 Private Ellsworth P. Minner.
 Private Joe I. Misch.
 Private Oliver G. Moore.
 Private William H. Morgan.
 Private James G. Norris.
 Private Charles C. O'Reilly.
 Private Robert R. Randall.
 Private George L. Richardson.
 Private Donald S. Riggs.
 Private George J. Ryan.
 Private Edwin F. Schallert.
 Private Edgar D. Senter.
 Private Joseph D. Sesma.
 Private George N. Seymour.
 Private Harold R. Stafford.
 Private Louis B. Stribling.
 Private Freeman L. Thomas.
 Private Clyde M. Tipton.
 Private Samuel Tubin.
 Private John L. Walters.
 Private Clyde V. Webb.
 Private Roland C. Wedemeyer.
 Private Walter C. Williams.
 Private Alvin B. Wilson.

Field Hospital Company No. 2.

(Called into Federal Service August 5, 1917.)

Major Frank H. Paterson.
 Private Columbus S. Acquistapace.
 Private Cecil E. Alberts.
 Private John E. Acton.
 Private Frank R. Allen.
 Private Clarence Z. Alvarez.
 Private Albert J. Anthes.
 Private Carl Y. Brownlee.
 Private George C. Baker.
 Private Hubert M. Bartley.
 Private Louis J. Berdrow.
 Private Frank W. Blackmar, Jr.
 Private Clarence T. Blake.
 Private Edwin R. Burtner.
 Private Carl M. Coe.
 Private George R. Cowgill.
 Private Ralph F. Cox.
 Private Ernest E. Crook.
 Private Clinton S. Crow.
 Private Lawrence H. Dally.
 Private Charles R. Davidson.
 Private Frank O. Dampier.
 Private Ellis H. Duff.
 Private Harry Duran.
 Private Alvin J. Ferreira.
 Private Elmer S. Freeman.
 Private John L. Hardiman.
 Private Lawrence A. Hawkinson.
 Private Harold W. Jewett.
 Private Clair R. Johnson.
 Private Lewis D. Johnson.
 Private John F. Kifer.
 Private Leslie F. King.
 Private Roy A. Lane.
 Private Harry J. Lathrop.
 Private Reginald C. Louch.
 Private Henry A. McKenna.
 Private Daniel F. McCarthy.
 Private Alfred J. McDougall.

Private Edwin J. McKnight.
 Private Arthur H. Maloy.
 Private Karl W. Marten.
 Private Eugene F. Morris.
 Private Raymond M. Mosher.
 Private William E. Mullis.
 Private Gilbert R. Newcomb.
 Private Bernhard F. Nordmann.
 Private Lawrence G. Olinder.
 Private Edward M. Paterson.
 Private Clinton B. Peck.
 Private J. Argale Riblet.
 Private Harold J. Riordan.
 Private Charles H. Robinson.
 Private Antonio F. Romano.
 Private William J. Rowland.
 Private Walter A. Seibert.
 Private Howard L. Sherbondy.
 Private Carl E. Salmon.
 Private David J. D. Stoke.
 Private Hans O. Storm.
 Private William H. Swank.
 Private Warren J. Telfer.
 Private Clarence J. Thompson.
 Private Fred G. Thomson.
 Private Lloyd O. Tilley.
 Private Kenneth C. Toney.
 Private Syl C. Tully.
 Private Alfred J. Vieira.
 Private Wesley N. Vodden.
 Private Gus F. Volk.
 Private Paul Walker.
 Private George V. Warner.
 Private Lloyd W. Welde.
 Private George H. Williamson.
 Private Glenn W. Wilson.
 Private Wilbur J. Wingfield.
 Private Paul E. Wise.
 Private Joseph H. Wythe.

Ambulance Company No. 1.

(Called into Federal Service August 5, 1917.)

Captain Eldridge C. Turner.	Private Earl S. Fox.
First Lieutenant Miles A. Heffelfinger.	Private Frederick T. Francis.
First Lieutenant Albert Mix Pernier.	Private Walton H. Fuller.
First Lieut. Hoffman Shippey Roderick.	Private Alessio Giovannoni.
Sergeant Howard G. Attebery.	Private William C. Goosen.
Sergeant Floyd Bollinger.	Private Albert G. Griffith.
Sergeant Gus Chierici.	Private Milton T. Huyckle.
Sergeant Charles E. Lord.	Private Milton J. Hall.
Sergeant Jesse D. Treadway.	Private Jesse M. Hambleton.
Cook Frank Crow.	Private Axel J. E. Hansen.
Cook William H. Dittmer.	Private Victor S. Hanson.
Cook Robert B. Reeve.	Private Robert E. Harris.
Musician John Capitani.	Private Earl R. Hausman.
Musician Hjalmar A. Erickson.	Private Robert E. Heater.
Private, first class, Earl R. Crabbe.	Private Clarence R. Hill.
Private, first class, Santos Fimby.	Private Verne E. Hurtle.
Private, first class, Frank Garcia.	Private Arthur R. Huyck.
Private, first class Edward Jacob Gloss.	Private Stephen M. Jackse.
Private, first class, Ino. L. Harris.	Private Walter G. Johnson.
Private, first class, William R. Hughes.	Private Arthur E. Lang.
Private, first class, Franklin D. James.	Private Raymond N. Langley.
Private, first class, Raymond D. Kyser.	Private Edwin A. Lassner.
Private, first class, Arthur A. Miller.	Private Charles A. Lawson.
Private, first class, Harold F. Misley.	Private Leo Lechner.
Private, first class, John R. Money.	Private Charles E. Locarnini.
Private, first class, Dan Page.	Private Winfield S. Mansfield.
Private, first class, Ralph A. Proctor.	Private Scott McKenzie.
Private, first class, Max Soley.	Private George W. Miller.
Private, first class, Benj. F. Springsteen.	Private Lester E. Montgomery.
Private, first class, Edward C. Winship.	Private Blaine D. Mount.
Private Guintoli Amedeo.	Private Frank A. Mugford.
Private Henry E. Anderson.	Private Homer E. Moore.
Private Herman A. Anderson.	Private Henry Navone.
Private Marion Bedolla.	Private Frisbie W. Nunn.
Private Arnold J. Bird.	Private Albert L. Olson.
Private Albert G. Boggs.	Private William J. Parodi.
Private Albert G. Bonnell.	Private Donald A. Patrick.
Private Leon L. Borach.	Private Ligouri J. Patrick.
Private Frederick L. Bradley.	Private Antonin O. Payan.
Private Charles J. Brocco.	Private Merlin V. Pedrotti.
Private Warren E. Burrell.	Private Howard M. Pennish.
Private Louis E. Cavallini.	Private Edward W. Phillips.
Private Joseph A. Chelli.	Private Lloyd W. Rackerby.
Private Henry B. Cirst.	Private Harry Rasler.
Private Frank Clark.	Private Frank I. Riordan.
Private Raymond Claverie.	Private John Robert.
Private Edward J. Codiga.	Private Harvey A. Sittig.
Private Giacoma Corrello.	Private George W. Sollars.
Private Walter R. Custer.	Private David O. Tennant.
Private Andrew J. De La Fontaine.	Private Raymond G. Tompkins.
Private Chauncey E. De Pue.	Private Leslie H. Ustick.
Private Patrick W. Doyle.	Private Robert M. Wakerley.
Private Alonzo R. Eckfeldt.	Private Jack P. Wilkins.
Private Delsecaux B. Elgin.	Private Everett W. Williams.
Private Frank V. Ferrer.	Private Richard Wilson.
Private Louis C. Ferrero.	Private Owen Worrall.
Private James M. Forney.	

Ambulance Company No. 2.

(Called into Federal Service August 5, 1917.)

First Lieutenant Charles B. Alexander.	Private Donald H. F. MacPherson.
First Lieutenant Samuel G. Bay.	Private Frank E. McAferty.
First Lieutenant Lawrence R. Linhart.	Private Leon V. McArdle.
First Lieutenant Clark L. McClish.	Private Dan R. McDermott.
First Lieutenant James L. Miller, Jr.	Private William Ray Miller.
Private Allison L. Aiken.	Private Archie A. Monks.
Private William H. Anderson.	Private Alfred J. Mersfelder.
Private Lowell J. Arnold.	Private Leonard H. Montgomery.
Private Fred L. Baker.	Private Henry F. Morgan.
Private Richard W. Bandy.	Private Raymond M. Nesmith.
Private Fred Barringer.	Private Ewan J. Nichols.
Private Ambrosie A. Bouveron.	Private Samuel V. Nordwall.
Private Joseph J. Bucher.	Private Percy T. Overgard.
Private Arthur E. Bish.	Private Albert H. Perry.
Private Albert T. Blanford.	Private Arthur M. Palmer.
Private William L. Boyd.	Private Ralph R. Rice.
Private James W. Broom.	Private Oliver S. Robinson.
Private Major H. Collins.	Private Charles Remine.
Private Harry Cohn.	Private George W. Rule.
Private Raymond F. Carmichael.	Private Clarence D. Ross.
Private Fred L. Carter.	Private Ronald G. Saunders.
Private Norbert J. Clancy.	Private Palmer F. Schelgel.
Private Jule H. Coffey.	Private Lawrence C. Schreiber.
Private Daniel P. Cole.	Private Lester A. Schultz.
Private Medley S. Connell.	Private Elmer G. Shadwell.
Private Francis Cox.	Private Clyde L. Shamhart.
Private Raymond De Hart.	Private Herman D. Sheets.
Private Edwin A. De Wolf.	Private Alex Siegler.
Private Harry B. Elliott.	Private Earl V. Skinner.
Private Howard W. Ellison.	Private Oscar S. Soon.
Private Everett B. Estep.	Private Frank Soule.
Private Benjamin L. Endsley.	Private Leslie H. Spencer.
Private Cecil W. Fulweiler.	Private Harry M. Sperry.
Private Martin D. Ferguson.	Private James W. Stacy.
Private Harry H. Faust.	Private Ray J. Starbuck.
Private John S. Garren.	Private Herbert L. Stephen.
Private Edward Gayer.	Private Harry M. Stevens.
Private Fred R. Gillian.	Private Lorraine W. Stitt.
Private Lynn E. Golder.	Private Richard L. Strong.
Private Frank H. Herman.	Private Alva A. Sturges.
Private Eldon L. Hite.	Private Steve G. Sutale.
Private Clyde O. Hudson.	Private George L. Sweeney.
Private Clyde M. Hunt.	Private John M. Shrote.
Private Harold Henderson.	Private Livingston B. Talley.
Private Robert D. Hobday.	Private Harry T. Taylor.
Private Herman R. Idelshon.	Private Leo H. Taylor.
Private Randall E. Jaycox.	Private William T. Temple.
Private Howard A. Jenkins.	Private Frank A. Tracy.
Private Brayton L. Jensen.	Private James L. Tucker.
Private Francis T. Kemp.	Private Harry E. Tyler.
Private Frank H. King.	Private John A. Walker.
Private James A. C. Kirk.	Private Charles D. Weber.
Private George W. Little.	Private Loring E. Wild.
Private Theodore H. Lacey.	Private Howard T. Wilkerson.
Private Donald M. Lawrence.	Private Harry S. Wilson.
Private George H. Lee.	Private August F. Wulff.
Private Oscar W. Lillibridge.	Private David Young.
Private Robert C. Lindsey.	Private Adelbert Young.
Private Albert P. Lurker.	

Headquarters, First Separate Squadron Cavalry.

(Called into Federal Service August 5, 1917.)

Major David E. Barney.	Sergeant Major Clark T. Farnham.
Second Lieutenant Harry R. Gimbal.	Private James H. Brown.
Veterinarian David S. Kay.	

Sanitary Detachment.

(Called into Federal Service August 5, 1917.)

Private James H. Brown.

Troop A.

(Called into Federal Service August 5, 1917.)

Captain Gilbert S. F. Davies.	Private John C. Enas.
First Lieutenant C. W. Robinson.	Private Harold C. Ergo.
Second Lieutenant Thomas E. Polhemus.	Private Ervin E. Fillmore.
First Sergeant George E. McChesney.	Private Perry Fransler.
Supply Sergeant Leslie Robinson.	Private Lew C. Fackler.
Sergeant John W. Fahey.	Private John Freitas.
Sergeant James H. Fitzgerald.	Private Charlie E. Gulley.
Sergeant Thomas E. Pinnell.	Private Joseph E. Haven.
Sergeant Henry C. Voorhees.	Private Charles D. Hager.
Corporal Francis H. Baker.	Private Oscar D. Hatcher.
Corporal Claude Heiny.	Private William O. Heard.
Corporal Earl Heiny.	Private Charles Hoffman.
Corporal Bernard J. Miller.	Private George E. Hobbs.
Corporal Joseph M. Moroney.	Private Carl W. Hostetter.
Corporal James W. Nidle.	Private Buel A. Hastin.
Cook Walter C. Brown.	Private Peter A. Johnson.
Cook Kinsworthy Jones.	Private Terrel B. Ketchum.
Horseshoer Lewis Foreman.	Private William R. Kirkland.
Horseshoer Grover C. Hitt.	Private Charles M. La Mar.
Horseshoer Ernest N. Hobbs.	Private Albert F. Laing.
Saddler Austin B. Gribble.	Private Arthur W. Merrill.
Trumpeter Earl L. Howe.	Private Arthur E. Middleswart.
Trumpeter George E. Thayer.	Private Robert Millen.
Private, first class, Elias C. Emmons.	Private Walter Mills.
Private, first class, Ralph Freeland.	Private Paul H. Molitor.
Private, first class, Martin O. Landers.	Private Leonard E. Morey.
Private, first class, Henry J. Maes, Jr.	Private Alfred E. Newson.
Private, first class, Charles H. Mullins.	Private John A. Neiderstadt.
Private, first class, Horace Sollenberger.	Private Virgil T. Norris.
Private, first class, Frederick E. Ward.	Private Louis W. Parker.
Private Clark E. Allen.	Private Henry Piper.
Private Lial T. Adams.	Private Marvin P. Powers.
Private Robert L. Aldrich.	Private Harry W. Powers.
Private Charles C. Baptie.	Private John P. Rarick.
Private James B. Baxter.	Private Earl S. Raney.
Private Thomas H. Beckham.	Private Jesse A. Reed.
Private John L. Beshear.	Private Paul Robinson.
Private Lawrence Blankenship.	Private Ernest D. Roe.
Private Joseph L. Bower.	Private Dolph M. Riley.
Private Harry R. Carter.	Private Robert E. Shaw.
Private Ben J. Christie.	Private Carver B. Stotta.
Private Earl Christmas.	Private Howard E. Sumner.
Private Edwin A. Cooch.	Private Leslie C. Swartz.
Private Carroll L. Cox.	Private Boyd E. Stone.
Private Samuel T. Craddock.	Private Paul C. Shafer.
Private Frank A. Contreras.	Private Athearn O. Stevens.
Private Theodore B. Campbell.	Private John Thompson.
Private Albert C. Davis.	Private Fred Treiber.
Private Daniel A. Donovan.	Private Dave Usher.
Private Halpin Dreisback.	Private Bryan R. Willmott.
Private Ernest H. Dempsey.	Private Bowden G. Wilkerson.
Private Edward T. Doekal.	Private Carl E. Wilkerson.
Private William T. Earley.	Private Raymond T. Worthington.

Troop C.

(Called into Federal Service August 5, 1917.)

First Lieutenant Bert E. Underwood.	Corporal Valdemar Hansen.
Second Lieutenant Clarence C. Jenkins.	Corporal William K. Head.
Sergeant Eddie M. Carlsen.	Corporal Clarence A. McDougall.
Sergeant Alfred P. Christensen.	Corporal James A. Storm.
Sergeant Axel F. Carlsen.	Corporal Claus W. Sievers.
Sergeant Walter B. Fenton.	Horseshoer Casey P. Grimes.
Sergeant Erom Joyce.	Horseshoer Albert J. Major.
Sergeant Arthur H. McDougall.	Saddler William J. Coughlin.
Sergeant Fred H. Moore.	Cook Joel H. Bubar.
Sergeant Roy H. Nevis.	Cook Joseph H. Dooman.
Sergeant Clarence A. Phillips.	Trumpeter Francis E. Berier.
Corporal Edward C. Alvitre.	Trumpeter Arthur R. Taylor.
Corporal Harvey Coy.	Private, first class, Jasper Asmusseen.
Corporal George W. Hunter.	Private, first class, Timothy L. Bordgess.

Troop C—Continued.

Private, first class, Frank L. Breschini.
 Private, first class, Otto A. Barleben.
 Private, first class, William C. Brandt.
 Private, first class, William A. Burke.
 Private, first class, Anthony E. Costa.
 Private, first class, Charles Frolli.
 Private, first class, August J. Happ.
 Private, first class, Frederick W. P. Hess.
 Private, first class, Henry L. Jones.
 Private, first class, William G. King.
 Private, first class, Daniel E. Keney.
 Private, first class, Marcel A. Lapierre.
 Private, first class, Joseph H. Mitchell.
 Private, first class, Chris P. Mortensen.
 Private, first class, Henry Oertley.
 Private, first class, William T. Riggs.
 Private, first class, Millard Skidmore.
 Private, first class, John E. Stuhr.
 Private, first class, Kenneth Vanderhurst.
 Private, first class, James A. Wasson.
 Private, first class, Frank M. West.
 Private Raymond J. Adcock.
 Private Roy V. Alsop.
 Private John J. Alvarado.
 Private Jim Anderson.
 Private Charles E. Anderson.
 Private Henry V. Andresen.
 Private Spencer Beard.
 Private Carl E. Brunn.
 Private Minor C. Bolton.
 Private Cecil C. Coy.
 Private Frank E. Camp.
 Private Louis V. Cavalli.
 Private Henry Chambers.
 Private Forest Cheney.
 Private William F. Cody.
 Private Harry W. Condon.
 Private Clyde Conner.
 Private Lester E. Coy.
 Private Lyman Coy.
 Private James F. Cox.
 Private Julius Diggs.
 Private John J. Espinosa.
 Private August B. Fabry.
 Private Thomas Firanzi.
 Private Tony P. Foster.
 Private William S. Frolli.
 Private Louis G. Gambetta.
 Private Archie H. Gordon.
 Private Otto H. Harder.
 Private Hiram Hedges.
 Private Allen Jacks.
 Private Patrick M. Jordan.
 Private Walter P. Kock.
 Private Jesse B. Lapierre.
 Private Jay P. Lauritzen.
 Private John D. Loraine.
 Private Leland S. McKinsey.
 Private Ivan H. McKinsey.
 Private Harry W. Miller.
 Private John A. Moffitt.
 Private Eugene Morenio.
 Private John F. Nistetter.
 Private Walter B. Norris.
 Private Fred Oertley.
 Private George Parker.
 Private John I. Prader.
 Private Fred F. Romero.
 Private Leo B. Radcliffe.
 Private Daniel S. Radcliffe.
 Private Alfred C. Rogers.
 Private Albert Rogers.
 Private Vidal J. Sanchez.
 Private Henry Schinkel.
 Private Ralph R. Shook.
 Private Henry F. Smith.
 Private John J. Serpa.
 Private John E. Silva.
 Private Robert W. Thompson.
 Private Frank Thomas.
 Private Edward F. Vosle.
 Private George E. Wallace.
 Private Peter L. Weaver.
 Private Dewey Wiley.

Troop D.

(Called into Federal Service August 5, 1917.)

Captain James Gunn.
 First Lieutenant Ray Rogers.
 Second Lieutenant Levin A. Bowland.
 Sergeant Hugh M. Clark.
 Sergeant James J. Clark.
 Sergeant Harry H. Erickson.
 Sergeant Albert J. H. Fox.
 Sergeant Thomas L. Gibbs.
 Sergeant Frederick K. Knoweles.
 Sergeant George W. W. Myers.
 Sergeant Frank H. Turner.
 Sergeant John McC. Todd.
 Corporal Alfred Atwood.
 Corporal Peter F. Bullen.
 Corporal Frederick R. Marshall.
 Corporal Thomas G. Maxwell.
 Corporal Fearne M. Seely.
 Corporal William L. Webb.
 Horseshoer Samuel T. Arnold.
 Horseshoer Samuel W. Seed.
 Saddler Walter E. Perrins.
 Cook Harry P. Blackwill.
 Cook Ernest W. Gehm.
 Trumpeter Horace M. Harvey.
 Trumpeter Ray V. Shaffer.
 Private, first class, Ozias H. Cloud.
 Private, first class, Charles E. Duggan.
 Private, first class, Herbert E. Davis.
 Private, first class, Harvey H. Fishel.
 Private, first class, Lewis L. Gabaig.
 Private, first class, Robert C. Hunton.
 Private, first class, William E. Manlove.
 Private, first class, Charles J. O'Neil.
 Private, first class, Clarence E. Pealer.
 Private, first class, William F. Reynolds.
 Private, first class, Benjamin W. Selby.
 Private, first class, Sherman W. Shook.
 Private, first class, Huett E. Wallace.
 Private William N. Allan.
 Private Arthur W. Barry.
 Private John W. Blaney.
 Private Louis J. Brady.
 Private Herbert E. Collage.
 Private Lorence Collino.
 Private Gordon D. Conklin.
 Private Clarence C. Cunningham.
 Private Hudson T. Davis.
 Private Noah S. DeGarmo.
 Private Victor M. Dudek.
 Private Earl J. Elmore.
 Private Herbert L. Eggleston.
 Private George B. Finch.
 Private Gaylord A. Fanning.
 Private Roy Fitch.

Troop D—Continued.

Private Harold S. Fuller.	Private Ivan C. McWhinney.
Private Joseph W. Gagnon.	Private Jack Matlin.
Private Henry W. Gerrard.	Private Jesse C. Mulvaney.
Private Frank X. Girard.	Private Leo L. E. Mumford.
Private Earl E. Gooding.	Private Noel A. Nesbitt.
Private George E. Gothard.	Private John P. Norris.
Private Walter R. Grider.	Private Ralph W. Plecher.
Private Ralph O. Hadlock.	Private Harold C. Popperwill.
Private Carl F. Henry.	Private Harold E. Rankin.
Private Harry F. Hartwell.	Private Roy A. Robertson.
Private Lothar C. Hartz.	Private Alvin A. Rowe.
Private George Ireland.	Private Elmer R. Schuler.
Private Harold F. Ives.	Private Edward J. Sheridan.
Private Kenneth E. Jacques.	Private Elmer G. Sigler.
Private James Kierman.	Private Charles M. Smith.
Private Bruce H. Kiskaddon.	Private Garland W. Stone.
Private William Lawhead.	Private Harry E. Teepell.
Private Fred W. Lane.	Private Monroe D. Unger.
Private Russell H. Lishen.	Private John E. White, Jr.
Private Gerald H. Lampkins.	Private Burt O. Wilson.
Private William H. Lyttle.	Private Leonard J. Womack.
Private Lewis M. Maney, Jr.	Private Herbert O. Williams.

Machine Gun Troop.

(Called into Federal Service August 5, 1917.)

Captain Lloyd T. Stephenson.	Private Frederick R. Horsley.
First Lieutenant Frank G. Everts.	Private James T. Hudelson.
Second Lieutenant James Madison, Jr.	Private Henry K. Hicks.
Second Lieutenant Irving F. Toomey.	Private Charlie D. High.
Sergeant Carl O. Brown.	Private Conrad Heidt.
Sergeant Robert E. Dunkle.	Private Rexford J. Hunter.
Sergeant Ray W. Hays.	Private Frank Jack.
Sergeant James R. Gerald.	Private Alvin B. Jones.
Sergeant Zygmunt S. Leymel.	Private Clifford S. Kaufman.
Sergeant Bert C. Meyers.	Private P. Martin Kearns.
Sergeant John P. Murphy.	Private Martin H. Kavanaugh.
Sergeant Layton S. Ward.	Private Bert C. Lynch.
Sergeant Dan S. Wetbern.	Private Harry M. McKee, Jr.
Horseshoer William B. Butler.	Private John McLean.
Cook Chas. E. Burke.	Private John E. Malcolm.
Cook William F. Schmid.	Private Bertram C. Mann.
Saddler Laurence M. Rainie.	Private Garbad Marderosian.
Mechanic Berton E. Tilden.	Private Louis Mastrocci.
Mechanic Amos Robinson.	Private Harry I. Maxim.
Trumpeter Everett W. Owen.	Private John L. Mitchell.
Trumpeter Henry L. Hunt.	Private Ervant Moradian.
Private August G. Bach.	Private Ozzie P. Neff.
Private Claire L. Bartlett.	Private John O. Okoomian.
Private James C. Bay.	Private Merrill W. R. Ostrom.
Private William G. Bay.	Private Nushon B. Parsekian.
Private George R. Bielitz.	Private Kenneth R. Paterson.
Private Harvey L. Bomer.	Private James B. Phillips.
Private Norvell Bradley.	Private Ray E. Polkinghorne.
Private Lloyd H. Calvert.	Private Craig H. Potter.
Private Suren Casparian.	Private Lamont C. Quick.
Private Norman A. Case.	Private Harry E. Rudvall.
Private Edward C. Calligan.	Private Carl E. Scott.
Private Stewart M. Clyde.	Private Hugo Sigmund.
Private Edward B. Coffey.	Private Arch J. Smith.
Private Frank Davis.	Private Carl G. Slayton.
Private Henry Diel.	Private Harry E. Smith.
Private Alfred C. Eason.	Private Norvell B. Smith.
Private Newton H. Fisher.	Private Fred Soper.
Private Donald Wm. Forsyth.	Private George W. Stewart.
Private John Flynn.	Private Dikan H. Tejrjian.
Private R. Laurence Fortune.	Private Kiken E. Tejrjian.
Private Almon Lloyd Gale.	Private Hapet M. Topjian.
Private George A. Gianopulas.	Private Lester O. Townsend.
Private William S. Gilman.	Private Frederick W. Venker.
Private William E. Hall.	Private Frank A. Valenzuela.
Private Lee L. Hawes.	Private J. Robert Waugh.
Private Earl Hemphill.	Private Fred F. Whisman.
Private Frank D. Hendryx.	Private Walter W. Williams.

Troop B.

(Called into Federal Service August 5, 1917.)

Captain Hugh H. Sydenham.
 Second Lieutenant George W. Calvert.
 Sergeant Jack Gray.
 Sergeant Deb R. Green.
 Sergeant Lester J. Holmes.
 Sergeant Eugene O. Irving.
 Sergeant Frank Maloney.
 Sergeant John B. Maloney.
 Sergeant George H. Olmsted.
 Sergeant Harold G. Sydenham.
 Sergeant Gilbert L. Taggart.
 Sergeant Frederick M. Twitchell.
 Corporal Joseph Archimede.
 Corporal Archer J. Bunday.
 Corporal Frank B. Harrison.
 Corporal Walter McCurdy.
 Corporal Thomas O. Mottram.
 Corporal Leo F. Pils.
 Cook Spiros Fokas.
 Cook Conrad Ruby.
 Trumpeter Frank F. Branch.
 Trumpeter Jean S. Thayer.
 Horseshoer William M. Mitchell.
 Horseshoer Charley G. Winters.
 Saddler Joseph S. Amaral.
 Private George W. Akers.
 Private Floyd W. Armstrong.
 Private Charles M. Ash.
 Private Thomas W. Baker.
 Private Alfred J. Bennetts.
 Private Arthur G. Boone.
 Private Harold S. Broadley.
 Private James Brown.
 Private Alex Campbell.
 Private William B. Campbell.
 Private Rollie D. Cardwell.
 Private George L. Cooley.
 Private Allen H. Coombs.
 Private Martin D. Coughlin.
 Private Paul E. Crawford.
 Private Albert N. Davies.
 Private Dennis De Avila.
 Private Myron B. Dryden.
 Private William H. Dunn.
 Private Cyrus G. Elliot.
 Private Archibald D. Foreman.
 Private Luman French.
 Private Charles H. Fricchette.
 Private Frank J. Gabriell.
 Private Paul E. Gerhardt.
 Private George B. Granless.
 Private Hobson C. Gunn.
 Private Neils Hansen.
 Private Albert E. Hart.
 Private Elmo N. Hart.
 Private Herbert Z. Hazen.
 Private George Hill.
 Private Edgar N. Horan.
 Private John C. Hornbeck.
 Private Leonard E. Iverson.
 Private Corydon Jones.
 Private Thomas L. Kennan.
 Private Edward J. Kettler.
 Private Harold L. K. Langdon.
 Private Charles B. Main.
 Private Albert P. Marston.
 Private John Michael.
 Private Arthur R. Miller.
 Private Lyle Morgan.
 Private Robert L. Morgan.
 Private Robert A. Mueller.
 Private Jack McFarland.
 Private James G. McGrath.
 Private Dalzell R. McKissen.
 Private Patrick W. Neely.
 Private Marvin A. Nevis.
 Private Merritt R. Nickeson.
 Private Noel D. Norris.
 Private Albert O'Malley.
 Private Lancelot Papst.
 Private Earl F. Patton.
 Private George Pool.
 Private Joseph A. Raggio.
 Private Horace E. Reaugh.
 Private Reuben A. Reeves.
 Private Charles M. Rhodes.
 Private Orion H. Rowland.
 Private Robert P. Schrunk.
 Private Ralph E. Schwartz.
 Private Ernest E. Silva.
 Private Joseph T. Stacy.
 Private Harold B. Stahl.
 Private Louis I. Stehm.
 Private James E. Stone.
 Private Eldred A. Sutherland.
 Private Laurence E. Walker.
 Private Max C. Ward.
 Private Melvin R. Wilson.
 Private Robert B. Wilson.
 Private Karl D. Wolf.
 Private Ernest E. Woodbury.
 Private Charles M. Woods.
 Private Adeo V. Wriston.

Headquarters First Brigade, California Infantry, National Guard.

(Called into Federal Service August 5, 1917.)

Major (Brig. Adjt.) Raymond I. Follmer.

Field Company B, Signal Corps.

Captain Edward V. Orr.	Corporal Lester G. Glasson.
First Lieutenant Charles Duren matt.	Corporal Thomas E. Hooper.
First Lieutenant William E. Godsell.	Corporal Don L. Hartford.
Master Signal Electrician Frank M. Koch.	Corporal Hedly L. Mero.
Sergeant, first class, Harold M. Johnson.	Corporal William J. O'Keeffe.
Sergeant, first class, Harry J. Unger.	Corporal James A. Perry.
Sergeant, first class, Clarence E. White.	Corporal Martin Schram.
Sergeant, first class, Rich'd W. Weatherbe.	Corporal Gustav H. Springman.
Sergeant, first class, Russell G. Smith.	Corporal Oliver G. Swenson.
Sergeant Reginald W. Goldwater.	Corporal Robert P. Scott.
Sergeant Albert H. McBride.	Cook D'Arcy R. Lambert.
Sergeant James L. Montague.	Cook Nathan Shapiro.
Sergeant Clarence E. Reid.	

Field and Staff Officers, Second Infantry.

(Called into Federal Service March 26, 1917.)

Colonel William H. White.	First Lieutenant (Battalion Adjutant)
Lieutenant Colonel Sidney H. Sayre.	Earle R. Bevins
Major Will Kelly.	First Lieutenant (Battalion Adjutant)
Major Henry H. Brown.	Rolin G. Watkins
Major Harry R. Downing.	First Lieutenant (Chaplain) Jacob D. Allen
First Lieutenant (Battalion Adjutant)	
LeRoy LeV. Smith	

Headquarters Company, Second Infantry.

Captain Charles R. Hoppin.	Private, first class, Jerry T. Illich.
Regimental Sergeant Major Leroy R. Bruce	Private, first class, Dorsey M. Miller.
Regimental Serg. Major Rolin G. Watkins.	Private, first class, Hilmer A. Nelson.
Battalion Serg. Major Ransom W. Gibbs.	Private, first class, Kerchavel Thomas.
Battalion Sergeant Major Jo. E. Holub.	Private Halsey E. Austin.
Battalion Sergeant Major Arthur H. Rivett.	Private Robert L. Bradshaw.
Sergeant Alfred M. Aiton.	Private Lloyd L. Brooks.
Sergeant Albert E. Armstrong.	Private Chauncey T. Burgess.
Sergeant Lee A. Hand.	Private Leonard F. Case.
Sergeant Johnston L. Hoag.	Private Jack C. Crum.
Sergeant Jack C. Hodgson.	Private Clarence P. Hamma.
Sergeant Herman Metcalf.	Private Harold L. Kind.
Sergeant Elmer H. Scott.	Private Cassiek Y. J. Malley.
Cook John F. Ferguson.	Private Charles E. Martin.
Cook Floyd E. Gill.	Private Lester B. Osborn.
Cook John Herman.	Private George C. Peaslee.
Cook Benjamin F. Lee.	Private James W. Rasmussen.
Cook Walter S. Nellafry.	Private Daniel B. Reed.
Horseshoer Charles Camper.	Private John H. Walker.
Private, first class, Verne F. Cronkhite.	

Band Section.

Band Leader Jack W. McRae.	Musician Clyde E. Dahlman.
Assistant Band Leader Frank M. Curry.	Musician Samuel C. Eads.
Sergeant Bugler Clint Reavis.	Musician Ferdinand Giovanetti.
Band Sergeant Leo B. Daveney.	Musician Alva E. Hatch.
Band Sergeant Edwin A. Neubarth.	Musician Eli Jacobs.
Band Corporal Herbert J. Fast.	Musician Guy P. Jones.
Band Corporal Justin Jeffery.	Musician Marion M. Johnson.
Band Corporal Carrol S. Stoddard.	Musician Harry J. March.
Band Corporal Edgar A. Stoddard.	Musician Rex S. Meradith.
Musician Xen0 L. Allen.	Musician Elmer W. Plaskett.
Musician Robinson E. Bidwell.	Musician Lloyd B. Stagner.
Musician Albert E. Booth.	Musician Ray D. Ulrey.
Musician Harry W. Call.	Musician Ballard L. Wilbourn.
Musician (William) R. Wilbur Conant.	

Supply Company, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Erle D. Ferguson.	Wagoner Harry A. Elliott.
Second Lieutenant Irwin D. Newcomb.	Wagoner Chester E. Ferguson.
Regimental Supply Serg. Miller E. Bussey.	Wagoner John F. Ferguson.
Regimental Supply Sergeant George Wahl.	Wagoner Tobias T. Gillespie.
First Sergeant Peter E. Hille.	Wagoner Albert S. Grant.
Stable Sergeant Timothy C. Cronin.	Wagoner Cole S. Hewston.
Mess Sergeant Roland O. Brown.	Wagoner James J. Holland.
Corporal George Reynolds.	Wagoner Frank R. Johnson.
Cook Alvin P. Kannady.	Wagoner William J. Kildahl.
Saddler Chester Walker.	Wagoner Rollie Kimbrel.
Wagoner Tony J. Ambrose.	Wagoner Albert P. Linn.
Wagoner George F. Bradley.	Wagoner Jack M. Litch.
Wagoner Henry Burchichter.	Wagoner Nathaniel Partain.
Wagoner Frank J. Chezen.	Wagoner Thomas H. Pearce.
Wagoner Carmen P. Colouch.	Wagoner Joe Pimental.
Wagoner Guerdon A. Cowan.	Wagoner Vernon J. Taylor.
Wagoner Neil N. Cummins.	Wagoner Fred A. Taylor.
Wagoner Barney J. Davis.	Wagoner Hartford R. Trimble.
Wagoner Charley H. Dunn.	Wagoner Victor Wilson.
Wagoner Lewis S. Elkus.	

Machine Gun Company, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain George E. Finnell.	Private William H. Hammond.
First Lieutenant Hale Day.	Private Carl Hansen.
Second Lieutenant William H. Hammond.	Private Philip G. Heirgood.
Second Lieutenant Norman C. Wolff.	Private Louis F. Hill.
Sergeant Fred B. Angus.	Private Raymond Herrera.
Sergeant Joseph E. Doan.	Private Valentine F. Jones.
Sergeant Herbert N. Frambes.	Private Chester J. Kelley.
Sergeant Walter L. Francis.	Private John B. Leiva.
Sergeant Sidney C. Hauptman.	Private Mervil M. Lewis.
Sergeant William T. Henn.	Private Russell L. Long.
Sergeant Clarence S. Hamlin.	Private Tracy W. Learnard.
Sergeant Edward H. Stebie.	Private Joe B. Lewis.
Sergeant Russell E. Tracy.	Private Garland Martin.
Sergeant Harry R. Young.	Private Oscar A. Martin.
Corporal Roy G. Carter.	Private Cecil M. McCarley.
Corporal Fred H. Franklin.	Private Henry J. Moore.
Corporal George W. Goennheimer.	Private Donald R. MacNair.
Corporal Lester L. Huff.	Private Warren Nichols.
Corporal Charles V. Hunter.	Private Chester Narver.
Corporal James T. Wiseman.	Private Frank Oliver.
Mechanic Forrest L. McHatton.	Private John M. Pew.
Cook Hugh Palmer.	Private Raymond D. Reed.
Cook William M. Stevenson.	Private Oliver C. Roddan.
Bugler Frank D. Guffey.	Private Alan J. Roads.
Private, first class, Percy J. Leggett.	Private Richard W. Rodenmerk.
Private, first class, Frank Martin.	Private Raymond R. Rogers.
Private, first class, Percy Potter.	Private Stewart Riggins.
Private, first class, Roscoe R. Sparks.	Private Raymond Saunders.
Private, first class, Alva C. Swesey.	Private Tom Stevenson.
Private Oscar R. Aschman.	Private William M. Stevenson.
Private Clarence A. Anderson.	Private Rosco R. Sparks.
Private John A. Anderson.	Private Charley M. Thomas.
Private Merle G. Bridges.	Private Charley R. Thomas.
Private Forrest C. Barnes.	Private Donald P. Traynam.
Private Marvin C. Bailey.	Private Rosco Thorp.
Private Paul G. Bauer.	Private Gordon W. Weinert.
Private Tom R. Collins.	Private William F. Wolfred.
Private Clarence H. Dewey.	Private Elmer L. Wilson.
Private Thomas P. Ferguson.	Private Raymond D. Wilson.
Private William T. Fugate.	Private Thomas H. Wilson.
Private Robert E. Gordon.	Private Alfred J. Willard.
Private Edward A. Goetz.	Private Frank T. Yates.
Private Filbert Garcia.	

Sanitary Detachment, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Homer Rogers.
 First Lieutenant Anthony B. Diepenbrock.
 First Lieutenant Charles S. Freedman.
 First Lieutenant Boyd M. Krout.
 Sergeant Leonard C. Aitken.
 Sergeant John Frago.
 Sergeant James E. Rawle.
 Sergeant William L. Stiles, Jr.
 Private, first class, Edward P. Johnson.
 Private, first class, Donald W. Lamping.
 Private, first class, John D. McKinnon.
 Private, first class, Leonard M. Waters.
 Private James L. Baker.
 Private Brice E. Blair.
 Private Morton L. Bierly.
 Private Chauncey T. Burgess.
 Private Silvey F. Carrillo.
 Private Earl G. Casey.
 Private Edwin Falla.

Private Maurice E. Hall.
 Private John Hines.
 Private Eldred Holt.
 Private Lawrence L. Johnson.
 Private Arthur P. Merryfield.
 Private Chester J. Margason.
 Private Charles P. McCuen.
 Private Donald C. Monihon.
 Private Jack S. O'Connell.
 Private August Phillip.
 Private Jake H. Polhemus.
 Private William A. Prince.
 Private Wesley C. Rigor.
 Private William M. Rablin.
 Private Fred W. Sanborn.
 Private Lowell R. Sears.
 Private Bert M. Smith.
 Private James D. Wilson.

Company A, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Earl L. Turner.
 First Lieutenant Fenton W. Jamison.
 Second Lieutenant Edgar E. Roberts.
 Sergeant Ensign G. Arbuckle.
 Sergeant Sackett E. Booth.
 Sergeant Harry A. Bruce.
 Sergeant Howard O. Douglas.
 Sergeant Forrest S. McNabb.
 Sergeant Vernon A. Moore.
 Sergeant Kenneth J. O'Brien.
 Sergeant Harry A. Peterson.
 Sergeant Ivan L. Ridenour.
 Sergeant Elton D. Rooney.
 Corporal Jesse O. Bennett.
 Corporal John E. Disney.
 Corporal George E. Grimm.
 Corporal Lawrence V. Harris.
 Corporal Roscoe F. Hook.
 Corporal Samuel C. Montgomery.
 Corporal John W. Rohenkohl.
 Corporal Otis F. Scarborough.
 Corporal Harold O. Sellick.
 Corporal Burr T. Snyder.
 Corporal Junior L. Thompson.
 Corporal William E. Thrower.
 Cook and Mechanic Harry W. Day.
 Cook and Mechanic Clarence A. Smith.
 Cook Glenn R. Truesdell.
 Cook Archie O. Wilson.
 Bugler Robert L. Matthews.
 Bugler William M. McGuire.
 Bugler Arthur E. Nelson.
 Private, first class, Ray C. Austin.
 Private, first class, Ralph Baker.
 Private, first class, Remy V. Bally.
 Private, first class, Arthur W. Batchelor.
 Private, first class, Edward J. Burch.
 Private, first class, Raymond F. Carlson.
 Private, first class, Richard B. Chapman.
 Private, first class, Clinton V. Donaldson.
 Private, first class, John Girdner.
 Private, first class, Charles H. Gray.
 Private, first class, Daniel A. Hook.
 Private, first class, Roscoe F. Hook.
 Private, first class, William S. Hook.
 Private, first class, William H. Klock.
 Private, first class, Raymond P. Lynn.

Private, first class, Ray V. Pierce.
 Private William H. Aitken.
 Private Guy V. Aldredge.
 Private William R. Aldredge.
 Private Wyatt L. Arbuckle.
 Private Elbert E. Baker.
 Private Lawrence J. Bennett.
 Private Otto J. Bischoff.
 Private Kenneth V. Blunkall.
 Private Edwin W. Boggs.
 Private Gerald W. Buck.
 Private Allison Camper.
 Private Rollin M. Chapman.
 Private Carl E. Cook.
 Private Robert M. Cowan.
 Private Ray C. Craft.
 Private George C. Crowley.
 Private Harry W. Day.
 Private John E. Disney.
 Private George W. Dreiss.
 Private Hugh B. Dunn.
 Private Henry A. Dyer.
 Private Walter L. Entler.
 Private Harold L. Evans.
 Private Frank M. Ewton.
 Private Chester E. Ferguson.
 Private John F. Ferguson.
 Private Robert J. Ferguson.
 Private Otto J. Fetters.
 Private William H. Fuller.
 Private Charles I. Gibbs.
 Private Carl E. Greer.
 Private Jack H. Hanks.
 Private Joseph T. Heacox.
 Private Lloyd S. Henry.
 Private Ivan W. Hill.
 Private George Hinton.
 Private Harry L. Holmes.
 Private Arnold W. Holmgren.
 Private Mason S. Hughes.
 Private Joseph L. Hunting.
 Private Howard G. Huntley.
 Private Truman L. Jewett.
 Private Roy J. Johns.
 Private Claude M. Keith.
 Private Ansel W. Lamme.
 Private Grover Lewis.

Company A, Second Infantry—Continued.

Private Joe Loba.	Private Fred S. Roseborough.
Private John H. Lucas.	Private Bon L. Ruth.
Private Daniel C. Knott.	Private Earl R. Shaw.
Private Albert L. Lyons.	Private Augustine J. Silva.
Private Robert L. Matthews.	Private Claude H. Slemmons.
Private Rei Maynard.	Private Clarence A. Smith.
Private Fred J. Mead.	Private Sheldon O. Smith.
Private Irvan F. Millard.	Private Franklin E. Soules.
Private Albert H. Moak.	Private Homer B. Spicer.
Private Robert B. Moody.	Private Harry C. Tagney.
Private Theodore G. Morris.	Private Junior L. Thompson.
Private Ivan M. Newton.	Private George Tyler.
Private Arthur B. Nelson.	Private Albert A. Vadney.
Private Everett Overton.	Private Gene B. Van Ness.
Private Walter C. Peters.	Private Charles A. Wells.
Private Merle E. Pierce.	Private Lorenzo N. Whisman.
Private Ray V. Pierce.	Private Harry O. Wileman.
Private David W. Power.	Private Albert E. Williams.
Private Everett Power.	Private Johnny B. Williams.
Private Earl Richardson.	Private Archie O. Wilson.
Private Dewey Rivers.	Private Henry K. Wood.
Private Roy R. Roberts.	

Company B, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Ernest G. Griffin.	Private Antone Cardoza.
First Lieutenant William A. Vickery.	Private Joseph E. Cardoza.
Second Lieutenant William V. Keltz.	Private Melvin Clements.
First Sergeant Richard Mannering.	Private Joseph Cozzo.
Supply Sergeant George S. Tandy.	Private Walter K. Damon, Jr.
Mess Sergeant Eugene D. Moran.	Private Salvatore M. Dito.
Mess Sergeant John Maddux.	Private David R. Donley.
Sergeant Thomas F. Nee.	Private Francis C. Ewing.
Sergeant Hugh A. Nesbitt.	Private Joseph L. Faustino.
Sergeant Edward J. O'Brien.	Private Lorin E. Fowler.
Sergeant Ernest T. Roeder.	Private Alex Huston.
Sergeant Osdrew C. Yenne.	Private William R. Huston.
Corporal Tunis V. Bever.	Private John J. Hohlen.
Corporal Charles C. Cook.	Private Raymond Johnson.
Corporal William J. Downey.	Private Murl W. Jones.
Corporal Charles Glum.	Private Thomas C. Krenzer.
Corporal Christian Johnson.	Private Jesse M. T. Leathers.
Corporal James T. Lafferty.	Private John E. Leboun.
Corporal Carl J. Rinehart.	Private Fred W. Luchsinger.
Cook George L. Coyne.	Private Alex McArthur.
Cook Steve Lamuth.	Private Angus McDonald.
Cook LeRoy W. Northcutt.	Private John A. McHugh.
Cook Albert Rinke.	Private Marvin W. McMaster.
Cook Egidio Wegher.	Private Lawson C. Maddux.
Bugler Ralph P. Becknell.	Private Emil H. Maher.
Bugler Archibald P. Harlow.	Private Sherwood E. Meredith.
Bugler Harvey D. Smith.	Private Richard Molen.
Mechanic Eygil Heltzen.	Private Merle Nair.
Mechanic Aaron W. Krenzer.	Private Wilbur J. Oakley.
Mechanic Harvey Mills.	Private Michele Sarra.
Private, first class, George S. Bonds.	Private Curtis C. Sewell.
Private, first class, Daryl F. Bothwell.	Private Clinton G. Smith.
Private, first class, Richard W. Codeglia.	Private Harvey E. Sinclair.
Private, first class, Earl Dockery.	Private Elmo J. Simpson.
Private, first class, Lester N. Hansen.	Private Joe A. Souza.
Private, first class, Tully D. Helfer.	Private John Spellman.
Private, first class, Arthur McCrory.	Private Charles E. Springer.
Private, first class, Charles MacMillan.	Private Edmond L. Thompson.
Private, first class, Frank Muren.	Private Arthur F. Van.
Private, first class, Frank L. Paasch.	Private Phillip J. Vennowitz.
Private, first class, Walter H. Parker.	Private John S. Vierra.
Private, first class, Paul Roberts.	Private Robert W. Woolley.
Private Saverio Arieto.	Private Edward Washabaugh.
Private Ludvic J. Bloom.	Private Serafino Zanirato.
Private Guisseppi Busci.	

Company C, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Frank D. Hopkins.	Private Leonard Belknap.
First Lieutenant Beach E. Taber.	Private Richard E. Bennett.
Second Lieutenant Edward C. Neal.	Private Hensley D. Benton.
Sergeant Robert S. Aughenbaugh.	Private Robert F. Biederman.
Sergeant William A. Baker.	Private George C. Bieder.
Sergeant Earl C. Clearwater.	Private Cornelius O. Brockett.
Sergeant John B. Jones.	Private Charles L. Broughton.
Sergeant Clyde Kelly.	Private Donald C. J. Bryant.
Sergeant Orrin J. Morss.	Private Michael Busich.
Sergeant Joseph L. Paiva.	Private Todd E. Beynon.
Sergeant Russell T. Robinson.	Private Nell G. Coker.
Sergeant Charles A. Snow.	Private Frank M. Christiansen.
Sergeant Carl E. Stockholm.	Private Henry C. Dent.
Sergeant Clifton F. Welch.	Private Archie B. Fugate.
Corporal Warren A. Ayers.	Private James C. Garnett.
Corporal Robert B. Antrim.	Private John Garnett.
Corporal Chars Coon.	Private Harry George.
Corporal Gus A. Carlstrom.	Private Frank W. Gill.
Corporal George H. Greenwood.	Private Wilbert A. Garner.
Corporal John I. Hongola.	Private Arthur E. Hamilton.
Corporal Staley L. Hughson.	Private Victor E. Hansen.
Corporal Leo C. Hansen.	Private Ralph H. Harbin.
Corporal Austin W. Hoover.	Private Ernest B. Harter.
Corporal Arthur C. Jacobson.	Private Ervine J. Helm.
Corporal Gerald R. Lowery.	Private Alfred E. Humphrey.
Corporal Walter F. Woodhouse.	Private Roy M. Johnson.
Cook and Mechanic Rhad H. Cady.	Private Ephriam B. Jones.
Mechanic John W. Dodge.	Private Lynn C. Keith.
Cook Herschel Swearington.	Private Robert E. King.
Cook George A. Wilson.	Private Frank Kopf.
Bugler Edwin J. Bradley.	Private Howard E. Malcomb.
Bugler James V. McMillan.	Private Harry McClure.
Private, first class, Howard C. Armstrong.	Private Robert D. Murray.
Private, first class, James Burton.	Private William H. Nash.
Private, first class, Gustav Gottlieb.	Private Curtis W. Norman.
Private, first class, William E. Goodman.	Private Lawrence P. O'Neal.
Private, first class, Frank S. Granger, Jr.	Private Clarence M. Orlich.
Private, first class, William V. Harp.	Private Simeon F. Pierson.
Private, first class, George C. Hoff.	Private Emery R. Priest.
Private, first class, Roy Hansen.	Private Stewart Riggins.
Private, first class, Clifford B. Hartley.	Private Elmer Roberts.
Private, first class, Virgil L. Hillgrove.	Private Alexander Rudolph.
Private, first class, Thornton P. Hodges.	Private Hiram K. Sadoyan.
Private, first class, Austin W. Hoover.	Private Emil Salo.
Private, first class, Harvey M. Isenhower.	Private Clifton Sanders.
Private, first class, Roy M. Johnston.	Private Alva O. Sell.
Private, first class, Henry Kohl.	Private Fred H. Shaw.
Private, first class, Eugene Lancaster.	Private Henry V. Sherman.
Private, first class, Alvin C. Maxey.	Private James L. Stewart.
Private, first class, Herman Petersen.	Private Frank D. Smith.
Private, first class, Walter J. Pierson.	Private Wilbur Taylor.
Private, first class, Harry Rogers.	Private Lester L. Turnbull.
Private, first class, Jake D. Rush.	Private Paul E. Vance.
Private, first class, Walter J. Servaty.	Private Andrew S. Walker.
Private, first class, Roy L. Walker.	Private Thomas Warrington.
Private, first class, Ralph C. Wilson.	Private Claude C. Wilson.
Private, first class, Ward E. Wilson.	Private George A. Wilson.
Private, first class, Ernest V. Wood.	Private Oscar Woodbridge.
Private Frank H. Adams.	Private Ernest G. West.
Private Jack Allen.	Private Chester H. Wilson.
Private James W. Baker.	Private Clarence R. Wilson.
Private Carl Beagle.	

Company D, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Clarence L. Bradley.
 Captain Ford E. Spigelmyre.
 First Lieutenant Lester H. Gadsby.
 First Lieutenant Francis G. Tyng.
 Sergeant Elwood E. Barley.
 Sergeant Clarence O. Blincoe.
 Sergeant Edward H. Boyer.
 Sergeant Guy V. Buckman.
 Sergeant Walter S. Ferguson.
 Sergeant Seth T. Griggs.
 Sergeant William B. O'Shea.
 Sergeant Firman E. Stewart.
 Sergeant Dana D. Warth.
 Sergeant Ralph H. Walker.
 Sergeant William C. Whitt.
 Sergeant Norman G. Wolff.
 Corporal Paul E. Allen.
 Corporal Samuel H. Coburn.
 Corporal Harry W. Griswold.
 Corporal Percy E. Griswold.
 Corporal Lawrence E. Haliburton.
 Corporal Homer T. Hart.
 Corporal John E. Lamb.
 Corporal Harry La Casse.
 Corporal Glenn McSwain.
 Corporal Reuben B. Nichols.
 Corporal Leroy H. Rocker.
 Mechanic John I. Nutt.
 Cook Francis G. Salvage.
 Cook Ernest G. Still.
 Bugler Ernest S. Lowry.
 Bugler Walter Luhdorff.
 Bugler Homer F. Noel.
 Private, first class, William J. Bates.
 Private, first class, Chesley M. Bridges.
 Private, first class, Clinton E. Buckman.
 Private, first class, Michael Cable.
 Private, first class, Jacque W. Cohen.
 Private, first class, Hobert R. Eddy.
 Private, first class, Carl Enlow.
 Private, first class, Roy E. Harris.
 Private, first class, Harry G. Jackson.
 Private, first class, Carl K. Keeler.
 Private, first class, Antonio G. Maheris.
 Private, first class, James H. Moffett.
 Private, first class, Frederick H. Fage.
 Private, first class, Maurice Phares.
 Private, first class, J. Edmond Scott.
 Private, first class, Chester A. Spier.
 Private, first class, Gustav A. Walther.
 Private, first class, Elmer L. Williams.
 Private, first class, Harry E. Williamson.
 Private, first class, Thomas H. Youngson.
 Private William J. Arnett.
 Private William A. Askew.
 Private Howard G. Becker.
 Private Roy Beebe.
 Private Enar Berg.
 Private Charles R. Blevins.
 Private David R. Bolin.
 Private Edward Borgman.
 Private Wheeler Boyer.
 Private Charles M. Brady.
 Private France D. Brand.
 Private Frank L. Brand.
 Private Howard E. Brotherton.
 Private Hugh D. Byrd.
 Private John Cantoni.
 Private Laro G. Cassade.
 Private Earl G. Casey.
 Private Gazer G. Chiljian.
 Private Vahe J. Chiljian.
 Private Joseph P. Clarkson.
 Private Joseph V. Cox.
 Private Raymond B. Crosby.
 Private George A. Cummins.
 Private Hiram E. Dalton.
 Private Ross A. Dalton.
 Private Lee W. Davidson.
 Private Michael De Alba.
 Private Brent H. Denham.
 Private Charles L. Doss.
 Private John R. Doss.
 Private Lake L. Dungan.
 Private Luther F. Dunn.
 Private Ernest C. Fairchild.
 Private Ray H. Farrar.
 Private Elmer Ferguson.
 Private Ralph C. Fitzgearl.
 Private Emory H. Funk.
 Private Elvin E. Garcia.
 Private John C. Garrison.
 Private Joseph S. Hammer.
 Private Perry P. Harris.
 Private James B. Howard.
 Private Ova J. Howard.
 Private Harvey H. Jordan.
 Private Paul A. Keady.
 Private Darrel D. Keeler.
 Private Everett L. Kirk.
 Private Clarence J. La Cross.
 Private George La Fond.
 Private Charles A. Lamb.
 Private James M. Lawrence.
 Private Perry J. Leggett.
 Private Aaron E. Lewis.
 Private Jesse C. Logan.
 Private Howard D. Lyford.
 Private Leon M. McCrary.
 Private Frank W. McGovran.
 Private Wilbur G. McGrew.
 Private Clarence E. McKinney.
 Private Wilbert A. McMaster.
 Private Fred O. McNaught.
 Private Joseph H. Murphy.
 Private Chester Narver.
 Private Joseph R. Neal.
 Private Reuben B. Nichols.
 Private Euclid E. Noe.
 Private Homer F. Noel.
 Private Charles Nordman.
 Private Arthur G. Norman.
 Private Ernest C. Northrop.
 Private Earl M. Parsons.
 Private John J. Penner.
 Private Walter H. Peterson.
 Private Carl B. Phillips.
 Private Charles A. Phillips.
 Private Albert J. Potter.
 Private Joseph A. Potter.
 Private Dan H. Prise.
 Private Mark E. Roberts.
 Private Will R. Saunders.
 Private Earl J. Scott.
 Private Francis G. Selvage.
 Private Guy C. Shelley.
 Private Will D. Shelley.
 Private Charles W. Shields.
 Private Raymond W. Simpson.

Company D, Second Infantry—Continued.

Private Rhees J. Smith.	Private Hugh B. Tout.
Private Guy Snyder.	Private Lee V. Van Noy.
Private Oren E. Stevenson.	Private George G. Westert.
Private Williard A. Stewart.	Private Thomas E. West.
Private Armon Terziebarhian.	Private Donald E. White.
Private Harley L. Traylor.	Private Ren A. White.
Private Elroy H. Tellyer.	Private Roy Widlund.
Private Lawrence G. Thom.	Private Elmer E. Williams.
Private Floyd Thomas.	Private Clyde D. Williams.
Private Melvin E. Thompson.	Private Walter H. Wise.

Company E, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Walter W. Wright.	Private Bertram B. Boone.
First Lieutenant Ward E. Pagnello.	Private William G. Branhan.
Second Lieutenant Arthur O. Stark.	Private George N. Caludis.
Sergeant Eugene D. Anderson.	Private John Cline.
Sergeant John I. Chipman.	Private Frank Cooper.
Sergeant Frank B. Davis.	Private Eugene L. Correll.
Sergeant Benjamin M. Dawson.	Private Alma B. Coy.
Sergeant Hugh S. Fasset.	Private Vernon J. Danley.
Sergeant Edward D. Fisher.	Private John H. Delamater.
Sergeant Arthur H. Garnett.	Private William T. Dollard.
Sergeant Henry Hansen.	Private Russell S. Eubanks.
Sergeant Louis C. Northern.	Private Elmer H. Fassett.
Sergeant Henry P. Wehrung.	Private V. H. Garrison.
Corporal William H. Bohannon.	Private Avery L. Gates.
Corporal Howard L. Brandon.	Private Glenn E. Gee.
Corporal Roy S. Casselman.	Private Ransom W. Gibbs.
Corporal Francis J. Clemens.	Private Thurman A. Griffin.
Corporal George E. Labrie.	Private Robert M. Guin.
Corporal Paul J. Langenbach.	Private Earl D. Mall.
Corporal Jason R. Meek.	Private George W. Hallett.
Corporal Ray Morrison.	Private Andrew J. Halstead.
Corporal James Riley.	Private Charles R. Hayworth.
Corporal Otto W. Wulff, Jr.	Private Paul L. Heisinger.
Cook Lillard Cecil.	Private Guy B. Henderson.
Mechanic Louis F. Francisovich.	Private Cecil L. Hickey.
Cook Daniel R. Sullivan.	Private Delbert E. Howe.
Cook George N. Williams.	Private Charles E. Hulburd.
Bugler William Kinz.	Private Mervyn W. Jeffery.
Bugler Henry Popper.	Private John Lambos.
Private, first class, Jerome Baker.	Private Thomas A. McDaniel.
Private, first class, Harry D. Edwards.	Private Louis L. Meyers.
Private, first class, Harvey M. Farncomb.	Private Charles V. Minard.
Private, first class, Charles H. Garrison.	Private William M. Parkison.
Private, first class, John A. Kitchin.	Private Robert E. Pratt.
Private, first class, Roland C. Langenbach.	Private John R. Randall.
Private, first class, Frank H. McGrath.	Private Raymond G. Reed.
Private, first class, Lockie McLeod.	Private Edward A. Reinlander.
Private, first class, William H. Norman.	Private George W. Rogers.
Private, first class, Patrick O'Corry.	Private Frank P. Schaa.
Private, first class, William N. Parkinson.	Private Harold C. Shorow.
Private, first class, James T. Reed.	Private John A. Silva.
Private, first class, Thomas A. Reynolds.	Private Oliver Stickle.
Private, first class, Gerard M. Telfer.	Private Frank Taylor.
Private William B. Archer.	Private James B. Terry.
Private Oscar R. Aschmann.	Private Alessio P. Togni.
Private Vernon L. Axtell.	Private Herman Van Curen.
Private Frank E. Bain.	Private George N. Williams.
Private Earle R. Bevins.	Private Burton L. Willis.
Private Martin A. Bond.	Losses, Private Albert Rogers.

Company F, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Lester J. Caldwell.
 First Lieutenant Rodney J. Hill.
 Second Lieutenant Jacob G. Bruton.
 Sergeant William F. Akers.
 Sergeant Weldon J. Black.
 Sergeant Lawrence W. Dinsdale.
 Sergeant Charles S. Hiddleston.
 Sergeant John H. Laugenour.
 Sergeant George W. Perry.
 Corporal Leland S. Eliot.
 Corporal Oliver O. Grayson.
 Corporal Hiram W. Hubbard.
 Corporal Alvin L. Jenks.
 Corporal George O. Rice.
 Corporal Harold C. Weis.
 Cook and Mechanic William H. Corte.
 Cook Lawrence Dieudonne.
 Mechanic Clarence R. Fissel.
 Cook and Mechanic Dallas W. Killingsworth.
 Cook Grover C. Lewis.
 Bugler Earl B. Smith.
 Bugler Eugene D'Allessandro.
 Private, first class, Harry J. Baird.
 Private, first class, Henry H. Biondini.
 Private, first class, Frank A. Crowley.
 Private, first class, Lawrence E. Davisson.
 Private, first class, Mark V. Hutchings.
 Private, first class, William D. Johnston.
 Private, first class, Edwin L. Lawson.
 Private, first class, John J. McCarthy.
 Private, first class, Emmet L. McCune.
 Private, first class, Milby T. Murray.
 Private, first class, Frank Mallo.
 Private, first class, Daniel E. Rollins.
 Private, first class, George E. Spellenberg.
 Private, first class, Lowell S. Vosburgh.
 Private, first class, Cecil C. Woolsey.
 Private John R. Adams.
 Private George L. Agee.
 Private Anthony R. Anderson.

Private Muriel T. Ball.
 Private Judson Bingham.
 Private George C. Brubaker.
 Private Robert S. Beacon.
 Private Ford A. Berton.
 Private Pietro Calloni.
 Private Edward L. Cather.
 Private Bryan Chandler.
 Private Fred E. Connell.
 Private Robert S. Crowley.
 Private John E. Dieudonne.
 Private Robert G. Doty.
 Private Michael J. Driscoll.
 Private Gerald J. Fitzgerald.
 Private Walter J. Green.
 Private Lionel R. Hopkins.
 Private Thomas R. Hinch.
 Private Roy Hamilton.
 Private Henry F. Hurdle.
 Private Christ Hegelan.
 Private John C. Hoskin.
 Private Eldred Holt.
 Private Charles A. Klemm.
 Private Elmer R. Littlejohn.
 Private George G. Livingston.
 Private James Lowe.
 Private Henry W. G. Morgan.
 Private Patrick H. Monagan.
 Private Earl O. McDaniel.
 Private Robert P. Milligan.
 Private John J. McManus.
 Private Hunter Q. Ogen.
 Private Forest E. Robinson.
 Private Charles H. Ruffner.
 Private Phillip L. Scott.
 Private Lawrence B. Scherer.
 Private Carl F. Sehler.
 Private Louis Sheridan.
 Private Daniel Silveria.
 Private Lowell S. Vosburg.
 Private Doniso Zuniga.

Company G, Second Infantry.

(Called into Federal Service ——— —, 1917.)

Captain Harold J. McClatchy.
 First Lieutenant Edward J. Murray.
 Second Lieutenant Frederick C. Taylor.
 First Sergeant Edmond Kruttschnitt.
 First Sergeant Harris M. Whitworth.
 Mess Sergeant Percy S. Blair.
 Mess Sergeant Arthur C. Valentine.
 Supply Sergeant Frank X. Wihs.
 Sergeant John Dunn.
 Sergeant Joseph B. Graham, Jr.
 Sergeant William N. Jensen.
 Sergeant Charles A. Loranger.
 Corporal Raymond P. Kelley.
 Corporal Frank Lewis.
 Corporal Raymond J. Murray.
 Corporal Frank R. O'Brien.
 Corporal Emery N. Schardin.
 Cook Joseph J. Brierley.
 Cook Ralph A. Harmon.
 Bugler Orman G. Laravey.
 Private, first class, Edward Hopper.
 Private, first class, Kenneth F. Howard.
 Private, first class, Elmer F. Johnson.
 Private, first class, Lewis H. Larkin.
 Private, first class, George Long.

Private, first class, Frank P. McAtamney.
 Private, first class, Joseph A. Russell.
 Private Ray O. Bourland.
 Private Sherman Brash.
 Private Lealland A. Clark.
 Private Nicholas Cuccia.
 Private Carroll K. Cothrin.
 Private Phil P. Denham.
 Private Joseph H. Dias.
 Private Vere D. Doran.
 Private Domenic Depianti.
 Private Richard H. Dolby.
 Private William T. Dollard.
 Private Roy R. Downer.
 Private Walter H. Emblor.
 Private Franklin P. Evans.
 Private Lee J. Feliz.
 Private Nat Ferrario.
 Private Achille Fortina.
 Private Charles J. Giani.
 Private Richard Graham.
 Private Filippa Hiscello.
 Private Fred W. Hinkle.
 Private Frank W. Hodgkinson.
 Private Myron F. Huff, Jr.

Company G, Second Infantry—Continued.

Private Arthur J. Jensen.
 Private Robert F. Johnson.
 Private Albert F. Joseph.
 Private Eugene F. Keifer.
 Private Joseph J. Kelly.
 Private Manuel P. Laboa.
 Private Lester R. Leason.
 Private Roy R. Leber.
 Private George Lefurgey.
 Private William O. Levy.
 Private Michael P. Lynch.
 Private John McGuire.
 Private Charles W. Manhart.

Private James McGregor.
 Private Raymond E. Morris.
 Private William J. Morris.
 Private Charlie Nevil.
 Private Stephen N. O'Brien.
 Private Alfred V. Souza.
 Private Edward Stone.
 Private Lowell H. Street.
 Private Oscar V. Swanson.
 Private Francisco Testa.
 Private King F. Tomer.
 Private Waldon A. Westlake.
 Private Ralph E. Williams.

Company H, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Edwin E. Sutherland.
 First Lieutenant Merrill O. Ballard.
 Second Lieutenant Chauncey T. Bradley.
 Sergeant Frederick J. Bly.
 Sergeant Francis H. Dales.
 Sergeant Charley Fish.
 Sergeant Vern B. Fish.
 Sergeant Henry A. Martin.
 Sergeant David E. McDonough.
 Sergeant Hiram E. Norris.
 Sergeant John Ryan.
 Sergeant Claus J. Trede.
 Corporal Joseph P. Barber.
 Corporal George G. Fish.
 Corporal George I. Froome.
 Corporal Walter W. Gosney.
 Corporal Newton E. Isaac.
 Corporal Ronald J. Monroe.
 Corporal Edward C. Morin.
 Corporal Roy L. Strong.
 Corporal Elmer J. Youles.
 Mechanic Edward W. Collamer.
 Cook Arthur E. Allen.
 Cook William I. Moore.
 Bugler Edward Peaslee.
 Bugler Harold A. Rannels.
 Private First Class Charles Anderson.
 Private First Class Fritz J. Bahr.
 Private First Class John G. Barnard.
 Private First Class Charles F. Benoy.
 Private First Class Winstead J. Boyd.
 Private First Class Frank S. Bradley.
 Private First Class Clarence L. Brown.
 Private First Class John B. Carter.
 Private First Class Charles J. Chatfield.
 Private First Class George H. Eaton.
 Private First Class Edward J. Gunther.
 Private First Class Robert V. Hardie.
 Private First Class William H. Heron.
 Private First Class Frank B. Martin.
 Private First Class Percy W. Robbins.
 Private First Class George W. Roney.
 Private First Class Leslie F. Smith.
 Private First Class Arthur H. Thompson.
 Private First Class Myron E. Woods.
 Private Warren L. Baughman.
 Private George W. Brewer.
 Private Claude A. Brooke.
 Private Harold D. Carson.

Private Adelbert B. Clark.
 Private Howard P. Clark.
 Private Charles B. Corbett.
 Private Milton M. Crissman.
 Private Nelson Diehl.
 Private Harry I. Dietrick.
 Private Alan S. Doctor.
 Private William H. Dowling.
 Private Loys M. Flournoy.
 Private Albert C. Frost.
 Private John A. Hamilton.
 Private Albert C. Hansen.
 Private Wesley Herrington.
 Private Frank Johnson.
 Private Dewey W. Kennedy.
 Private John B. Lake.
 Private Alonzo B. Ljunstrom.
 Private William W. Mankins.
 Private Ralph Mason.
 Private James B. McDonough.
 Private David E. McDonough.
 Private Matthew W. McDowell.
 Private Charles A. Montandon.
 Private Frank Moore.
 Private Robert L. Ohde.
 Private John P. Omizzolo.
 Private George C. Peaslee.
 Private William C. Philbrook.
 Private Edward Redner.
 Private Wesley C. Rigor.
 Private Harold W. Ruby.
 Private John Ryan.
 Private Peio R. Sarti.
 Private Paul A. Schuchert.
 Private Lewis H. Silva.
 Private William L. Stiles, jr.
 Private Alfred L. Tracy.
 Private Leo B. Tracy.
 Private Thomas W. Tracy.
 Private Alvin E. Tyrrell.
 Private Harry E. Underwood.
 Private Dee W. Van De Bogart.
 Private Dow S. Van De Bogart.
 Private Alphonso Vecchi.
 Private Clifford E. Warner.
 Private McKinley R. White.
 Private Charles J. Widmer.
 Private Charles E. Williams.
 Private Elmer Wright.

Company I, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain John C. Dooley.	Private Fred E. Carignan.
First Lieutenant Edward I. Cook.	Private Alvin Carson.
Second Lieutenant Esque V. McAtee.	Private Oliver H. Caya.
Sergeant Walter L. Farrow.	Private John M. Cudd.
Sergeant Oliver Kessler.	Private Ralph L. Davis.
Sergeant George F. Koenig.	Private Alvin W. Divver.
Sergeant Harry N. Lucas.	Private Harvey P. Dye.
Sergeant Bert Lund.	Private Charles W. Dorsey.
Sergeant Clarence C. Nelson.	Private John Durphy.
Sergeant Eugene H. Shoup.	Private Perry P. Edwards.
Sergeant Carl J. Schleck.	Private Edward Fetters.
Corporal Gordon R. Clegg.	Private Edward H. Fosen.
Corporal Charles E. Fauli.	Private Henry T. Fulk.
Corporal Charles Henderson.	Private William F. Gahr.
Corporal Harold E. Johnson	Private Neil C. Hansen.
Corporal Louis Moore.	Private John Herman.
Corporal Thomas H. Ruddick.	Private Wilmer W. Hixson.
Corporal Charles E. Richardson.	Private Charles M. Hickok.
Corporal Louis T. Stroever.	Private Harrison L. Kauffman.
Corporal Delray Toland.	Private Orloff A. Kelly.
Mechanic Roy L. Adams.	Private Everett H. Lambert.
Cook Herbert J. Chapman.	Private Albert L. Lares.
Cook Arthur J. Drew.	Private Charles R. Leighton.
Bugler Carl W. McCollum.	Private John T. McDonald.
Private First Class Ernest C. Akers.	Private Herbert S. Matthews.
Private First Class John G. Alm.	Private John I. McClintock.
Private First Class John S. Clampitt.	Private Orval B. McDonald.
Private First Class Ray R. Curl.	Private Harry S. Miller.
Private First Class George E. Collins.	Private Albert W. Mitchell.
Private First Class Willard W. Crowell.	Private Ted E. Morse.
Private First Class Clarence M. Dexter.	Private Wilford T. Nelson.
Private First Class Alfred P. Gendron.	Private Floyd C. Nelson.
Private First Class Bert D. Greene.	Private John Norton.
Private First Class Walter B. Haber.	Private John Osborn.
Private First Class John T. Lynch.	Private Edward B. Payton.
Private First Class Thomas M. Levulett.	Private Edward Richmond.
Private First Class Wallace C. McIntosh.	Private Benjamin Ragan.
Private First Class Joseph Pamentel.	Private Ernest E. Roderick.
Private First Class Harry L. Porter.	Private Edward E. Sharp.
Private First Class Benjamin T. Rick- etts.	Private Basil Sinclair.
Private First Class Russell R. Vaughan.	Private James H. Soper.
Private First Class Harvey C. Windsor.	Private Justin I. Sullivan.
Private Chester Adams.	Private Edward Shattuck.
Private Claude Auclair.	Private Arthur E. Shaffer.
Private Charles F. Adams.	Private Evelyn J. Smith.
Private Esmond Babcock.	Private Kenneth Terrell.
Private Lester J. Bishop.	Private Ira E. Vickers.
Private Joe F. Bonfield.	Private Conrad Webb.
Private Donald W. Baldwin.	Private Edward C. Wagner.
Private John C. Bonillo.	Private Arthur C. Woodhouse.
Private Chester Bertolacchi.	Private Clouse W. Wickman.
Private Andrew J. Brewster.	Private Floyd Wood.
Private Alexander D. Campbell.	Private James D. Wilson.
Private Alby T. Carter.	Private Charles S. Waller.
	Private Preston J. Welter.

Company K, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Claude H. Fowler.	Private Viggo Christensen.
First Lieutenant Arthur H. Drew.	Private Clyde F. Clyde.
Second Lieutenant Emery C. Burroughs.	Private Clarence C. Craft.
First Sergeant Howard R. Greenlin.	Private Glenn E. Creason.
First Sergeant Herman Metcalf.	Private Elwood E. Dear.
First Sergeant Russell T. Robinson.	Private Glover Dempsey.
Mess Sergeant Edgar Gardner.	Private John Downing.
Supply Sergeant Robert G. Fenton.	Private John Edgecomb.
Sergeant Jack Christian.	Private Delmar R. Evans.
Sergeant John F. Fentry.	Private Oscar F. Fain.
Sergeant Leo J. Gribben.	Private Ingvar M. Frandsen.
Sergeant John S. Hall.	Private Conrad H. Fries.
Sergeant John P. Rasmussen.	Private Oscar Fuller.
Corporal Robert E. Cadden.	Private Claude M. Gardner.
Corporal Gail M. Gillbreath.	Private Harry C. Gardner.
Corporal Hope C. King.	Private William G. Green.
Corporal Frank L. Kirby.	Private Fred Hall.
Corporal Jack D. Meracle.	Private Lansford Hampton.
Corporal Charles E. Mowry.	Private La Verne A. Harper.
Corporal Henry A. Mitchell.	Private Kenneth A. Hayford.
Corporal John E. Spellman.	Private Niels Hansen.
Corporal Thomas F. Sullivan.	Private Neils K. Hansen.
Corporal James L. Todd.	Private Carl F. Hickey.
Mechanic Otto M. Hurst.	Private Scott E. Houston.
Cook Albert Fox.	Private Joseph C. Husted.
Cook Edgar A. Lindsay.	Private Theodore Jones.
Cook William D. Nordeck.	Private Dimitry Kallers.
Cook Jack Silva.	Private Mike Karle.
Bugler Russell R. Williams.	Private Chester A. Kayser.
Private First Class Edward L. Baker.	Private Henry Kemmer jr.
Private First Class James E. Black.	Private Emmanuel S. Koutsices.
Private First Class Herschel A. Cox.	Private John J. Lamothe, jr.
Private First Class John Frisch.	Private Clyde Lester.
Private First Class Lloyd Garrison.	Private Alvin Lewis.
Private First Class Clarence D. Greenlin.	Private Roy Love.
Private First Class Crowell Kidd.	Private Harry A. Martin.
Private First Class Norman D. Mead.	Private Arthur McCrory.
Private First Class Oscar Nelson.	Private Fred W. McFarlan.
Private First Class Charles L. Oman.	Private Claud Merker.
Private First Class Charles W. Poston.	Private Harry A. Murphy.
Private First Class Albert C. Romano.	Private James Musto.
Private Steven Abaroff.	Private Andrew Nelson.
Private Vahan Aldermian.	Private John Radovich.
Private James S. Anderson.	Private Dewey F. Roberts.
Private Samuel Anderson.	Private Joe Romano.
Private Roy E. Appleton.	Private Pete Rossi.
Private Walter Arbuckle.	Private Harry L. Schwartz.
Private Louie Arieta.	Private John A. Smith.
Private Vladislaus Barbarich.	Private Frank H. Sylvia.
Private Ivan C. Barnes.	Private Clyde G. Teasdale.
Private Anton Belemecich.	Private Paul A. Thornburgh.
Private Leonard A. Beal.	Private William G. Thorwall.
Private Alexander Bell.	Private John C. Tompkins.
Private Henry Biehl.	Private Louis Valente.
Private Clarence Black.	Private Frank L. Van Ronk.
Private Fred P. Brandow.	Private William B. White.
Private Calvin H. Brown.	Private Henry J. Will.
Private Carl Bruggman.	Private Clifford H. Wilson.
Private Rufus C. Buckey.	Private Meryl K. Wisecarver.
Private James A. Burpee.	Private John Wulf.
Private Fred L. Byxbe.	Private George V. Wyckoff.
Private Simon Campas.	Private Clarence Yates.
Private Miles Cahow.	

Company L, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain William J. Allison.	Private Raymond Bustard.
First Lieutenant Stanley A. Leddy.	Private John A. Caldwell.
Second Lieutenant C. Morse Lewis.	Private William L. Chumbelich.
Sergeant Ray E. Apperson.	Private Lester Crawford.
Sergeant Manuel L. Elishio.	Private Lawrence Dempsey.
Sergeant John F. Kane.	Private Edward Dias.
Sergeant Elmer Nphrden.	Private Elmer R. Douglas.
Sergeant Vido Opusich.	Private Dave Felix.
Sergeant Robert E. Rudisill.	Private Milfred G. George.
Sergeant Albert Silva.	Private Frank Graves.
Sergeant Richard L. Spencer.	Private Lawrence Gutierrez.
Sergeant Thomas L. Wishard.	Private Russell Hoyt.
Corporal Gail D. Apperson.	Private Joseph J. Kelly.
Corporal Fred C. Atehison.	Private Herman Lehman.
Corporal William L. Bettencourt.	Private Dewey E. Morrell.
Corporal Stephen Crossetti.	Private Albert C. Olives.
Corporal Joseph E. Foster.	Private Joseph S. Rebeiro.
Corporal Charles Lewis.	Private John Renfro.
Corporal Anselmo Morillo.	Private Albert Robrecht.
Corporal George Silva.	Private Frank Rodriguez.
Corporal Herbert O. Wightman.	Private Harry Rouse.
Cook Benjamin F. Church.	Private William W. Rubottom.
Cook Robert D. Laswell	Private Richard E. Rudisill.
Cook Frank Robles.	Private Cecil L. Shank.
Mechanic Julius Schatz.	Private William Silva.
Bugler John E. Feliciano.	Private Martin B. Urbick.
Bugler William M. Sousa.	Private Nick P. Vukich.
Private Harry Averrett.	Private Frank Weeks.
Private John J. Barbic.	Private Michael Weeks.
Private James Barry.	Private Ray Weeks.
Private Jack Boronda.	Private William Weeks.
Private Otto Buero.	Private Thomas Zeco.

Company M, Second Infantry.

(Called into Federal Service March 26, 1917.)

Captain Francis Kimes.	Private First Class Stanley W. Sanders.
First Lieutenant Harry W. Holman.	Private First Class Harold Spafford.
Second Lieutenant William R. Norrish.	Private Joe Alviso.
Sergeant Morton H. Baker.	Private Fred A. Barrier.
Sergeant Harry W. Eby.	Private Frank Bennett.
Sergeant Mack Evans.	Private Ernest C. Berry.
Sergeant Grover Hill.	Private Jesse E. Bloyd.
Sergeant John E. McCoy.	Private Lawrence J. Burns.
Sergeant William A. Nockengost.	Private Jack Calkins.
Sergeant Fred K. Tinder.	Private Pete Coy.
Sergeant Basil C. Vaughn.	Private Phil P. Denham.
Sergeant Walter C. Whitney.	Private Emmett Dickenson.
Sergeant Walter W. Wilson.	Private Manuel Fariara.
Corporal Alfred L. Bradley.	Private Pete Ferres.
Corporal George M. Campbell.	Private Dave Gallan.
Corporal Frank Chrisman.	Private Joseph Glenn.
Corporal Claude M. Curtis.	Private Jess R. Harrison.
Corporal Ray Bert Denham.	Private Eugene E. Hays.
Corporal Arthur R. Homen.	Private Harry S. Hays.
Cook Claude A. Hinkle.	Private Lewis D. Hawks.
Mechanic William T. Mitchell.	Private John Hindes.
Cook Joseph H. Settle.	Private Fred W. Hinkle.
Cook Jeremiah L. Sawdey.	Private Earl Holt.
Bugler James K. Hindes.	Private Joe Holt.
Bugler Fred H. Ihde.	Private Theodore James.
Private First Class John W. Dias.	Private Walter H. Johnson.
Private First Class Joseph H. Dias.	Private Joe H. Jones.
Private First Class Lloyd B. Franklin.	Private Ray L. Jones.
Private First Class Ralph W. Harris.	Private Manuel P. Laboa.
Private First Class Newman Hodge.	Private Ralph Long.
Private First Class Foster Nunes.	Private Warren D. Martin.
Private First Class Clair Nyswonger.	Private Joseph H. Masterson.

Company M, Second Infantry—Continued.

Private James M. McCrory.
 Private George Murray.
 Private Roy Reed.
 Private Jimmie Rockwell.
 Private Daniel H. Roark.
 Private Ralph Slocum.
 Private Lou Smith.
 Private Glenn Stanton.
 Private Everett Swietzer.
 Private Forrest R. Tomer.
 Private King F. Tomer.

Private Lawson Towry.
 Private William J. Vaughan.
 Private Manuel R. Vierra.
 Private Robert J. Wallace.
 Private Dalls E. Walters.
 Private Walter C. Whitney.
 Private Albert Wotring.
 Private Harold S. Young.

Discharged.

Private Edward F. Meyers.

Field and Staff, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Lieutenant Colonel Leonard M. Farrell.
 Major Joshua B. Dickson.
 Major Laurence S. O'Toole.
 Captain (Chaplain) Arthur W. T. Hicks.
 First Lieutenant Lewis H. Britton.

First Lieutenant John S. Hasen.
 First Lieutenant George C. Homer.
Losses.
 Colonel Leon C. Francis.
 Major Frederick A. Marriott.

Headquarters Company, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain William K. Carswell.
 First Lieutenant Walker L. Martin.
 Regiment Sergeant Major George E. Faust.
 Battalion Sergeant Major Arthur G. Hanchett.
 Battalion Sergeant Major Francis G. Louis.
 Battalion Sergeant Major Harry H. Lynch.
 Battalion Sergeant Major William C. O'Hare.
 Battalion Sergeant Major Richard J. Spence.
 Color Sergeant Hewitt Bond.
 Color Sergeant James W. Brigger.
 Sergeant Steven F. Murphy.
 Sergeant Max C. Burchfield.
 Sergeant Edmund Burke.
 Sergeant Malcolm W. Byrne.
 Sergeant Edward S. Flaherty.
 Sergeant James C. Hagerman.
 Sergeant Sydney J. Tyson.
 Sergeant Bugler Henry A. Ruhl.
 Corporal Milton H. Brackman.
 Cook John O. Enell.
 Cook Julius Dahlke.

Horseshoer Leland S. Brady.
 Private First Class Arthur V. Fogarty.
 Private First Class Fred W. Hoeck.
 Private First Class Lee A. Mace.
 Private James F. Brower.
 Private Robert McD. Brown.
 Private Keith Buck.
 Private Max Burchfield.
 Private Ralph W. Dickenson.
 Private John P. Dunkle.
 Private Walter Ford.
 Private William W. Frey.
 Private David J. Garrett.
 Private William W. Hammack.
 Private Frederick T. Hanchett.
 Private Guy W. Johnson.
 Private Stanford J. Lewis.
 Private Raymond W. Logan.
 Private James J. Lynch.
 Private Edwin F. Marriott.
 Private Edward Mendoza.
 Private Charles F. Mess.
 Private John Pangburn.
 Private Elzear C. Phelan.
 Private Lawrence G. Sibirian.
 Private Maurice Silverman.
 Private Louis Trumbly.

Band Section.

Band Leader Dewey C. Waters.
 Asst. Band Leader Edward D. Hollister.
 Asst. Band Leader John C. McIntosh.
 Sergeant Charles M. Borba.
 Sergeant French W. Lake.
 Sergeant Leonard L. Service.
 Corporal William B. Burnett.
 Corporal Roy E. Leach.
 Corporal Andrew G. Smithbauer.
 Corporal George T. Taylor.
 Private Arthur Anderson, jr.
 Private Oscar Anderson.
 Private John R. Asher.
 Private Stanley F. Black.
 Private Edwin W. Brunton.
 Private Kent Cannon.
 Private Alymer E. Clement.

Private William C. Fogarty.
 Private William Gravatt, Jr.
 Private Andrew Lascari.
 Private John Lawrence.
 Private Herman Lutz.
 Private Felton S. McCartney.
 Private Rebert E. Macbeth.
 Private Edgar W. Maguire.
 Private Fred G. Murray.
 Private Arthur C. Phillips.
 Private Shelton L. Rogers.
 Private Eugene W. Ryley.
 Private Herman E. Schachtebeck.
 Private Delmiro Silva.
 Private Carlisle Skelly.
 Private Paul L. Stewart.
 Private Walter J. Vervaiz.

Supply Company, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain L. J. Nissen.
 Second Lieutenant J. L. Delanoy.
 Sergeant Le Roy C. Bunker.
 Sergeant Ronald M. De Rosa.
 Sergeant George A. Erickson.
 Sergeant Frederic Foster.
 Sergeant Frank A. Gill.
 Sergeant Homer F. Tate.
 Sergeant Elijah R. Tindle.
 Sergeant Roland Von Schmidt.
 Corporal Axel L. Fredericksen.
 Corporal Percy Kenealy.
 Cook Carl H. Dreger.
 Cook Walter A. Hart.
 Cook Joseph Pangburn.
 Horseshoer Fernando Herman.
 Saddler Frederick G. Pfeifle.
 Wagoner William M. Allen.
 Wagoner Harris P. Andrew.
 Wagoner Laurence Baxter.
 Wagoner Walter A. Beguhl.
 Wagoner Hulbert Burns.
 Wagoner Walter E. Clark.
 Wagoner John C. Cook.
 Wagoner William J. Douthard.

Wagoner Louis E. Dupin.
 Wagoner Nicholas D. Ernser.
 Wagoner Andrew J. Fisher.
 Wagoner Wilbur L. Foster.
 Wagoner Lambrey J. Greemore.
 Wagoner Clarence Hader.
 Wagoner Delmar Hanson.
 Wagoner Nelson B. Hazeltine.
 Wagoner Louis Hilgerloh.
 Wagoner Arthur E. Jones.
 Wagoner Frank L. Kaeser.
 Wagoner Hayes Keesling.
 Wagoner Emile R. Lalanne.
 Wagoner Harold C. Lewis.
 Wagoner Fred Linde.
 Wagoner Richard H. McCoy.
 Wagoner Lloyd McDuffee.
 Wagoner Frank Meillette.
 Wagoner John Pangburn.
 Wagoner Alfred D. Rico.
 Wagoner Arthur M. Rico.
 Wagoner Edward J. Riley.
 Wagoner Whitman C. Rowley.
 Wagoner Jack Stedman.

Machine Gun Company, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Frederick A. Marriott.
 First Lieutenant George G. Bradison.
 First Lieutenant Walter A. Scott.
 Second Lieutenant William J. Hubbard.
 Second Lieut. Arthur A. McClaughy.
 First Sergeant Arthur C. W. Ireton.
 Supply Sergeant Ernest H. Moeller.
 Mess Sergeant George B. Nees.
 Sergeant Harry E. Barnes.
 Sergeant Julius E. Beck.
 Sergeant Leonard P. Come.
 Sergeant Morton L. Cook, jr.
 Sergeant George J. Harris.
 Sergeant Edgar O. O'Brien.
 Sergeant Alexander B. O'Rourke.
 Sergeant Bert R. Perrin.
 Sergeant Frederick B. Rohder.
 Sergeant Albert J. Schroeder.
 Sergeant Joseph L. Sylvester.
 Corporal Robert H. Bacon.
 Corporal Victor Berloli.
 Corporal William T. De Rade.
 Corporal William H. Douglas.
 Corporal William M. Kearnes.
 Corporal Alexander Mackintosh.
 Corporal Angus R. D. McDonald.
 Corporal Bernard F. Ohrtrand.
 Corporal William T. Smith.
 Cook Thomas N. Hildreth.
 Cook Nelson T. Hubert.
 Mechanic James C. Martin.
 Mechanic Bernard F. Petersen.
 Mechanic John E. Spaan.
 Bugler Jesse W. Meier.
 Bugler Harold C. Wolfe.
 Private, First Class, Robert Boyd.
 Private, First Class, Edgar J. Bradford.
 Private, First Class, Thomas P. Davies.
 Private, First Class, Frank W. Ellis.

Private, First Class, Wm. L. Gamache.
 Private, First Class, Charles F. Graeber.
 Private, First Class, Carl H. Lange.
 Private, First Class, Daniel J. Leahy, Jr.
 Private, First Class, Samuel Pelta.
 Private, First Class, Paul O. Pirtle.
 Private, First Class, Joseph L. Spaan.
 Private, First Class, Evan O. Von Rhein.
 Private Ludwig J. Aschman.
 Private Charles W. Baddeley.
 Private Edgar T. Baruch.
 Private Albert J. Beattie.
 Private Julius Blumfeld.
 Private Joseph Brantwein.
 Private Harry Brenton.
 Private Norman T. Burksheim.
 Private John W. Campbell.
 Private Joseph H. Chavez.
 Private John J. Crean.
 Private William V. Deane.
 Private John O. Enell.
 Private Lionel Greene.
 Private Joseph C. Hammill.
 Private Norman B. Harris.
 Private Donald P. Hildreth.
 Private George C. Homer.
 Private Claude J. House.
 Private Ferdinand A. Jadin.
 Private Harold M. Le Moin.
 Private Charles R. Lenhart.
 Private Stanford J. Lewis.
 Private Edwin F. Marriott.
 Private John M. Mesick.
 Private Joseph L. Remlinger.
 Private Vernon J. Ridley.
 Private George L. Scott.
 Private Loran F. Smith.
 Private Thomas N. Smith.
 Private Edward Snow.

Machine Gun Company, Fifth Infantry—Continued.

Private William A. Southmayd.	Private Louis L. Vinagre.
Private Axel W. Swenson.	Private Charles Watkins.
Private George Swetnich.	Private Merle Watson.
Private Harry E. Thomas.	Private Ernest S. Weitz.
Private Erbie Tuttle.	Private Alfred J. Willard.
Private Ernest A. Ubson.	Private David C. Wixon.
Private Meril B. Uley.	Private Walter S. Wonderlich.
Private Wallace F. Undhjen.	

Sanitary Detachment, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Major Wilfred E. Chambers.	Private Alvin F. Carter.
First Lieutenant Albert B. Herrick, Jr.	Private Victor M. Cesena.
First Lieutenant William C. Lynch.	Private Clyde Leo Fischer.
First Lieutenant Ovid S. Tuttle.	Private William R. Foss.
First Sergeant Charles C. Forgee.	Private Philip W. Frantz.
Sergeant Burton S. Burgess.	Private Ralph Gardner.
Sergeant John L. Fayette.	Private Ross H. Gehrett.
Sergeant Daniel P. Williams.	Private Joe Grant.
Private, First Class, William L. Gardner.	Private Cecil Jenkins.
Private, First Class, John Gray.	Private Joseph T. Kieilty.
Private, First Class, Gilbert W. Hill.	Private Edward A. O'Connell.
Private, First Class, Almer R. Lundin.	Private Albert Orsi.
Private, First Class, William C. McCombs.	Private Bert Sellier.
Private, First Class, Harry F. Stoddard.	Private Jack W. Shaw.
Private John Assin.	Private Clarence E. Smith.
Private Albert J. Beattie.	Private David W. Sturges.
Private Phil E. Beggs.	Private Sam Tamber.
	Private Clinton C. Wiese.

Company A, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Eugene A. de Hermda.	Private First Class Thomas N. Smith.
First Lieutenant Charles D. Woehr.	Private First Class John M. Vargin.
Second Lieutenant Francis T. Brewster.	Private Chester A. Armstrong.
First Sergeant Edward A. Carroll.	Private Richard Behr.
Supply Sergeant Lawrence Lorenzen.	Private Stewart F. Bond.
Supply Sergeant Roland Tevis.	Private Earl L. Bonello.
Mess Sergeant William Ferrari.	Private Harry J. Chrisman.
Sergeant Hewitt Bond.	Private Arndt Christiansen.
Sergeant Emery J. Daniels.	Private Emanoele Colombi.
Sergeant Alfred Kuhn.	Private Peter Cortese.
Sergeant David H. Mertes.	Private Clark Delloss.
Corporal Michael E. Burke.	Private George L. England.
Corporal John I. Chute.	Private Harry W. Fitch.
Corporal Thomas Murphy.	Private Walter D. Fitch.
Corporal Edward Nicolaisen.	Private James H. Glasgow.
Corporal James A. Notley.	Private Kenneth T. Harmon.
Corporal Clarence E. Parr.	Private Harry N. Jilbert.
Mechanic John H. Turner.	Private Asa D. Kennedy.
Cook Arthur W. Hall.	Private Frank H. Lawrence.
Cook Rollo H. Vanscoy.	Private Antonio Malvini.
Cook Louis Lamberes.	Private Archie C. McMaster.
Private First Class William Adams.	Private Roy C. Murray.
Private First Class David Allen.	Private Earl L. Nelson.
Private First Class Ralph Chary.	Private Daniel Nill.
Private First Class John Davenport.	Private Patrick O'Brien.
Private First Class James C. Etheridge.	Private Fortunato A. Pestarino.
Private First Class Richard W. Ewing.	Private Frank D. Pestarino.
Private First Class Walter F. Long.	Private Joseph Pettenati.
Private First Class Vincent W. Malvini.	Private James M. Rasmussen.
Private First Class Philip A. Nelson.	Private Robert Rohr.
Private First Class Dewey E. Records.	Private Mario Sivori.
Private First Class Joseph Schrotz.	Private Julian P. Underhill.
Private First Class Robert A. Scrimgeour.	Private Horace S. Winters.

Company B, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Lauren L. La Hue.	Private James V. Cantando.
First Lieutenant John "S" Hasen.	Private John F. Cantell.
Second Lieutenant Louis J. Van Dalsem.	Private Frank Carrera.
Sergeant Clarence F. Edwards.	Private Francis A. Castro.
Sergeant Stanley G. Hafley.	Private Frank Churchhill.
Sergeant Robert L. Hanks.	Private Alfred T. Colburn.
Sergeant Elmer Hatch.	Private James B. Cusack.
Sergeant Edward Lovery.	Private Thomas M. Dies.
Sergeant Elzeart C. Phelan.	Private Waldo S. Farnsworth.
Sergeant Anthony H. Solari.	Private James Fitzpatrick.
Sergeant Homer J. Tilley.	Private James R. Fritsch.
Corporal Salvador P. Bernal.	Private Manuel Furtado.
Corporal Wilbert Boehle.	Private Horace Haley.
Corporal Christopher S. Casey.	Private Mills G. Hall.
Corporal Bartholomew A. Hurley.	Private Thomas J. Higgins.
Corporal Frederick A. Knoth.	Private Frank W. Hughson.
Corporal John R. Merz.	Private Gus C. Jesink.
Corporal Clair C. Shrier.	Private Albert Kent.
Corporal Everett G. Stevens.	Private Frank Lema.
Corporal Frank E. Wedekind.	Private Domnick Margaloti.
Mechanic Henry C. Stout.	Private John Marino.
Bugler George T. Isbell.	Private Jack H. Maynard.
Bugler Lester W. Keaton.	Private Andrew J. McKay.
Cook Walter G. Brown.	Private Rialto A. Montgomery.
Cook John J. Semondi.	Private Daniel Marvies.
Cook Theodore Wilson.	Private Herman J. Neiders.
Private First Class Elbert F. Colburn.	Private Joe Nopolitano.
Private First Class Vern Cooper.	Private William Oliver.
Private First Class William Davenhill.	Private George A. Pereira.
Private First Class Mark J. Douat.	Private Frank F. Perry.
Private First Class Francis X. Dougherty.	Private Frank J. Prowse.
Private First Class Vernon Emmerson.	Private Samuel Reams.
Private First Class Jas. F. Fitzpatrick.	Private George C. Rutan.
Private First Class William H. McGettigan.	Private George Semondi.
Private First Class Harry C. Millett.	Private Paul Scaletta.
Private First Class Guy W. Smith.	Private Lawrence Sibirian.
Private First Class Jesse O. V. Winn.	Private Joseph J. Silva.
Private Lawrence Abreo.	Private Harley L. Stevens.
Private Anthony L. Armetta.	Private Albert Stokes.
Private Vincent Armetta.	Private Joseph J. Taylor.
Private Walter R. Beard.	Private Louis J. Urzi.
Private Edward G. Berger.	Private Romeo F. Vatuone.
Private Heinie B. Boehme.	Private William A. Wallis.
Private Salvador Bondi.	Private Alexander H. Walls.
	Private Arthur B. Wyman.

- Company C, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Denis A. Daly.	Corporal Lloyd M. Sims.
First Lieutenant Ernest S. Evans.	Corporal Frank V. Wright.
Second Lieutenant William J. Hubbard.	Cook Lester H. Landre.
First Sergeant William I. Freeman.	Cook Max Spaete.
Supply Sergeant George W. Griffin.	Bugler Frank C. Crockett.
Mess Sergeant Thomas H. Larke.	Bugler Roger S. Eaton.
Sergeant David C. Bowers.	Mechanic Elam Gibbel.
Sergeant James Freeman.	Private First Class George E. Barney.
Sergeant Walter A. Hirschler.	Private First Class Charles Chambers.
Sergeant George F. Robinson.	Private First Class Glen R. Chappell.
Sergeant Patrick J. Saunders.	Private First Class Richard M. Cross.
Sergeant Eugene K. Sullivan.	Private First Class Edwin F. Eller.
Corporal Maurice R. Bryan.	Private First Class Berry L. Griffin.
Corporal Paul Geary.	Private First Class George F. Hoffman.
Corporal Alfred Avanzino.	Private First Class Charles O. Johnson.
Corporal John R. Wright.	Private First Class Andrew M. Lakey.
Corporal Neal D. Martin.	Private First Class Alan F. Lloyd.

Company C, Fifth Infantry—Continued.

Private First Class James E. Long.
 Private First Class William L. Simonson.
 Private First Class Bertram Smith.
 Private First Class James E. Shiels.
 Private First Class Brette L. Stevens.
 Private First Class Charles W. St. John.
 Private First Class Melvin West.
 Private Camillo Ambrosini.
 Private Ralph N. Asay.
 Private Nicholas A. Athanasopoulos.
 Private Jose Balbino.
 Private John T. Barrett.
 Private William H. Bosse.
 Private Arno R. Bushwald.
 Private Thomas Cornwall.
 Private Julius Dahlke.
 Private Joseph A. Elliott.
 Private Arthur E. Fontaine.
 Private William R. Foss.
 Private Thomas M. Freeman.
 Private Roy M. Henderson.
 Private Walter D. Hubbard.
 Private Earl T. Johnson.

Private Harvey E. Larke.
 Private Albert K. Livingston.
 Private Grant W. Luckensmeyer.
 Private Manuel Matts.
 Private Richard H. McCoy.
 Private Manuel A. McIntyre.
 Private LeRoy McQuester.
 Private William Mitchell.
 Private Homer L. Nichols.
 Private Carl A. Potts.
 Private Richard E. Pyne.
 Private Thomas Rickard.
 Private Louie Rogers.
 Private Frank Romero.
 Private Wallace A. Russell.
 Private Roscoe E. Scammon.
 Private Glenn O. Stallings.
 Private Clyde Starr.
 Private Herbert L. Ward.
 Private James L. Watts.
 Private Fred E. Wright.
 Private John R. Wyman.
 Private John H. Zelt.

Company D, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Harold H. Hearfield.
 First Lieutenant Phillip E. Benjamin.
 Second Lieut. Edward B. Strong, Jr.
 First Sergeant Morrison A. Knight.
 Supply Sergeant Edward J. Eden.
 Mess Sergeant Joseph J. Hyams.
 Sergeant Joseph W. Crane.
 Sergeant William M. Crane.
 Sergeant Frank L. Edmiston.
 Sergeant Hartley Furlong.
 Sergeant Roy L. Hail.
 Sergeant William D. Joiner, Jr.
 Sergeant Chester L. Morgan.
 Sergeant Millard Vanderbilt.
 Corporal Carlton M. Adams.
 Corporal Leo R. Andrade.
 Corporal Vasco B. Andrade.
 Corporal Francis P. Butler.
 Corporal William F. Cauthard.
 Corporal James F. Grady.
 Corporal Clifford W. Langford.
 Corporal Emerson O. McNally.
 Corporal Harold A. Miller.
 Corporal Glenn L. Pool.
 Corporal James Rogers.
 Corporal Joseph T. Soldavini.
 Corporal William B. Starr.
 Corporal Harry Tamblyn.
 Cook Herbert Beck.
 Cook Clarence T. Loughman.
 Cook Samuel Perinoni.
 Mechanic Lorenzo Bellantoni.
 Mechanic William W. Osterhoudt.
 Bugler Manuel Sylva.
 Bugler George D. Wickman.
 Private First Class Edmund Cohen.
 Private First Class Harry Cohen.
 Private First Class James Conrad.
 Private First Class Thomas F. Corrigan.
 Private First Class George J. Grady.
 Private First Class Joseph Hammerand.
 Private First Class Monta J. Jones.

Private First Class Adolph Koenig.
 Private First Class Webster J. Mead.
 Private First Class Albert Scott.
 Private First Class George B. Van Norden.
 Private Albert W. Abrams.
 Private Thomas J. Allen.
 Private Andrew W. Anderson.
 Private Ambrose J. Arbini.
 Private Herman G. Barraza.
 Private Isaac D. Bell.
 Private Herman V. Bennetts.
 Private Fargo Bonestell.
 Private William H. Breen.
 Private Guiseppi Bruno.
 Private Rolfe Buffington.
 Private Angelo Canziana.
 Private Luigi Capovilla.
 Private Clifford Carveth.
 Private Cal Christenson.
 Private Melvin Clemo.
 Private Robert E. Compere.
 Private John W. Cooper.
 Private Henry Cramer.
 Private William J. Daley.
 Private Dale E. Dean.
 Private John J. De Rosa.
 Private Jared C. Dodge.
 Private Lee E. Dodge.
 Private Wardell L. Dolley.
 Private James E. Duffy.
 Private Stuart H. Duffy.
 Private Frank E. Du Frane.
 Private James T. Dunkley.
 Private Elton L. Durbin.
 Private Bertram Elerding.
 Private Carroll P. Elster.
 Private Daniel Ford.
 Private Walter Ford.
 Private Clarence C. Gray.
 Private Herbert V. Green.
 Private Edwin J. Gribble.

Company D, Fifth Infantry—Continued.

Private Herbert H. Hamm.
 Private Arthur L. Harris.
 Private William C. Hegarty.
 Private Frank R. Helm.
 Private Carl Hooper.
 Private Thomas M. Hoxie.
 Private William D. Hutchinson.
 Private Francis A. Hyams.
 Private Robert Kappenman.
 Private Marshall H. Keyes.
 Private James H. Klouse.
 Private Victor Kobstrup.
 Private Frank Lambkin.
 Private Stephen Leonesio.
 Private Herbert E. Lewis.
 Private Harry R. Linnell.
 Private Charles H. Locati.
 Private George P. Low.
 Private Fred G. Lundin.
 Private Peter M. Maggetti.
 Private William P. Mahar.
 Private Archie O. Marley.
 Private John C. Merritt.
 Private Glenn F. Michael.
 Private William L. Mitchell.
 Private Joseph P. McNamara.
 Private Enard E. Nankervis.

Private Hans Nielson.
 Private Robert O. Owens.
 Private Arthur M. O'Connor.
 Private Horace A. O'Connor.
 Private Martin R. O'Hara.
 Private Edward Peppin.
 Private George N. Perry.
 Private Raymond N. Peterson.
 Private Bowman Potter.
 Private Homer R. Pyne.
 Private Thomas M. Redmayne.
 Private Harry J. Roberts.
 Private James A. Rogers.
 Private Earl H. Sawyer.
 Private Frank V. Schmidt.
 Private Elsworth M. Shafer.
 Private Harold E. Smith.
 Private Harold Veale.
 Private James A. Vincent.
 Private Fred C. Ward.
 Private Melvin C. Wesley.
 Private Eugene C. Weaver.
 Private William H. Welcome.
 Private Fred R. White.
 Private William J. White.
 Private Harold W. Young.

Company E, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Hillard Comstock.
 First Lieutenant Donald Geary.
 Second Lieutenant P. Gale Thornbrough.
 Sergeant Edward E. Campbell.
 Sergeant Jebez F. Churchill.
 Sergeant Burton C. Cochrane.
 Sergeant Richard E. Gregson.
 Sergeant William F. Herbert.
 Sergeant Chauncey W. Peterson.
 Sergeant Archie Pozzi.
 Sergeant Stanley H. Stone.
 Sergeant Robert L. Sutherland.
 Corporal Shirley S. Abeel.
 Corporal William C. Bagley.
 Corporal John C. Dorward.
 Corporal Francis J. Jacobs.
 Corporal Wayne W. Northern.
 Corporal John H. Massie.
 Corporal Bernard M. Pearson.
 Corporal Paul R. Trembley.
 Corporal Elbert M. Walker.
 Mechanic Edward W. Batchelor.
 Mechanic Jones M. Weeks.
 Cook Ernest S. Hillier.
 Cook William Morrill.
 Bugler Elmer H. Curley.
 Bugler Antone D. Mazotti.
 Private First Class Harland F. Dabney.
 Private First Class Charles L. Davis.
 Private First Class Nathaniel Gereghino.
 Private First Class John Goveia.
 Private First Class Arthur M. Haley.
 Private First Class John A. Lynch.
 Private First Class Frank H. Marshall.
 Private First Class Harold McHugh.
 Private First Class William C. Walker.
 Private Pompilio Allassadri.
 Private Bernard F. Berger.
 Private Candido Bernardini.
 Private Mars F. Berton.

Private Samuel W. Brower.
 Private Roy M. Brown.
 Private Vern M. Brown.
 Private Donald B. Cameron.
 Private Andrew Camozzi.
 Private James R. Carrell.
 Private George W. Crist.
 Private Ralph C. Curley.
 Private William F. Danhausen.
 Private Fred E. Dorward.
 Private Gaston D. Gardner.
 Private Emil W. Garloff.
 Private Samuel Gotvig.
 Private Edward H. Green.
 Private George Hall.
 Private Grover C. Hunt.
 Private George A. Ives.
 Private Ralph H. Jackson.
 Private James B. King.
 Private Donald B. Kinkle.
 Private Wesley A. Kruse.
 Private John A. Leoni.
 Private Louis L. Lockwood.
 Private George J. Lynch.
 Private Edgar Lytle.
 Private Fred J. Maloof.
 Private Thomas E. McDonald.
 Private Harold E. McLaughlin.
 Private Homer H. McReynolds.
 Private William C. Mills.
 Private Richard Morris.
 Private Harry E. Morrow.
 Private John E. Murray.
 Private Jack L. Neeley.
 Private William O. Nowlin.
 Private Vernon S. Nowlin.
 Private Orrin W. Pitner.
 Private Charles T. Powers.
 Private Earl L. Pratt.
 Private Wendell E. Rice.

Company E, Fifth Infantry—Continued.

Private Ben Roberts.	Private Richard L. Stutsman.
Private Clair A. J. Roberts.	Private Clarence G. Sullivan.
Private William G. Rowland.	Private John V. Sweeney.
Private John W. Rued.	Private Leo B. Swenson.
Private Rodman M. Saul.	Private Paul E. Thompson.
Private Ell Selby.	Private John Volpi.
Private Calvin F. Shaffer.	Private Louis J. Volpi.
Private Frank L. Silman.	Private Rico H. Volpi.
Private Mazyck P. Smith.	Private George W. Weber.
Private Earl B. Standley.	Private James P. Weeks.
Private Hartley Starkey.	Private L. R. Weeks.
Private Louis J. Steiner.	Private George D. Winters.
Private Arlie G. Stroud.	

Company F, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Edwin E. Hinchman.	Private Albert Cohn.
First Lieutenant Edgar S. Hutson.	Private Gilbert C. Contreras.
Second Lieutenant Warren A. De Sosa.	Private Nester S. Cook.
Sergeant Wayne R. Allen.	Private George J. Davis.
Sergeant Frank R. Crittenden.	Private Carl J. Devedelas.
Sergeant George M. Hann.	Private William H. Dobyne.
Sergeant Harrison L. Ketchem.	Private Evan W. Evans.
Sergeant James C. Knight.	Private William J. Felt.
Sergeant Melvin R. Lawrence	Private Bennie M. Figueras.
Sergeant Harry A. Nelson.	Private Samuel D. Gilbert.
Sergeant Frank E. Parrott.	Private Hyman J. Goldstein.
Corporal Reuby H. Boullio.	Private James Goodwin.
Corporal George B. Brown.	Private Frank C. Greaves.
Corporal Amos J. Cardwell.	Private Edmund W. F. Harrell.
Corporal Ernest D. Hannan.	Private James P. Hayden.
Corporal Gustav Hansen.	Private Phil S. Hennacy.
Corporal Perry A. Wing.	Private William E. Holcombe.
Mechanic Anton Sturck.	Private Edward Jordan.
Bugler John W. Cochran.	Private Benjamin C. Kersting.
Bugler Frank J. Perry.	Private Harry W. Linihan.
Private First Class Virgil W. Bassett.	Private Lew J. Littlejohn.
Private First Class Mushy Benjamin.	Private Drew W. McBride.
Private First Class Melvern A. Evans.	Private Carl A. McPhee.
Private First Class George W. Hale.	Private William J. Merryfield.
Private First Class James Hanks.	Private Harold M. Overton.
Private First Class Eugene E. Harris.	Private John B. Perkins.
Private First Class Lawrence W. Mahoney.	Private Edward V. Pettle.
Private First Class George A. Riley.	Private Robert H. Rich.
Private First Class Charles H. Stevenson.	Private Myron Schroder.
Private First Class Fred F. Williams.	Private Paul B. Stockman.
Private Albert Anderson.	Private Irving Tamboury.
Private Joseph W. Anderson.	Private George M. Vogt.
Private Harry G. Armstrong.	Private Clarence H. Wessels.
Private Leslie W. Babbitt.	Private Merritt H. Welch.
	Private Harry G. Wylie.

Company G, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Alvin L. Gunn.	Corporal Frank Barrett.
First Lieutenant Alexis Von Schmidt.	Corporal Victor A. MacKillop.
Second Lieutenant Edward A. Von Schmidt.	Corporal Michael Oliver.
First Sergeant Ernest H. Rogers.	Corporal James R. Olsen.
Sergeant John R. Cox.	Corporal Arthur E. Stedman.
Sergeant Asa A. French.	Cook James H. Davis.
Sergeant Carl A. Green.	Cook Albert E. Donald.
Sergeant Mads Hansen.	Mechanic William Pecot.
Sergeant George L. Noble.	Bugler Howard S. Fraser.
Sergeant Roland Von Schmidt.	Bugler Hugo Upphoff.
	Private First Class Gilbert C. A. Froling.

Company G, Fifth Infantry—Continued.

Private First Class Clyde P. Guy.	Private Lester F. Larson.
Private First Class George W. Petersen.	Private Frank J. Leonard.
Private First Class Harold B. Rowe.	Private August A. Menu.
Private First Class Raiph Whitmeyer.	Private Theodor R. Miller.
Private Frank H. Allard.	Private William Miller.
Private Thomas E. Bachelder.	Private Isidore Mondine.
Private Carl D. Bartie.	Private Joseph L. Morgan.
Private Alfred W. Beggs.	Private George G. Mullen.
Private Fred H. Borgstrom.	Private Floyd L. Newton.
Private Donald Bruce.	Private Manuel Pastana.
Private William F. Choney.	Private John A. Raleigh.
Private Orlando Cinquini.	Private Nickolas Reyes.
Private Arthur I. Copeland.	Private John H. Riente.
Private Hiram A. Dejoiner.	Private Leslie L. Robinson.
Private Daniel A. Donovan.	Private Raymond B. Rogers.
Private Dave Dougherty.	Private Charles Smith.
Private Joseph M. Fitzgerald.	Private Charles R. Souza.
Private Dan French.	Private Edward C. Teague.
Private Harland J. GM.	Private William D. Tulloch.
Private Peter F. Gould.	Private Frank Turner.
Private Matthew A. Hoey.	Private John D. Warford.
Private Roy E. Jamison.	Private Emsley F. Whistler.
Private Clark E. Jayne.	Private Edward Wilson.
Private Abbott Jepson.	Private Edward Wilson.
Private Rasmus D. Johansen.	Private George M. Wilson.
Private William M. Johnson.	Private Frank W. Young.
Private Harry Klein.	

Company H, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Harry A. Bradford.	Private James J. Elliott.
Captain Arnold H. Morris.	Private James R. Ferguson.
First Lieutenant Lester E. Banker.	Private Ralph E. Forgey.
Second Lieutenant Joseph L. Tupper.	Private Robert L. Galloway.
Sergeant Arthur T. Bolting.	Private Pulos Gogotses.
Sergeant John F. Fleddermann.	Private Charles F. Gore.
Sergeant Charles Harris.	Private Robert E. Green.
Sergeant Herman A. Hauber.	Private John W. Hall.
Sergeant Harry J. Meyer.	Private Arthur Hanson.
Sergeant William Perry.	Private Clyde C. Hatch.
Sergeant Howard E. Tupper.	Private Edward W. Havelock.
Sergeant James S. Wheeler.	Private Otto W. Heier.
Corporal William J. Armstrong.	Private Clay J. Javnes.
Corporal Frank E. Brankwitz.	Private Louis A. Johnson.
Corporal Manuel W. Costa.	Private John Jones.
Corporal Donald J. Dimond.	Private Benjamin F. Kendrick.
Corporal Alonzo Ferreira.	Private Edward Kruse.
Mechanic Albert E. Cooper.	Private Louis F. Lambert.
Cook Holmar Brun.	Private John J. Lehrberger.
Cook Alvino J. Mesa.	Private Walter G. Lund.
Bugler Louis A. Stanton.	Private Fred Mitte.
Private First Class William E. Crane.	Private James J. Mulrey.
Private First Class Charles F. Gouveia.	Private Manuel E. Pereira.
Private First Class Clarence E. Johnson.	Private Charles E. Ramage.
Private First Class Joseph C. Keller.	Private John Ramsell.
Private First Class John Lino.	Private Gilbert J. Reynolds.
Private First Class Verne R. Morris.	Private John R. Schenck.
Private Harry C. Allen.	Private Harold D. Spears.
Private Alvah A. Andrade.	Private Andrew E. Stein.
Private Jack J. Bullman.	Private Robert E. Stevenson.
Private Joseph H. Chevez.	Private Fred Walters.
Private Clay B. Elliott.	Private Stanley Windfeldt.

Company I, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Henry A. Menrmann.	Private Pietro Boschetti.
First Lieutenant Chester Young.	Private Alfred Correa.
Second Lieutenant Meitland R. Henry.	Private Clyde Core.
Sergeant Jesse C. Darling.	Private Michael Denihan.
Sergeant John R. Harvey.	Private John P. Dunkle.
Sergeant Harold H. Henry.	Private Victor S. Ekenberg.
Sergeant Howard F. Mehrmann.	Private Soren M. J. Elsnob.
Sergeant Paul A. Mehrmann.	Private Andrew J. Fisher.
Sergeant Otto C. Nissen.	Private James F. Fisher.
Sergeant George C. Smith.	Private Everett R. Foreman.
Corporal Otto Anderson.	Private David J. Garrett.
Corporal Seward F. Berry.	Private John A. Goodfield.
Corporal Arthur W. Feidler.	Private Fred Gooseman.
Mechanic Enoch H. Holmes.	Private Frank A. Hamilton.
Cook Eric H. Olson.	Private Dan J. Hastie.
Cook Jean J. Volponi.	Private Percy Harvey.
Bugler Christian J. Jensen.	Private Frank L. Hatch.
Private First Class Harvey A. Adams.	Private Peter Higuera.
Private First Class Albert M. Burrell.	Private Chris Jensen.
Private First Class John Connelly.	Private Guy W. Johnson.
Private First Class Edwin L. Fetters.	Private Percy A. Lefever.
Private First Class Joseph Foscolina.	Private Raymond W. Logan.
Private First Class Daniel Gallogher.	Private Ernest L. Munos.
Private First Class Leslie J. Iverson.	Private Fred B. McBride.
Private First Class Francis P. Kovarik.	Private Charles Murray.
Private First Class Richard S. Tucker.	Private Mads L. Neilson.
Private William M. Allen.	Private Axel W. Olson.
Private Leroy Allen.	Private Carl O. Olsen.
Private Edward B. Bates.	Private Whitman C. Rowley.
Private Edward P. Bemis.	Private Joseph E. Sanches.
Private Charles Bernal.	Private Victor Shanove.
Private Emile J. Bertrand.	Private Herman E. Schachtebeck.
Private Earl Blankenship.	Private Renaldo B. Vellage.

Company K, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Joseph O. Haran.	Private Albert V. Armstrong.
Second Lieutenant Joshua B. Dickson, Jr.	Private August Baptista.
First Sergeant Dayton R. Bayless.	Private Bun F. Bowman.
Supply Sergeant Clayton O. Dean.	Private Antoine Campagne.
Mess Sergeant John S. Goodwin.	Private James Campdonica.
Sergeant George W. Marion.	Private William Delmastro.
Sergeant Arthur E. Matzen.	Private Peter F. Dempsey.
Sergeant Charles E. Nissen.	Private Earl M. Doss.
Sergeant Harry Tyrrell.	Private Joseph J. Hamm.
Corporal Herbert M. Cochrane.	Private Paul Hanks.
Corporal James G. Edwards.	Private Nathan W. Holmes.
Corporal Manuel A. Louis.	Private Joseph Katen.
Corporal Fred W. Olts.	Private James J. Kelley.
Corporal Joseph F. Silva.	Private Frank C. Layne.
Corporal Edward A. Tyrrell.	Private Carlton G. Liddle.
Cook Ray Guernsey.	Private Charles J. Maddalena.
Cook Waldo C. Mills.	Private Albert E. Marango.
Mechanic Asmus Jessen.	Private Ira T. Matthews.
Bugler Louis V. Manning.	Private R. Glenn McCord.
Bugler George E. Pidge.	Private Herbert R. McGovern.
Private First Class Guy A. Baughman.	Private Wallace H. Meacham.
Private First Class Charles F. Burghard.	Private Magnus Mogensen.
Private First Class Ray L. Burton.	Private Henry A. Murken.
Private First Class Douglas H. Dewey.	Private Howard L. Norton.
Private First Class Fritz Gerckens.	Private Clifton F. Paulsen.
Private First Class Rupert P. Gooch.	Private Wilfred Peters.
Private First Class Charles E. Mahler.	Private Norris J. Pidge.
Private First Class Carl M. Marrion.	Private Walter S. Robinson.
Private First Class William McDermott.	Private Belmira Silva.
Private First Class Clinton E. Miller.	Private Raymond S. Skilling.
Private First Class Veggo Olsen.	Private Elwyn F. J. Swetmann.
Private First Class Joseph H. Schoningh.	Private Francis W. Wilford.

Company L, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain William H. Bates.	Private First Class Charles F. Vander-
First Lieutenant Ernest W. Risling.	vort.
Second Lieutenant Richard W. Sherman.	Private First Class Harry Walt.
Sergeant Max E. Bille.	Private First Class John A. Wayne.
Sergeant Herman E. Braunschweiger.	Private Herbert C. Baker.
Sergeant Dwight L. Sawyer.	Private Clifford E. Bell.
Sergeant Lee J. Traynor.	Private George W. Brown.
Sergeant Stanley D. Wood.	Private Edward Castello.
Corporal John M. Alves.	Private "Tony" Castello.
Corporal Kenneth E. Bell.	Private Eugene Chester.
Corporal George L. Boulware.	Private Frank Cole.
Corporal Edward R. Brister.	Private Raymond F. Collier.
Corporal Preston L. McCutchen.	Private Harry A. Cookson.
Corporal Reuben E. Mosher.	Private James T. Cotter.
Corporal Herman E. Panke.	Private Trinidad J. Espinoza.
Corporal John W. Schilling.	Private William Felix.
Mechanic William R. Jayes.	Private Guy H. Fisher.
Cook Ernest J. Bracchi.	Private Duncan W. Fitzgerald.
Cook Herbert H. Tood.	Private John H. Gray.
Bugler Alpheus D. Cole.	Private Max J. Lorenzini.
Bugler Chester A. Miller.	Private Herbert MacAfee.
Private First Class Roy W. Brog.	Private Percy C. McCutchen.
Private First Class Joseph Faso.	Private George Miller.
Private First Class Benjamin F. Gould.	Private Frank Mills.
Private First Class Edward Mauror.	Private Kent J. Mork.
Private First Class Camille W. Nicholas.	Private Leo A. Schutte.
Private First Class Duncan C. Russell.	Private Charles D. South.
Private First Class "Chris" Sonnicksen.	Private Alfred C. Tallner.
Private First Class Fred A. Thompson, Jr.	

Company M, Fifth Infantry.

(Called into Federal Service March 26, 1917.)

Captain Clarence L. Mitchell.	Private First Class George A. Nye.
First Lieutenant Walter B. Robinson.	Private First Class Davis H. Padgett.
Second Lieutenant Stinson S. Cook.	Private First Class Frank Tabash.
Sergeant El Rey Anderson.	Private First Class Roy Whiteside.
Sergeant Linden A. Hooper.	Private Robert H. Bacon.
Sergeant Charles A. Lee.	Private Harry S. Bailey.
Sergeant Flem F. Mendis.	Private Edward L. Baker.
Sergeant Clarence E. Ogilvie.	Private William C. Blaxill.
Sergeant Ernest W. Rowe.	Private Joe Borbano.
Sergeant Charles E. Sheppard.	Private Leland S. Brady.
Corporal Willis A. Baldwin.	Private Millard N. Brock.
Corporal Angelo Cancilla.	Private Stanley E. Bryan.
Corporal Howard W. Derby.	Private Floyd W. Bushnell.
Corporal Eustice C. Johnson.	Private Salvador Cacioppo.
Corporal Arthur E. Jones.	Private Louis T. Casaretto.
Corporal Henry I. Jones.	Private Alvin E. Clegg.
Corporal Bennie E. Ortega.	Private Roy F. Clements.
Corporal Lester W. Shields.	Private Beverly R. Cockrell.
Mechanic Frank S. Ronk.	Private Jack P. Cole.
Cook Ernest E. Coleman.	Private Frederick W. Converse.
Cook George W. Marston.	Private William H. Crawford.
Bugler Bush J. Clesi.	Private Willis E. Daves.
Bugler William C. Mortimer.	Private Charles M. Dorsey.
Private First Class Wesley J. Broken-	Private Edward Ellithorpe.
shire.	Private Henry G. Escobar.
Private First Class Clarence L. Brown.	Private Phillip Fallo.
Private First Class Edward S. Cooley.	Private Tallis Ford.
Private First Class Archie L. Crosby.	Private Thomas H. Gillespie.
Private First Class William C. Frolli.	Private Fred G. Glass.
Private First Class Steve Gonzales.	Private William F. Goss.
Private First Class John T. Lawson.	Private Toney Griffo.
Private First Class Francis C. Lewis.	Private Benjamin Guldberg.
Private First Class Chester T. Nye.	Private Fernando Herman.

Company M, Fifth Infantry—Continued.

Private George C. Homer.
 Private Edward C. Hooper.
 Private Avis I. Hoover.
 Private Jason Howell.
 Private Arthur Jones.
 Private Everett Kelley.
 Private Dale E. King.
 Private Clifford C. Le Fevre.
 Private Harold J. Martin.
 Private Harry L. Marquardt.
 Private Robert M. Marquardt.
 Private Barney McKinley.
 Private Paul A. Mitchell.
 Private August C. Narvaez.
 Private Andrew O'Brien.

Private Dick Orlando.
 Private John B. Passarino.
 Private Leslie Patch.
 Private Frederick C. Pfeifle.
 Private Luigi Puracci.
 Private Alvin O. Potter.
 Private Maurice L. Shaw.
 Private Henderson B. Small.
 Private Ira M. Smith.
 Private Robert F. Smith, Jr.
 Private James Soto.
 Private Joseph Valento.
 Private Fred Vasquez.
 Private Richard D. Williams.

Field and Staff, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Colonel Charles F. Hutchins.
 Lieutenant Colonel Samuel M. Saltmarsh.
 Major Byron W. Allen.
 Major James S. McKnight.
 Major Frank C. Prescott, Jr.

First Lieutenant Edwin A. Merwin.
 First Lieutenant Victor B. Berger.
 First Lieutenant Frank D. Shearer.
 Chaplain Mark B. Shaw.

Headquarters Company, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Harry E. Kunkel.
 Regimental Sergeant Major Harman Decius.
 Regimental Sergeant Major Lawrence T. Johnston.
 Battalion Sergeant Major Charles S. Backus.
 Battalion Sergeant Major Leon T. Wilsey.
 First Sergeant George W. Coulter.
 First Sergeant James J. Riley.

Color Sergeant Reginald H. Barnwell.
 Color Sergeant Charles S. Tolley, Jr.
 Mess Sergeant Samuel H. Unger.
 Supply Sergeant George K. Springer.
 Stable Sergeant Harvey H. Anno.
 Sergeant James C. Doorley.
 Sergeant Carl W. Edwards.
 Cook Daniel J. Lewis.
 Cook Joseph C. McKee.
 Cook Austin C. Milliron.
 Horseshoer Dockrell Brown.

Band Section

Band Leader Newton J. Burrud.
 Band Leader Edgar F. Stahl.
 Assistant Band Leader Anthony F. Gill.
 Assistant Band Leader Allen D. O'Hara.
 Sergeant Bugler Earl Hay.
 Sergeant Bugler Abram F. Mondon.
 Band Sergeant Joseph B. Colling, Jr.
 Band Sergeant James M. Henthorn.
 Band Sergeant Charley Thomas.
 Band Corporal Otto Kuntz.
 Band Corporal Harry W. Barteel.
 Band Corporal Guilford R. Jenkins.
 Band Corporal Fred A. Nicklin.
 Musician First Class John W. Hilo.
 Musician First Class Clyde E. Way.
 Musician Second Class Elza E. Denny.
 Musician Second Class Clarence E. Farrell.
 Musician Second Class Walter C. Patterson.
 Musician Third Class Charles V. Benson.
 Musician Third Class Harold D. Charlton.
 Musician Third Class George H. Coombe.
 Musician Third Class Vance Cresmer.
 Musician Third Class Charles F. Doeg.
 Musician Third Class Charles E. Engle.
 Musician Third Class James S. Gray.
 Musician Third Class Henry L. Marshall.

Musician Third Class James O. Millbank.
 Musician Third Class Charles D. Mooney.
 Musician Third Class Virgil O. Thornton.
 Musician Third Class Arch G. Williams.
 Musician Third Class Ralph E. Hamer.
 Musician Third Class Walter L. Kidder.
 Musician Third Class Roy E. King.
 Musician Third Class John B. Mackenzie.
 Private First Class Harold C. Burton.
 Private First Class Walter S. Coates.
 Private First Class Walter F. Hungate.
 Private First Class Logan L. Jacobs.
 Private First Class Frank M. Walton.
 Private Harvey F. Adams.
 Private Arden G. Bennett.
 Private Edward L. Fuller.
 Private Ralph R. Goodell.
 Private Robert W. Harwood.
 Private Eugene V. Kennedy.
 Private Robert E. Kennedy.
 Private Raymond Macdonald.
 Private Robert A. McNeil.
 Private Roy E. Middlevich.
 Private Roy Quitzow.
 Private Ronald B. Snedaker.
 Private Morris I. Sugarman.
 Private Charles E. Whiteside.
 Private Robert B. Whiteside.

Supply Company, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Alfred F. Moulton.
 Second Lieutenant Isaac DeL. Jaynes.
 Supply Sergeant Ralph Cook.
 Supply Sergeant John J. Collins.
 Supply Sergeant Eugene M. Craven.
 Supply Sergeant Elvin W. Fields.
 Supply Sergeant Elmer H. Heinecke.
 Supply Sergeant Arthur N. Reitnouer.
 Supply Sergeant George O. Weisert.
 Corporal John A. Isell.
 Saddler Edward Boudreau.
 Horseshoer Arthur L. A. Magnier.
 Cook Alva K. Scott.
 Wagoner Earl V. Bothwell.
 Wagoner Roy T. Collins.
 Wagoner David T. Converse.
 Wagoner Walter L. Colvin.
 Wagoner Ernest L. Conway.
 Wagoner Joseph C. Coombs.
 Wagoner John J. Collins.
 Wagoner Davis W. Dwyer.
 Wagoner John H. Ely.
 Wagoner Arol C. Equitz.

Wagoner Frank B. W. Ernst.
 Wagoner Elmer E. Horsley.
 Wagoner Murton Lee Howard.
 Wagoner Wheeler F. S. Kislingbury.
 Wagoner Harlan D. Lord.
 Wagoner Harold I. Moore.
 Wagoner Robert R. Miller.
 Wagoner Leon More.
 Wagoner John K. Mumma.
 Wagoner William H. Millette.
 Wagoner Lyman Murphy.
 Wagoner Clifford J. Noran.
 Wagoner John O. Noah.
 Wagoner Henry J. O'Connell.
 Wagoner John D. Parvin.
 Wagoner Howard E. Porter.
 Wagoner Harley R. Pouncey.
 Wagoner Linwood A. Robertson.
 Wagoner Basil Roseberry.
 Wagoner William F. Richardson.
 Wagoner Gordon C. Snoke.
 Wagoner John M. Tomlin.

Machine Gun Company, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Stephen S. Boothe.
 First Lieutenant Jess G. Foster.
 Second Lieutenant Plummer H. Montgomery.
 Second Lieutenant Fred S. Swanson.
 Sergeant Thomas W. Buzzo.
 Sergeant George D. Doble.
 Sergeant Webb M. Forsyth.
 Sergeant Jack L. Gesmann.
 Sergeant Ralph W. Herzog.
 Sergeant Joseph L. Jernegan.
 Sergeant Walter B. Matthews.
 Sergeant Ralph V. McClain.
 Sergeant William Pugh.
 Sergeant George H. Sherman.
 Sergeant Lee D. Starkey.
 Sergeant Edward A. Schoen.
 Sergeant John N. Sadler.
 Sergeant Clarence R. Van Sant.
 Sergeant Peter J. Willis.
 Sergeant Lloyd W. Watts.
 Corporal James F. Camp.
 Corporal John C. Chambers.
 Corporal Joseph D. Gillespie.
 Corporal Charles C. Howenstine.
 Corporal John E. Mathews.
 Corporal Lloyd J. McKay.
 Corporal Robert R. Painter.
 Corporal Fred T. Willets.
 Corporal Dudley H. Woodin.
 Cook James B. Cody.
 Cook Charles C. Hopkins.
 Cook John H. Jamison.
 Cook Leland B. Wright.
 Mechanic Frank W. McNear.
 Bugler Adolph S. Ghirardi.
 Bugler Arthur P. Henderson.
 Private First Class George F. Bietsch.
 Private First Class Fred A. Eddy.
 Private First Class John N. Harmon.

Private First Class Edgar H. Hannam.
 Private First Class Walter W. Holt.
 Private First Class Graham B. Hunter.
 Private First Class Richard Lamb.
 Private First Class William E. Leohner.
 Private First Class Martin J. Lavelle.
 Private First Class Phillip D. Slingluff.
 Private First Class Finley B. Smith.
 Private First Class Lewis E. Vallandigham.
 Private Edwin M. Arenschield.
 Private Earl V. Bothwell.
 Private Roy, L. Barnhart.
 Private William L. Beard.
 Private Eugene T. Butcher.
 Private William H. Bulkeley.
 Private George W. Brown.
 Private George N. Brown.
 Private Dene C. Cook.
 Private Lawrence G. Cook.
 Private Charles E. Day.
 Private Sherman C. Foster.
 Private Kenneth H. F. Fysh.
 Private Jess G. Foster.
 Private Lewis C. Grant.
 Private Frank A. Gardner.
 Private Harold C. Hadley.
 Private Homer F. Hickman.
 Private Clifford J. Horan.
 Private Sam Hain.
 Private Arthur P. Hawkey.
 Private D'Estelle Iszard.
 Private Walter C. Jacobi.
 Private Paul C. Kreitz.
 Private Michael J. Lavelle.
 Private George Leslie.
 Private Leo E. Laventhal.
 Private Harold S. Lynn.
 Private Gerald G. McDonald.
 Private Elmer L. Moore.

Machine Gun Company, Seventh Infantry—Continued.

Private William H. Nelson.
 Private Lem T. Phillips.
 Private Lester Patterson.
 Private Ira C. Piper.
 Private Leonard V. Peterson.
 Private William A. Richardson.
 Private Max H. Sicher.
 Private Worthington C. Smith.

Private Harry R. Smith.
 Private Jerry A. Selby.
 Private Dewey E. Souder.
 Private Hugh F. Throckmorton.
 Private Sterling P. Willis.
 Private John B. Waite.
 Private Ralph G. Wells.

Sanitary Detachment, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Major Frank C. Wiser.
 First Lieutenant Albert Allen.
 First Lieutenant Frank H. Chase.
 First Lieutenant Clarence E. Collins.
 Sergeant Carl T. Banks.
 Sergeant Ernest R. Burnight.
 Sergeant Howard E. Gates.
 Sergeant Leon S. Hatfield.
 Sergeant George A. Ironside.
 Sergeant Frank Richardson.
 Cook John Bos.
 Cook Joseph Sylvester.
 Private First Class Melvin E. Anderson.
 Private First Class Chester O. Best.
 Private First Class William H. Bolin.
 Private First Class Ralph F. Burnight.
 Private First Class Francis M. Carter.
 Private First Class James H. Crandall.
 Private First Class Ray R. Delhauer.
 Private First Class Gerner C. Groves.
 Private First Class William E. Hicks.
 Private First Class John U. Kellenberger.
 Private First Class William H. Morehouse.

Private First Class Joseph H. Payne.
 Private First Class George C. Rider.
 Private First Class Cecil D. Scott.
 Private First Class Maurice B. Southwick.
 Private First Class Harold DuB. Wright.
 Private First Class Harold V. Young.
 Private Towbridge H. Bumstead.
 Private Gail H. Castle.
 Private Ferd H. Cate.
 Private Elvin F. Clark.
 Private William R. Dunn.
 Private Robert J. Hardy.
 Private Howard L. Helsley.
 Private Paul E. Jewell.
 Private James G. Lyons.
 Private Frank D. May.
 Private Paul H. Reeder.
 Private James M. Robertson.
 Private Martin A. Sadler.
 Private John J. Santa Maria.
 Private Watson H. Watters.
 Private John D. Wilson.
 Private Bryan M. Woods.

Company A, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Harry C. Underwood.
 First Lieutenant Rolla P. Umsted.
 Second Lieutenant Arthur E. De Mott.
 First Sergeant Harry G. Rennagel.
 First Sergeant Irving E. White.
 Supply Sergeant Stanley F. Walker.
 Mess Sergeant Robert C. Remington.
 Sergeant John L. Cates.
 Sergeant Harvey O. Forquer.
 Sergeant Owen C. Harden.
 Sergeant Archer W. Kammerer.
 Sergeant Joseph Lynn.
 Sergeant Orvin N. Nichols.
 Sergeant James S. Payne.
 Sergeant Augustus R. Rose.
 Corporal Richard L. Bernard.
 Corporal Robert H. Bell.
 Corporal Harry Chapman.
 Corporal William Evans.
 Corporal Harry Gunter.
 Corporal Abe J. Gottlieb.
 Corporal Everett M. Holcomb.
 Corporal Cyril Marlow.
 Corporal Walter H. Ogden.
 Corporal Ronald J. Pennick.
 Corporal Virgil E. Reynolds.
 Corporal Charles B. Ward.
 Cook Harry H. Hinton.

Cook Earl Z. Hagerty.
 Mechanic Lewis C. Palmer.
 Bugler Franklin R. Blinn.
 Bugler Robert C. Wilcott.
 Private First Class Ralph S. Boyesen.
 Private First Class Thomas W. Buzzo.
 Private First Class Frank V. Calhoun.
 Private First Class Glenn L. Covernale.
 Private First Class Charles H. Davenso.
 Private First Class Thomas Desmond.
 Private First Class LeRoy Draiss.
 Private First Class James Frasier.
 Private First Class John N. Harmon.
 Private First Class Earle N. Keifer.
 Private First Class William E. Kinney.
 Private First Class Willard W. McHenry.
 Private First Class Robert S. Miller.
 Private First Class Albert J. Moore.
 Private First Class John T. Murphy.
 Private First Class Marion E. Royer.
 Private First Class Fern Wellington.
 Private John W. Alexander.
 Private William H. Bratton.
 Private Charles M. Bumpus.
 Private Francis H. Bumpus.
 Private George S. Carter.
 Private Francis G. Carey.
 Private Gerald E. Cregar.

Company A, Seventh Infantry—Continued.

Private John E. Edwards.	Private Harold G. Laubach.
Private Stephen H. Edmondson.	Private Donald S. Lord.
Private Walter W. Elledge.	Private John S. Martin.
Private George B. Franey.	Private Denver L. Mossholder.
Private Charles M. Galligan.	Private Michael B. Murphy.
Private Arthur H. Gavel.	Private Michael P. O'Reilly.
Private Adam Gsellman.	Private Jules C. Reeves.
Private Charles R. Harris.	Private Frank V. Searle.
Private Robert Ingram.	Private Lester L. Shelt.
Private Fritz K. Iseli.	Private Richard V. Smiley.
Private Arthur E. Johnson.	Private William L. Thomas.
Private Richard L. Keck.	Private Louis E. Ward.
Private Earl H. Keifer.	Private John W. Wood.
Private Stanley R. Kalt.	

Company B, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Howard S. Tracy.	Private First Class Roy Kern.
Second Lieutenant Tudor H. Tiedemann.	Private First Class Harry S. Kingsley.
First Sergeant Elmer R. Haslett.	Private First Class Earl W. Redding.
First Sergeant Irwin W. Minger.	Private First Class Fred G. Taylor.
Supply Sergeant Frank E. Wallace.	Private First Class Jacob L. Verbaum.
Mess Sergeant Gerald J. Murray.	Private First Class Jim C. Walters.
Sergeant Elden L. Chapman.	Private First Class Orville L. Walters.
Sergeant Hiram D. Chapman.	Private First Class William E. Whiting.
Sergeant John R. Denholm.	Private Herman W. Brogdon.
Sergeant Joseph A. Monahan.	Private Leroy C. Brubaker.
Sergeant James B. O'Neil.	Private Clyde W. Burnett.
Sergeant Merritt B. Smith.	Private Frank K. Buttolph.
Corporal Roscoe L. Douglas.	Private Philip F. Culver.
Corporal Paul R. Moyer.	Private Edwin L. Grimshaw.
Corporal Louis K. Godman.	Private Harold C. Guffin.
Corporal Eddie Rose.	Private Lauren C. Holland.
Corporal Theodore B. Sullivan.	Private Walter D. Hyer.
Corporal Charles L. Wilson.	Private George J. J. Ivins.
Corporal Henry R. White.	Private Edward O. Kingsley.
Cook Joe McGowan.	Private John Mann.
Cook Arthur J. Wheeler.	Private Charles E. McCoy.
Mechanic Shirley E. Wood.	Private Robert E. Nelson.
Bugler Otis D. Sherman.	Private Everett H. Palmer.
Bugler Justin L. Ward.	Private Richard E. Palmer.
Private First Class Harry B. Barrington.	Private Edgar K. Pollock.
Private First Class Edwin J. Bolender.	Private William F. Sexton.
Private First Class Dan K. Buckley.	Private Eli C. Shelton, Jr.
Private First Class Myron E. Buchanan.	Private Charles H. Stahl.
Private First Class Albert B. Cadman, Jr.	Private Elmer P. Thomas.
Private First Class Theron C. Chapman.	Private Rene A. Verd.
Private First Class Sidney J. Eginton.	Private Charles L. Wilson.
Private First Class James D. Gordinier.	Private Louis Wolpert.
Private First Class Edwin S. Hart.	Private Chester L. Wombold.
Private First Class Albert E. Hood.	

Company C, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Edward H. Marxen.	Sergeant Robert E. Price.
First Lieutenant Arthur King.	Sergeant Arthur S. Riggins.
Second Lieutenant George T. Shank.	Sergeant Stewart P. Rivers.
Sergeant Harmon W. Cloud.	Sergeant Basil A. Seymour.
Sergeant John J. Fox.	Sergeant Edward Trask.
Sergeant Manuel H. Gonzalez.	Sergeant Charles E. Van Peroef.
Sergeant Arthur L. Gowdy.	Corporal Alex. Feinberg.
Sergeant George I. Hill.	Corporal Morris I. Forsythe.
Sergeant Herbert W. Hoepfner.	Corporal John J. Hartsock.
Sergeant John Kirmer.	Corporal George I. Hill.
Sergeant Victor Lyon.	Corporal Herbert T. Messinger.
Sergeant Thomas Nisbet.	Corporal Hobson L. Mojonier.

Company C, Seventh Infantry—Continued.

Corporal Charles B. Moore.
 Corporal Robert C. Plume.
 Corporal Harry M. Sellinger.
 Corporal Harry Taylor.
 Corporal Louie E. Torrey.
 Corporal Joseph A. Trendle.
 Mechanic John T. Cappell.
 Cook James B. Mullady.
 Bugler Leland S. Roberts.
 Bugler Ernest A. Didier.
 Bugler David R. Donley.
 Bugler Leo J. McQuaid.
 Bugler Merle H. Meyers.
 Private First Class Warren F. Brown.
 Private First Class Dewitt T. Cambell.
 Private First Class Raymond B. Campbell.
 Private First Class John Clark.
 Private First Class Joseph W. Clarke.
 Private First Class August W. H. Dierweg.
 Private First Class John C. Fellows.
 Private First Class Elmer S. Flower.
 Private First Class Cecil P. Henderson.
 Private First Class Christopher Kempster.
 Private First Class James E. Long.
 Private First Class Stanley D. March.
 Private First Class Herman B. Miller.
 Private First Class Whitney L. Morrow.
 Private First Class Lewis N. Phillips.
 Private First Class Max Rosenblum.
 Private First Class Wesley H. Rowell.
 Private First Class Mark M. Sinsabaugh.
 Private First Class Lloyd J. Tibbetts.
 Private First Class Louie E. Torrey.
 Private First Class James Vreeland.
 Private First Class Russell B. Vreeland.
 Private First Class James W. Witherow.
 Private Edmund C. Albert.
 Private Charles Altman.
 Private Frank M. Andrews.
 Private Elmer F. Baker.
 Private Willie A. Beaman.
 Private Warren F. Brown.
 Private Brentley B. Calloway.

Private Saunders M. Calloway.
 Private Sidney R. Calloway.
 Private John Clark.
 Private David R. Donley.
 Private Matiere R. Dunagan.
 Private Arol C. R. Equitz.
 Private Merle W. Garrison.
 Private Charles A. Gould.
 Private August C. Guth.
 Private John F. Handy.
 Private Paul J. Haydon.
 Private Harold E. Houdyshel.
 Private Thomas H. Houston.
 Private Francis D. Hunt.
 Private Rubin J. Irwin.
 Private Joseph Johnson.
 Private Roger W. Killion.
 Private John Kirmer.
 Private Walter D. Kolb.
 Private Charles J. Larson.
 Private Douglas P. Lawton.
 Private Martin C. Leeds.
 Private Harvey C. Lewis.
 Private James E. Long.
 Private Richard P. Ludolph.
 Private John B. Mackenzie.
 Private Gus T. Mandella.
 Private Arthur L. Martin.
 Private Charles D. Mooney.
 Private John K. Mursch.
 Private Chauncey I. Ormsby.
 Private John D. Parvin.
 Private Harry F. Rosner.
 Private James T. Ralph.
 Private Henry W. Rhoda.
 Private Holbrock Sells.
 Private Clyde F. Smith.
 Private Clark W. Stine.
 Private Leland J. Streeter.
 Private Warren C. Tate.
 Private Charles E. Torrey.
 Private Pierce B. Vaughn.
 Private Carl B. Wood.

Company D, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Charles P. Rowe.
 First Lieutenant Edgar E. Stevens.
 Second Lieutenant Everett R. Dial.
 Sergeant Alonzo A. Adams.
 Sergeant Walter C. Barnes.
 Sergeant Edgar P. Blatz.
 Sergeant Harold R. Brehaut.
 Sergeant Marcus S. Greenleaf.
 Sergeant Paul M. Kinney.
 Sergeant Orrin C. McClintock.
 Sergeant Hugh T. McMorran.
 Sergeant Ephram E. Marsh.
 Sergeant Clarence E. Sommerville.
 Sergeant Henry H. Vickrey.
 Sergeant Theodore W. Vickers.
 Corporal Ernest C. Beck.
 Corporal George H. Brown.
 Corporal George M. Brown.
 Corporal John A. Clarke.
 Corporal John A. Daniels.
 Corporal Earl F. Jones.
 Corporal Fred C. Milam.

Corporal Leonard V. Milhon.
 Corporal Charles O. Parrish.
 Corporal Ira F. Parker.
 Corporal George C. Perry.
 Corporal Milton I. Smith.
 Corporal William E. Smith, Jr.
 Corporal Elmer M. Scott.
 Cook Samuel F. Brown.
 Cook William S. Cox.
 Cook Ernest M. Votaw.
 Mechanic George C. Heaney.
 Bugler Paul R. Avis.
 Bugler Paul B. Barnes.
 Private First Class Glen V. Alexander.
 Private First Class Harry R. Barnard.
 Private First Class Clifford Boyd.
 Private First Class Paul H. Bramley.
 Private First Class John J. Cork.
 Private First Class James L. Danks.
 Private First Class Henry L. Ebright.
 Private First Class William W. Fitkin.
 Private First Class Clarence J. Goodell.

Company D, Seventh Infantry—Continued.

Private First Class Guy E. Grant.	Private Charles Healy.
Private First Class Myron E. Haynes.	Private Edwin V. Henderson.
Private First Class William P. McGuffin.	Private Robert J. Hendry.
Private First Class Lawrence W. Palmer.	Private James R. Hudson.
Private First Class Fred Petrie.	Private LeRoy C. Hillman.
Private First Class Joseph F. Pockock.	Private Ray V. Holcomb.
Private First Class Elmer F. Roden.	Private Paul Kounovsky.
Private First Class Dewey E. Souder.	Private John Little.
Private First Class Paul O. Stone.	Private Otto R. Lane.
Private First Class Fred Westcott.	Private Dewey H. Lantz.
Private First Class Paul W. Wildman.	Private Guy C. Lewis.
Private First Class Warren E. Wymore.	Private Howard F. Loucks.
Private Frank Acosta.	Private Gus Lundholm.
Private John S. Acord.	Private Ralph E. McCollum.
Private Lauren W. Allen.	Private John W. McCorkindale.
Private Glenn D. Baird.	Private Charles J. Martin.
Private Harold C. Barker.	Private Carlin F. Mecham.
Private Lynn R. Bashaw.	Private Kenneth W. Moore.
Private James D. Baynham.	Private Harold I. Moore.
Private Oscar T. Belcher.	Private Cape C. Morgan.
Private Loren H. Benham.	Private Cleatis E. Muzzall.
Private Clyde E. Bower.	Private John Nicolopovlos.
Private Walter Bishop.	Private Clayton E. Nichols.
Private Harold Z. Brown.	Private Willis P. Ogier.
Private William J. Brownell.	Private Fred J. Paul.
Private Thompson W. Burnam.	Private Leonard S. Perkins.
Private Fenley A. Cabell.	Private John E. Peterkin.
Private Joseph M. Campbell.	Private August Phillips.
Private Grant Carver.	Private Thomas L. Pickering.
Private Julius Cohn.	Private Jesse H. Pickett.
Private Forrest C. Chisholm.	Private Myron F. Powell.
Private Donald C. Chisholm.	Private Clyde C. Price.
Private Leland R. Crawford.	Private William N. Rohrig, Jr.
Private New H. Crawford.	Private Leslie W. Seney.
Private Thomas E. DeArman.	Private Johnson P. Smith.
Private Edward Dick.	Private Abner R. Snider.
Private George C. Fellows.	Private Robert O. Stein.
Private Fred J. Foster.	Private Gordon C. Snoke.
Private Sherman C. Foster.	Private Charles W. Stevens.
Private Arthur L. Garrison.	Private Louis C. Stouff.
Private James S. Garrison.	Private Edgar B. Straker.
Private Lloulynn G. Gilbert.	Private Harry Thomas.
Private Everett M. Gillen.	Private Howard S. Vaco.
Private Phillip Goldstein.	Private Ray Wakefield.
Private Sam Gould.	Private Dewey A. Whiteside.
Private John H. Hall.	Private Charles R. Wilson.
Private Harry C. Hammond.	Private Harold A. Wallis.
	Private Andrew D. Wickenkamp.

Company E, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Herbert J. Simon.	Corporal Harry W. Davies.
First Lieutenant George W. White.	Corporal Lawrence Klein.
Second Lieutenant Vincent W. Shutt.	Corporal William E. Keenan.
First Sergeant William R. Earl.	Corporal Palmer St. C. Myers.
Supply Sergeant Clifford B. Collins.	Corporal Arthur O. Roter.
Supply Sergeant George A. Probasco.	Corporal Vernie G. Smelser.
Mess Sergeant Harry V. Asimont.	Corporal Corwin G. Walker.
Mess Sergeant John V. Dickson.	Cook David T. Converse.
Sergeant Frank I. Bailey.	Cook Richard J. Murphy.
Sergeant Matthew S. Carney.	Mechanic David A. Deneau.
Sergeant Milton D. Calder.	Mechanic Francis M. Randall.
Sergeant Samuel G. Fanning.	Bugler George S. Haines.
Sergeant Charles A. Hood.	Bugler Boyd E. Krape.
Sergeant Charles F. Wilson.	Private First Class Charles R. Cornelius.
Corporal Reed M. Archer.	Private First Class Claude W. Davenport.
Corporal Albert M. Curtis.	Private First Class Edmund F. Doty.
Corporal Earl R. Cowan.	Private First Class Earle L. Mathewson.
Corporal Edwin F. Daniels.	

Company E, Seventh Infantry—Continued.

Private First Class John L. Mitchell.	Private Robert D. Hood.
Private First Class Eltten P. Nettle.	Private Harold F. Huston.
Private First Class Glenn R. Simmons.	Private Leslie H. Kasold.
Private First Class Ralph D. Smith.	Private William E. Kinney.
Private First Class Clyde E. Snyder.	Private Homer H. Keffer.
Private First Class Clarence H. Vose.	Private Earl R. Krombka.
Private First Class Homer M. Wiggins.	Private James Leslie.
Private Gabriel Arriulou.	Private Donald S. Lord.
Private Jack E. Banks.	Private Daniel B. McCue.
Private Sydney H. Baer.	Private Otto H. Miller.
Private Robert H. Bell.	Private Carl C. Moran.
Private Robert E. Blythe.	Private Fred M. Montgomery.
Private Matthew C. Boyland.	Private Michael McGee.
Private Everett E. Brandt.	Private Shirley R. Morphis.
Private Edwin T. Brown.	Private Lawrence J. Meyers.
Private Ernest J. W. Brown.	Private Frank D. Palmer.
Private Philip H. Brown.	Private Lewie C. Palmer.
Private Floyd V. Browne.	Private Frank S. Pico.
Private Harry R. Bullock.	Private Marion E. Royer.
Private Grover C. Certain.	Private Frank V. Searle.
Private Charles E. Cady.	Private Basil D. Searle.
Private Sydney A. Cherniss.	Private Jules Sentegnan.
Private Guy E. Curtis.	Private John B. Sigris.
Private Alvin L. Duncan.	Private Joseph Spevack.
Private Dean J. Earl.	Private Harold S. Stewart.
Private George N. Emery.	Private Robert O. Stein.
Private William Evans.	Private Chester H. Thomas.
Private Albert B. Falk.	Private Arthur R. Valenzuela.
Private Herbert H. Farnsworth.	Private William J. Waite.
Private Frank Fitzgerald.	Private Earl J. Ward.
Private Harvey H. Frice.	Private William Weiner.
Private Charles M. Galligan.	Private John F. Willard.
Private Robert L. Gibson.	Private George H. Willett.
Private Paul Ginsburg.	Private Arlo F. Williams.
Private Ralph L. Harris.	Private Douglas W. Wilson.
Private Albert L. Heaton.	Private George S. Young.
Private Garrett W. Hopper.	

Company F, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Herbert T. Bathey.	Private First Class Robert W. Hallberg.
First Lieutenant James K. Crum.	Private First Class Charles W. Johnson.
Second Lieutenant Neal C. Johnson.	Private First Class Carl R. Kugler.
Sergeant Arthur T. Ammon.	Private First Class John G. Moore.
Sergeant Asa J. Briggs.	Private First Class Joseph Novetny.
Sergeant Benjamin Mayhugh.	Private First Class Otto E. Plummer.
Sergeant Frederick W. Nichols.	Private First Class Hugo Steiler.
Sergeant Grame G. Parks.	Private Max Alterman.
Sergeant Harry L. Tree.	Private Charles W. Brinkley.
Sergeant Truman C. Van Dorn.	Private Eugene J. De Barruel.
Sergeant Howard E. Winslow.	Private John A. Deeds.
Corporal Frank P. Bessen.	Private Sherman Dolan.
Corporal John J. Earnest.	Private Philip J. Earnest.
Corporal Charles W. Johnson.	Private Walter A. Gamble.
Corporal Charles E. Kane.	Private William B. Herbert.
Corporal Louis J. Mays.	Private Henry T. Horstkotte.
Corporal LeRoy J. McBrain.	Private Raymond K. Kolb.
Corporal William N. Mills.	Private Roland Lamb.
Corporal Rex Rhodes.	Private Frank H. Merriken.
Corporal David V. Silvas.	Private Louis Nidorf.
Mechanic John Brooks.	Private Howard L. Pearman.
Cook and Mechanic Dewey G. Hunter.	Private Harry Phillips.
Cook Ralph McDannold.	Private Harry L. Price.
Bugler Louis A. Biescar.	Private Herbert A. Scheuner.
Bugler Leland C. Boggs.	Private John R. Simpson.
Bugler George A. Stanford.	Private Thomas E. Smith.
Private First Class Frank P. Baker.	Private Lorrist B. Stalnaker.
Private First Class Earl Brown.	Private James T. Teel.
Private First Class Evert Crites.	Private John M. Tomlin.
Private First Class Willy Dethlefs.	Private Ralph E. Tracy.
Private First Class John J. Earnest.	Private William G. Wagner.

Company G, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Ernest L. Danielson.	Private First Class Dudley W. Wynne.
First Lieutenant Charles L. Ary.	Private Walter Alden.
Second Lieutenant Clyde Cook.	Private Walter Arbelbide.
Sergeant Robert W. Burke.	Private Charles D. Bird.
Sergeant William M. Bell.	Private Charles E. Blaha.
Sergeant Eric L. Danielson.	Private George C. Brown.
Sergeant Fred W. Palmtag.	Private Carlos C. Coe.
Sergeant Homar A. Randall.	Private Charles S. Chestnut.
Sergeant Paul D. Smith.	Private Leslie E. Dobbs.
Sergeant William M. Ulrich.	Private Clarence A. Dudley.
Sergeant Leland J. Yost.	Private Marvin D. Dudley.
Corporal Eris I. Brown.	Private Howard Emery.
Corporal Harvey R. Bartow.	Private Avery D. Endsley.
Corporal Henry Collier.	Private Thomas D. Elliott.
Corporal Clifford B. Endsley.	Private Gilbert S. Epperson.
Corporal Robert G. Houplin.	Private Henry G. Ferguson.
Corporal Charles S. Luscombe.	Private John D. Gilpatrick.
Corporal Gerald S. Marvin.	Private Jasper B. Glover.
Corporal Claud H. McMillin.	Private Robert L. Hartman.
Corporal Perry E. Morse.	Private Raymond L. King.
Corporal Hugh E. Root.	Private Paul A. Lockwood.
Corporal Frank A. Rooney.	Private Clarence E. Maine.
Cook John A. Hoak.	Private Phillip Martinez.
Cook Chester A. Woolsey.	Private Karl J. Mills.
Mechanic William A. Nelson.	Private William G. Nelson.
Bugler Herbert E. Hill.	Private Edward Nelson.
Private First Class John T. Allen.	Private Millis A. Oakes.
Private First Class Walter Caster.	Private John B. Ortman.
Private First Class Charles J. Clock.	Private Walter E. Patterson.
Private First Class Frederick G. H. Elliott.	Private Edgar F. Putnam.
Private First Class Edmund W. Foley.	Private Clarence L. Ralph.
Private First Class Manuel Marquez.	Private William A. Reinhard.
Private First Class Lincoln N. Sherrard.	Private Lincoln N. Sherrard.
Private First Class Ernest R. Siddall.	Private Donald M. Siddall.
Private First Class Henry L. Taylor.	Private Everett E. Simpson.
Private First Class Harvey J. Ware.	Private Edward Y. Taylor.
Private First Class Charles W. Worchester.	Private Alfred R. J. Thaman.
	Private Charles A. Williams.
	Private G. Frank Zimmerman.

Company H, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Archibald D. Borden.	Bugler James A. Boynton.
First Lieutenant Harrison W. Culver.	Bugler Ralph Cook.
Second Lieutenant James A. Dutro.	Bugler Wendell A. Stanley.
Sergeant Henry E. Brown.	Private First Class Lloyd C. Adams.
Sergeant Edward F. Carver.	Private First Class Jack E. Banks.
Sergeant Philip L. Doran.	Private First Class Winfield N. Barnes.
Sergeant Henry F. J. Hall.	Private First Class Ezra P. Frankum.
Sergeant John W. Norek.	Private First Class Glen M. Gilkerson.
Sergeant Arthur C. Pfaffle.	Private First Class Roy W. Gould.
Sergeant John M. Pierce.	Private First Class William I. Holloway.
Sergeant George A. Richards.	Private First Class George E. Hedges.
Sergeant Alfred A. Williams.	Private First Class Grant B. Harvey.
Corporal Doyle W. Bader.	Private First Class Harry E. Huck.
Corporal John A. Cook.	Private First Class Anton W. Johnson.
Corporal Lloyd L. Henion.	Private First Class Samuel C. Keller.
Corporal Ernest W. Johnston.	Private First Class Harold C. La Grange.
Corporal Albert C. Lewis.	Private First Class Herbert Lounsberry.
Corporal George R. Lowther.	Private First Class Verne J. Luikart.
Corporal Chester A. Pence.	Private First Class John H. MacDougal.
Corporal Roy A. Reis.	Private First Class George D. Means.
Corporal Ernest V. Strandberg.	Private First Class James C. Mechem.
Cook Arthur Fink.	Private First Class Robert R. Rodgers.
Cook Ralph W. Simmons.	Private First Class Rene J. Therieau.
Cook Arthur F. Thompson.	Private First Class George I. Tilton.
Mechanic Robert W. Oliver.	Private First Class Vanes W. Towler.

Company H, Seventh Infantry—Continued.

Private First Class Leo L. Turner.	Private Glen O. McGinnis.
Private First Class Cecil A. Wilson.	Private Stacy J. Makins.
Private Charles L. Adams.	Private Thomas N. Meyers.
Private Lionel C. Baker.	Private William H. Millette.
Private Edward Boudreau.	Private Harold W. Oliver.
Private Arthur Bottorff.	Private Joseph R. Pasha.
Private Byron K. Brown.	Private Clifford M. Pence.
Private Leo G. Corrigan.	Private Thomas L. Raye.
Private John W. Cravens.	Private William E. Raney.
Private Ronald J. Ferl.	Private Joe H. Rhea.
Private Harry J. Fink.	Private Elbert W. Remley.
Private William J. Galvin.	Private James L. Richardson.
Private Raymond W. Gillespie.	Private William E. Richardson.
Private Ernest G. Glaser.	Private Harry D. Robinson.
Private Abraham L. Glenn.	Private Cecil A. Rothwell.
Private Albert Hass.	Private Augustus T. Russell.
Private Harry S. Hemler.	Private Benjamin W. Simmons.
Private William J. Hemler.	Private Glen A. Smith.
Private Merton L. Howard.	Private John A. Swenson.
Private Raymond Henion.	Private Arthur W. Strait.
Private Joseph M. Horan.	Private Frank E. Smith.
Private William H. Johnson.	Private Clarence L. Tilton.
Private John A. Leach.	Private Robert E. Welborn.
Private Clarence G. Macdonald.	Private Robert L. Wright.

Company I, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Bert M. Muzzey.	Private First Class Fred Stroebel.
First Lieutenant John D. Robertson.	Private Earnest W. Augustine.
Second Lieutenant Clifford A. Balch.	Private Kenneth L. Billinger.
Sergeant Cleveland Bloz.	Private Raymond Biscailuz.
Sergeant Silas N. Culver.	Private Valentine Biscailuz.
Sergeant Elmore B. Douglas.	Private Henry G. Brittain.
Sergeant Robert O. Jones.	Private James L. Brittain.
Sergeant Charles L. Kelly.	Private Wallace D. Bunch.
Sergeant Clarence H. Morris.	Private George O. Burch.
Sergeant John G. Steinhouse.	Private Francis G. Carey.
Sergeant Allen J. Tufts.	Private Orlando R. Chalker.
Sergeant Elmore Wheaton.	Private Justin W. Cheshire.
Corporal Julius A. Balthasar.	Private Donald C. Chisholm.
Corporal George A. Curl.	Private Edward Clibborn.
Corporal James E. Helman.	Private John C. Clogston.
Corporal James R. Hudson.	Private Ralph B. Clyde.
Corporal George E. Kinnie.	Private Charles W. Cobler.
Corporal Charles J. Martin.	Private Clarence C. Conner.
Corporal Charlie L. Nichols.	Private Gerald E. Cregar.
Corporal William M. Phelps.	Private Glenn H. Cregler.
Corporal John D. Sigler.	Private Elwood S. Davis.
Corporal Frank L. Sigler.	Private William J. Davis.
Corporal Julian G. Wells.	Private John L. Devereaux.
Cook, John Bos.	Private Stephen H. Edmondson.
Cook Jack M. Bridges.	Private Walter W. Elledge.
Cook Forest C. Chisholm.	Private Murray J. Ewing.
Cook Arthur W. May.	Private Myrle E. Fisher.
Cook Frank L. McClure.	Private Arthur H. Gavel.
Cook and Mechanic Basil L. Schnitzer.	Private John W. Gay.
Mechanic Forest Taylor.	Private Earl J. Gee.
Bugler William J. Davis.	Private William Gunther.
Bugler Joseph G. Hodgson.	Private Robert J. Hendry.
Bugler Karl Jannoch.	Private Charles J. Hildebrand.
Private First Class Lee J. Boyles.	Private Leroy C. Hillman.
Private First Class Albert R. Dell.	Private James H. Hogan.
Private First Class Joseph D. Gladden.	Private Cecil M. Houts.
Private First Class Harold W. Hubbard.	Private James R. Hudson.
Private First Class Wilber L. Jones.	Private Frederick M. Hull.
Private First Class George A. Kinnie.	Private Robert B. Ingram.
Private First Class Henry Kramm.	Private Fritz K. Isell.
Private First Class William Lindsay, Jr.	Private Francis L. Johnson.
Private First Class George F. Nutter.	Private Thaddeus S. Johnston.

Company I, Seventh Infantry—Continued.

Private Earle H. Keiffer.
 Private Vernon E. Kemp.
 Private James V. Leouran.
 Private William F. Maloom.
 Private Charles J. Martin.
 Private John S. Martin.
 Private George R. McNutt.
 Private Denver L. Mossholder.
 Private Cornelius K. Norton.
 Private Carl H. Pierson.
 Private Dwight G. Pierson.
 Private Raymond Poore.
 Private Allen T. Post.

Private John J. E. Serling.
 Private Melvin E. Shadwick.
 Private Frederick J. Short.
 Private Richard V. Smiley.
 Private Floyd G. Sosey.
 Private Maurice W. Stanford.
 Private William C. Sweet.
 Private Harrison B. Tingle.
 Private William L. Thomas.
 Private Howard L. Vail.
 Private Marsden J. Van Cott.
 Private Robert C. Wilcott.
 Private Otto Yegge.

Company K, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Leo A. Strome.
 First Lieutenant Charles F. Starr.
 Second Lieutenant Louis M. Clickner.
 Sergeant Raymond S. Adams.
 Sergeant Charlie A. Blackburn.
 Sergeant Frank C. Davis.
 Sergeant Eugene T. Dranga.
 Sergeant Lester J. Fabun.
 Sergeant Earle E. Hartman.
 Sergeant William Lyons.
 Sergeant William H. Parcels.
 Sergeant Howard Tomlinson.
 Sergeant Emil H. P. Wilmunder.
 Corporal Benjamin H. Adams.
 Corporal Earl D. Blackburn.
 Corporal Russell O. Collins.
 Corporal Maure Hurt.
 Corporal Judson H. Holgate.
 Corporal Arthur McGinnis.
 Corporal Aibert E. Raney.
 Corporal Albert J. Scheerer.
 Corporal Frank W. Shafer.
 Corporal Henry J. Winegar.
 Cook Elroy T. Gamble.
 Cook Daniel Stanisich.
 Mechanic Joshua G. Moir.
 Bugler Robert B. Broadbelt.
 Bugler Howard E. Miller.
 Private First Class Leonard H. Armstrong.
 Private First Class Ervin A. Bemis, Jr.
 Private First Class John R. Brokaw.
 Private First Class Nathaniel J. Brown.
 Private First Class Dockrell Brown.
 Private First Class Andrew R. Cowan.
 Private First Class Eugene M. Craven.
 Private First Class Frank R. Davis.
 Private First Class Edward P. Doyle.
 Private First Class Ross Espinosa.
 Private First Class Ralph Garcia.
 Private First Class Wendell P. Harrison.
 Private First Class Walter W. Hancock.
 Private First Class Lawrence W. Hitchcock.
 Private First Class Merritt M. Hotchkiss.
 Private First Class Maurice D. Krausman.
 Private First Class Henry M. Mead.
 Private First Class Clare D. Reynolds.
 Private First Class Charles F. Ross.
 Private First Class Charles H. Ross.

Private First Class James C. Scott.
 Private First Class William C. Shay.
 Private First Class Harold E. Swisher.
 Private First Class Alvin H. Tolle.
 Private First Class Edwin C. Tolle.
 Private First Class John D. Wilson.
 Private Eric Von Aichlberg.
 Private Russell L. Alverson.
 Private Herbert J. Ashley.
 Private Monroe J. Baggett.
 Private Harry H. Bailey.
 Private Dewey Bell.
 Private Ralph J. Bentrin.
 Private Steven B. Bottini.
 Private LeRoy O. Brown.
 Private Kenneth C. Bryan.
 Private James F. Butler.
 Private Shirley D. Butterfield.
 Private Neil Burhans.
 Private Raymond T. Cook.
 Private Floyd Cople.
 Private Roy W. Cornelison.
 Private Fred C. Cozard.
 Private Herbert A. Crew.
 Private Louis E. Cross.
 Private Edward J. Davis.
 Private Lloyd A. Dixon.
 Private Orlando C. Dranga.
 Private William R. Dunn.
 Private Harry A. Fabun.
 Private Warren H. Frisbie.
 Private Martin Garau.
 Private John S. Gfeller.
 Private Arthur M. Graefe.
 Private Eugene H. Hancock.
 Private Walter C. Hancock.
 Private Lewis J. Harper.
 Private Wendell P. Harrison.
 Private Edward B. Hasty.
 Private Edward W. Hayden.
 Private Walter J. Hennessy.
 Private Herbert D. Hitchcock.
 Private Vincent T. Hooker.
 Private Clarence G. Horton.
 Private Milton Hotchkiss.
 Private Charles R. Hurley.
 Private Clyde I. Jackson.
 Private Vernon O. Jackson.
 Private William Jones.
 Private Clarence A. Kelly.
 Private Frank King.

Company K, Seventh Infantry—Continued.

Private Albert M. Knox.	Private Jesse M. Ruby.
Private William H. Lawson.	Private Rubin Ruiz.
Private William Leasa.	Private Norman C. Scott.
Private Alvin R. Lee.	Private Raymond W. Shaw.
Private Lyman Marshall.	Private Tim V. Shafer.
Private Hiram B. McIntyre.	Private Clyde C. Smith.
Private Herman E. Miller.	Private Lynn A. Smith.
Private Armand J. Mona.	Private Arthur R. Stewart.
Private Smith L. MacMullen.	Private Herbert L. Taylor.
Private Leon More.	Private George E. Towner.
Private Leonard Musso.	Private Herman B. Waitman.
Private Charles A. Nelson.	Private Earl N. Waller.
Private Lewis F. Oliver.	Private William L. Warner.
Private Vernon K. Patterson.	Private Frederick S. Warner.
Private Bernice A. Pedwin.	Private Claude Williams.
Private Roger M. Powers.	Private John D. Williams.
Private Herbert L. Price.	Private Burdett C. Williamson.
Private McKinley H. Ramsey.	Private Charlie M. Wills.
Private Walter B. Randall.	Private Richard F. Wood.
Private Hollie Ritter.	

Company L, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Nelson M. Holderman.	Private First Class William W. Ritner.
First Lieutenant Arthur K. Ford.	Private First Class Alvin Teel.
Second Lieutenant Charles D. Swanner.	Private First Class Welcome M. Ward.
Sergeant Daniel G. Buchheim.	Private First Class William W. Wood.
Sergeant Earl D. Christenson.	Private First Class Noel L. Woodward.
Sergeant Leo E. Coleman.	Private Charles P. Atwood.
Sergeant Fred C. Jaeger.	Private Harry P. Adams.
Sergeant Harry G. Kirkpatrick.	Private Maxie H. Ayers.
Sergeant Louis C. King.	Private Ralph E. Babcock.
Sergeant Earl R. King.	Private Charles F. Beach.
Sergeant William R. Metz.	Private Edward L. Bennett.
Sergeant Walter J. Pease.	Private Bruce Black.
Sergeant Lewis A. Reihl.	Private James L. Barbee.
Corporal William N. Burge.	Private Baynard C. Blackmore.
Corporal Elmo N. Chaffee.	Private John H. G. Carroll.
Corporal Remus F. Fipps.	Private Albert L. Cummings.
Corporal Herschel G. Frye.	Private Edward G. Cassidy.
Corporal Valiant J. Frye.	Private Caswell L. Conner.
Corporal Max C. Holmes.	Private Irving H. Cleveland.
Corporal Lee F. Kenyon.	Private Elmer G. Dolly.
Corporal Dana E. Keech.	Private Emmett J. Donnelly.
Corporal Cecil B. Mahaffey.	Private Stanley L. Elliott.
Corporal George A. Pollard.	Private Jacob M. Fisher.
Corporal Nathaniel N. Rochester.	Private Harvey H. Frice.
Corporal Charles A. Stearns.	Private John W. Freeman.
Corporal Hugh F. Veale.	Private Blaine W. Gale.
Mechanic William A. Davidson.	Private Ivon R. Gillaspay.
Cook John G. Tervporen.	Private James T. Gillmore.
Cook Fleming W. Whaley.	Private Earl C. Granger.
Bugler Barrett Deaver.	Private Earl B. Harper.
Bugler George W. Wright.	Private Jack Hardy.
Private First Class Lorin D. Ayers.	Private Claude F. Hartman.
Private First Class William L. Bagwell.	Private Clint F. Hawkins.
Private First Class John E. Bruns.	Private Harvey K. Holt, Jr.
Private First Class Carl F. Burns.	Private Otis H. Hopkins.
Private First Class Lloyd C. Corser.	Private Ben Herskowitz.
Private First Class Victor Deaver.	Private Steven E. Iles.
Private First Class Eino Haapa.	Private George W. Kidd.
Private First Class Elmer Hawkins.	Private William Kusch.
Private First Class Walter Henderson.	Private Thomas J. LeBard.
Private First Class Glen G. Hoskins.	Private Alfred W. Lieb.
Private First Class Tiny R. Jamar.	Private Edward S. Mattocks.
Private First Class Halsey Lamme.	Private Clarence H. McElroy.
Private First Class Palmer Lee.	Private Steven G. Morales.
Private First Class Horace M. Lee.	Private Arthur L. Morgan.

Company L, Seventh Infantry—Continued.

Private Okie W. Murphy.	Private George A. Smith.
Private Roland E. Neece.	Private Robert E. Smith.
Private Homer L. Nichols.	Private Fred M. Slaven.
Private William I. Nichols.	Private Warren A. Stambaugh.
Private Hobert Ohowell.	Private Melvin L. Stringfield.
Private Charles A. Nelson.	Private Clayton B. Tillotson.
Private Donald G. Parker.	Private William T. Stone.
Private Earl L. Rails.	Private Fred Tripp.
Private Carl L. Raymond.	Private Walter E. Thomas.
Private Joseph Renders.	Private Paul W. Tucker.
Private Edmund P. Rogers.	Private Fred J. Vinson.
Private Hugh J. A. Ross.	Private Allen C. Wallace.
Private Marion E. Riggens.	Private Harold A. Watson.
Private Archie C. Snodgrass.	

Company M, Seventh Infantry.

(Called into Federal Service March 26, 1917.)

Captain Harry G. Pattee.	Private First Class Robey W. Richmond.
First Lieutenant Harry L. Carner.	Private First Class Robert P. Riddell.
Second Lieutenant John S. Bain.	Private First Class Henry K. Sargent.
First Sergeant George W. Foster.	Private First Class Vivian A. Sebring.
Mess Sergeant Clarence G. Decker.	Private First Class Harry M. Slater.
Mess Sergeant Albert Miller.	Private First Class Paul A. Sweeters.
Supply Sergeant Gustave F. Breckman.	Private First Class Andrew Tisnerat.
Supply Sergeant Ava W. Sloat, Jr.	Private First Class Byron A. Teale.
Sergeant James B. Burch.	Private First Class Wilfred H. Tretheway.
Sergeant Parker D. Davis.	Private First Class Floyd E. Wells.
Sergeant Elwyn H. Dole.	Private First Class Fred M. Wheeler.
Sergeant Edward D. Hilt.	Private First Class David B. White.
Sergeant Carl R. Mearns.	Private First Class Miller F. Wilson.
Corporal Emil Benson.	Private Charles A. Adams.
Corporal Raymond L. Corlett.	Private Julius S. Anderson.
Corporal Ralph W. Corlett.	Private Gay L. Bacon.
Corporal George W. Cruickshank.	Private George A. Bailiff.
Corporal William C. Evans.	Private Robert J. Bethel.
Corporal Charles D. Horton.	Private Warren J. Billick.
Corporal Harry F. Harris.	Private Thomas A. Black.
Corporal Harry D. Johnson.	Private Everett D. Boynton.
Corporal Victor L. Lyon.	Private Clarence E. Burget.
Corporal Carl R. Miller.	Private Wallace D. Bunch.
Corporal Charley E. Miller.	Private Harold J. Carrigan.
Corporal William Mills, Jr.	Private Andrew L. Cleveland.
Corporal George D. Mathers.	Private Clark J. Conley.
Corporal Elliott W. Polcene.	Private Glenn H. Conley.
Corporal George A. Rogers.	Private John R. Cresmer.
Corporal Ivan B. Young.	Private Ray T. Crawford.
Cook David T. Converse.	Private David C. Caldwell.
Cook Tony DeLuca.	Private Charles W. Cobler.
Cook Milton F. Kelsey.	Private Walter L. Colvin.
Cook Charley C. W. Roark.	Private Harry Carner.
Cook Clifford Shigley.	Private Dewey V. Davis.
Bugler Lynn V. Johnson.	Private Nat S. Davis.
Bugler Philip M. Putnam.	Private Harold V. Denman.
Mechanic Harry H. Caldwell.	Private Morris B. Denetdeol.
Mechanic Wilbur L. Ingersoll.	Private Earnest O. Earl.
Mechanic Louis C. Metje.	Private Frank T. England.
Private First Class George W. Cathey.	Private George L. England.
Private First Class Fred J. Carroll.	Private George H. Emery.
Private First Class Milton L. Castleman.	Private Charles E. Fitch.
Private First Class Harry Clark.	Private David B. Garcia.
Private First Class Frank L. Coe.	Private Ennis M. Giddings.
Private First Class Wm. V. Darling, Jr.	Private Edwin G. Gilliland.
Private First Class Robert O. Ford.	Private John M. Ginney.
Private First Class Harry L. Goode.	Private Benjamin F. Goode.
Private First Class Earl L. Harmon.	Private Levi H. Grett.
Private First Class Kenneth Jenkins.	Private Frank A. Groftholdt.
Private First Class Harry W. Kauffman.	Private Lester B. Harris.
Private First Class Newton E. Kellam.	
Private First Class Wilford V. Lambeth.	

Company M, Seventh Infantry—Continued.

Private Richard Hartshorn, Jr.	Private Arthur H. Shepard.
Private Edgar D. Hews.	Private Guy R. Shipley.
Private Cecil M. Houts.	Private William C. Smith.
Private Alvin T. Jellsey.	Private Andrew Soderstrom.
Private Wilmer J. Kreighbaum.	Private William M. Spain.
Private John Leonardo.	Private Bert A. Stevens.
Private George A. Larmonth.	Private Harry W. Suits.
Private Robert J. Little.	Private Gilbert G. W. Swanson.
Private Earl C. Lloyd.	Private Lawrence E. Sweet.
Private James O. Millbank.	Private Earl E. Taylor.
Private Leon M. Mathews.	Private James Taylor, Jr.
Private Dennis M. McGrath.	Private Franklin K. Thompson.
Private Frank T. Moreno.	Private William Thompson.
Private William M. Mathews.	Private Paul A. Torosian.
Private Cornelius K. Norton.	Private Lowell E. Twomley.
Private Frank M. Nowels.	Private Chester A. Vaught.
Private Joseph S. Oddie.	Private Fred J. Wall.
Private Clyde F. Overman.	Private Ralph E. Wall.
Private Wesley S. Pate.	Private William C. Wallace.
Private Allen T. Post.	Private Ellis Weiner.
Private Guy W. Paquette.	Private Clarence Q. Wesner.
Private Leroy Peacock.	Private Walter S. Westen.
Private Elliott Phillips.	Private Everett C. Wheeler.
Private James A. Ramas.	Private Charles E. Whiteside.
Private Ray E. Root.	Private Robert B. Whiteside.
Private Milo H. Roblee.	Private Elwood C. Wickerd.
Private Henry A. Ruskauff.	Private Lester A. Wilson.
Private Mose Rosenthal.	Private Floyd H. Wolford.
Private Earl L. Sandifer.	Private Lloyd C. Warthan.
Private Homer R. Sandifer.	Private Joseph E. Yorba.

Headquarters, First Field Artillery.

(Called into Federal Service June 22, 1917.)

Major Ralph J. Faneuf.	Private Perry R. Adams.
Captain Frederick W. H. Petersen.	Private Edwin A. Benson.
Veterinarian James A. Hill.	Private LaForest W. Doloff.
Sergeant Major George Finney.	Private Halvor H. Hauch.
Sergeant Henry L. Ingham.	Private Ira W. Merrill.
Corporal Harry N. Krenkel.	Private Marvyn E. Neumann.

Headquarters Company, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Walter H. Luer.	Private, first class, John A. Bradley.
First Lieutenant Fred W. Lovely.	Private, first class, Collins D. Bradley.
Color Sergeant Frank D. Wilkey.	Private, first class, Christ A. Cotschanis.
Stable Sergeant George B. Rowley.	Private, first class, Charlie Cantando.
Sergeant George B. Roth.	Private, first class, LaForest W. Doloff.
Corporal William K. Heathorne.	Private, first class, William F. Drew.
Corporal Clifton R. Pettitt.	Private, first class, James O. Elkins.
Corporal Christopher B. Rivere.	Private, first class, Thomas F. Fitzpatrick.
Corporal Frank P. Thrall.	Private, first class, Harold G. Ferguson.
Corporal Carl E. Zander.	

Supply Company, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Edward E. Vicary.	Wagoner Edwin Feliz.
Second Lieutenant Edward S. Linton.	Wagoner Bertrum J. Feliz.
Sergeant Clarence L. Armstrong.	Wagoner Carl S. Forgey.
Sergeant Charles S. Booth.	Wagoner Paul E. Forgey.
Sergeant Orel C. Sweem.	Wagoner Roy E. Littlejohn.
Corporal Ralph Masters.	Wagoner Ruie F. Parrish.
Corporal Arthur R. Webber.	Wagoner George L. Rogers.
Cook Charles R. Smith.	Wagoner James R. Smart.
Saddler Alfred Wuescher.	Wagoner Thomas C. Troy.
Wagoner Arthur H. Ashton.	Wagoner James B. Wyamn.
Wagoner Charles DiBartolo.	

Sanitary Detachment, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Major Edouard S. Loizeaux.	Private Alexander Fourness, Jr.
Private Clarence G. Akerly.	Private Paul E. Hunter.
Private Arnold C. Almason.	Private George Polkinghorne.
Private James G. Bissett.	Private John Polkinghorne.
Private George W. Elliott.	Private Charles Richards.
Private Cyril V. Feliz.	Veterinarian James A. Hill.
Private John P. Fitzgerald.	

Battery A, First Field Artillery.

(Called into Federal Service June 22, 1917.)

Captain Jesse McComas.	Private, first class, Henry R. Beck.
First Lieutenant Clyde C. Alexander.	Private, first class, William G. Bode.
First Lieutenant Walter Luer.	Private, first class, Marion A. Carncross.
Second Lieutenant Frederick H. Hover.	Private, first class, Robert E. Carson.
Second Lieutenant Fred J. Reynolds.	Private, first class, Leo S. Corburn.
Second Lieutenant Paul Thompson.	Private, first class, Earle G. Cook.
Second Lieutenant Robert W. Yates.	Private, first class, Lawrence C. Cook.
Supply Sergeant Charles W. Craig.	Private, first class, Joseph D. Cotman.
Supply Sergeant Russell H. Dixon.	Private, first class, James G. Dovey.
Stable Sergeant Walter H. Hill.	Private, first class, Merle J. Eckles.
Mess Sergeant Herbert S. Boyer.	Private, first class, Thomas T. Fitzpatrick.
Sergeant Paul F. Collins.	Private, first class, Carl R. Harrington.
Sergeant Edgar J. Fahey.	Private, first class, Frank W. Henry.
Sergeant John P. Haynor.	Private, first class, John D. Howard.
Sergeant Robert L. Olden.	Private, first class, Joe N. Hulse.
Sergeant Henry F. Osgood.	Private, first class, George Jennings.
Sergeant Harold S. Perkins.	Private, first class, Malcolm G. Keith.
Sergeant Richard F. Rinker.	Private, first class, Lewis S. Kelsey.
Sergeant Victor J. Wagoner.	Private, first class, Leon J. Leonard.
Sergeant Eugene Weston, Jr.	Private, first class, Tunstal F. Lindsay.
Corporal Joseph E. Anders.	Private, first class, Merle J. Markel.
Corporal Harold M. Berg.	Private, first class, Andrew A. Martinez.
Corporal Eugene H. Enos.	Private, first class, Milford L. McIntosh.
Corporal Milton H. Frincke.	Private, first class, Earle P. Merrett.
Corporal Clarence J. Hemphill.	Private, first class, Jackson C. Montgomery.
Corporal Charles L. Lewis.	Private, first class, Jack Peters.
Corporal Robert S. Lawrence.	Private, first class, Ralph W. Roberts.
Corporal Wallace W. Murray.	Private, first class, Truman C. Rowley.
Corporal Harry A. McLaughlin.	Private, first class, Henry E. Spink.
Corporal Lester L. Naulty.	Private, first class, Robert O. Shrader.
Corporal Clifford M. Pulliam.	Private, first class, Perry W. Tift.
Corporal George T. Price.	Private, first class, Lew W. Walker.
Corporal Victor H. Purkiss.	Private, first class, William L. Wallis.
Corporal Clifton R. Pettit.	Private, first class, Edwin B. Willis.
Corporal Eugene L. Swift.	Private, first class, Swen H. Winberg.
Corporal Otto Scheibal.	Private Edwin B. Ash.
Corporal Alfred W. Stevens.	Private Andrew G. Beckman.
Corporal Chester H. Van Dugteren.	Private Ralph V. Bertsch.
Corporal Emmett E. Wilson.	Private Ernest A. Blair.
Corporal Rogers G. Williams.	Private Samuel V. Brown.
Chief Mechanic Melvin R. Kline.	Private Robert E. Burns.
Mechanic William S. Arthur.	Private Frank W. Bishop.
Mechanic Joseph A. Bernard.	Private Walter I. Carpenter.
Mechanic Robert D. Wolcott.	Private Edward S. Chandler.
Horseshoer Chester S. Binkiewicz.	Private Robert F. Charles.
Horseshoer Derrell G. Miller.	Private Charles G. Clark.
Saddler Joe E. Sheeder.	Private Howard Coor-Pender.
Cook Charles G. Andress.	Private Fred Corbin.
Cook Edwin M. Bowman.	Private Joseph D. Cotman.
Cook Erwin L. Cossentine.	Private Francis W. Coy.
Cook Louis L. Kulp.	Private Carl F. Dillmann.
Cook Robert R. Ridley.	Private Quay S. Divan.
Bugler Harold G. Mead.	Private Edward W. DuBois.
Bugler William T. Mosgrove.	Private James O. Elkins.
Bugler Gragor Panaiote.	Private Joseph I. Easter.
Bugler Leland R. Scofield.	
Private, first class, Charles E. Ball.	

Battery A, First Field Artillery—Continued.

Private Leland H. Farley.	Private Percy I. Pendergraft.
Private Frank W. Farnworth.	Private Earle F. Patterson.
Private Robert Flagg.	Private William C. Peterson.
Private Lewis C. Flowers.	Private Arthur F. Reas.
Private Charles G. Fuller.	Private Harold C. Reynolds.
Private James L. Fulton.	Private Herbert J. Reill.
Private George L. Garver.	Private Clarence R. Riffel.
Private Charles W. Goodwin.	Private George L. Rogers.
Private Ralph D. Green.	Private James Rosendahl.
Private Edward W. Henok.	Private Edward L. Ross.
Private Ferdinand J. Hegeman.	Private Reginald F. Saunders.
Private Samuel A. Hensley.	Private Otto A. Schikore.
Private Allen A. Herman.	Private Ernest E. Scott.
Private Guy O. Herron.	Private Walton Sewell.
Private Howard P. Hess.	Private Earl V. Smillie.
Private Horace E. Hill.	Private Frank L. Smith.
Private Ray Hitchcock.	Private John P. Snelling.
Private Linton A. Holmes.	Private Robert E. Solomon.
Private George Hoffman.	Private Clarence E. Steidle.
Private Richard W. Horn.	Private Edward J. Stratton.
Private Clarence E. Howard.	Private Thomas D. Sweeney.
Private Henry B. Johnston.	Private Lowell L. Taylor.
Private Edwin K. Jackson.	Private Phillip Telephone.
Private Albert D. Leach.	Private George Thompson, Jr.
Private Jacob P. Leu.	Private Russell M. Thompson.
Private Robert W. Lewis.	Private Mark Tuban.
Private Frank J. Lowenthal.	Private Paul H. Wahlberg.
Private John B. Lyons.	Private Paul J. Walton.
Private Lester W. Marston.	Private Charles E. Wiley.
Private Peter J. McIntosh.	Private Bob Wildhorse.
Private John E. McLeod.	Private Lawrence C. Wise.
Private James L. Montgomery.	Private Robert E. Wise.
Private Hugh H. Newell.	Private Arthur W. Wood.
Private Peter M. Nordstrom.	Private Luther E. Young.
Private Henry E. Owen.	

Battery B, First Field Artillery.

(Called into Federal Service June 22, 1917.)

Captain Howard W. Enefer.	Corporal Christopher B. Rivers.
Captain Harry F. Huber.	Corporal Jennings B. Shideler.
First Lieutenant Clyde C. Alexander.	Corporal Moore A. Stuart.
First Lieutenant George Finney.	Corporal Frank P. Thrall.
First Lieutenant Albert J. Steinhardt.	Corporal Albert C. White.
Second Lieutenant Merwyn L. McCabe.	Corporal Alvin W. Winkleman.
Sergeant Isral Berney.	Corporal Carl E. Zander.
Sergeant Walter Blumert.	Chief Mechanic Jacob G. Christensen.
Sergeant John H. Fahy.	Mechanic George H. Bennett.
Sergeant Oscar F. Holzhauser.	Mechanic William A. Gardenhire.
Sergeant George H. Knudsen.	Mechanic Eldon L. Parsons.
Sergeant Fred W. Lovely.	Cook Ben A. Dicker.
Sergeant Matt. Martich.	Cook Oliver R. Hunt.
Sergeant Emil A. Mueller.	Cook Frank H. Gonsalres.
Sergeant Roy H. Nedderman.	Cook Clayton J. McCart.
Sergeant Christian E. Petersen.	Horseshoer Tony Denevi.
Sergeant Robert M. Stewart.	Horseshoer Edward J. Faneuf.
Sergeant Frank M. Sturgeon.	Horseshoer Edward E. Moore.
Corporal George W. Anderson.	Saddler Daniel Fields.
Corporal Frank F. Blandino.	Bugler James A. Belmont.
Corporal Godfrey C. Down.	Bugler Raymond T. Moore.
Corporal Wilkes L. Durkee.	Private, first class, Maynard H. Bachel-
Corporal Milville C. Fickes.	der.
Corporal Charles L. Fisher.	Private, first class, David Bain, Jr.
Corporal William K. Heathorne.	Private, first class, Alan B. Burnham.
Corporal Orville L. Kendrick.	Private, first class, Daniel F. Carido.
Corporal John J. Laffargue.	Private, first class, Ray Conyers.
Corporal Albert R. Miller.	Private, first class, Wilkes L. Durkee.
Corporal Ralph B. Myers.	Private, first class, Donald K. French.
Corporal Clarence K. Nichols.	Private, first class, Harold T. Gustafson.
Corporal Henry R. Pace.	Private, first class, Fred Homer.

Battery B, First Field Artillery—Continued.

Private, first class, Frank H. Kastens.	Private Lester W. Johnson.
Private, first class, Ralph H. Kendrick.	Private Harold D. Kalbaugh.
Private, first class, Arthur E. King.	Private Charles B. Kleupfer.
Private, first class, George M. Mauerhan.	Private Herbert L. Kline.
Private, first class, Arnold H. Miller.	Private Edgar H. Lamb.
Private, first class, Ralph H. Nattress.	Private Arthur Larsen.
Private, first class, Walter L. Nelson.	Private Lester Larson.
Private, first class, Earl M. Peppin.	Private Walter C. Lee.
Private, first class, Westley E. Rodgers.	Private Hampton R. Leighton.
Private, first class, Harold D. Shute.	Private John C. Leonard.
Private, first class, Charles H. Smith, Jr.	Private Clifford D. Lewis.
Private, first class, Clarence F. Southard.	Private Harry A. Lower.
Private, first class, Eber M. Stone.	Private Harry Lowr.
Private, first class, William Suerstedt.	Private Charley M. MacTavish.
Private, first class, Arnold V. Thompson.	Private Clarence C. Malone.
Private, first class, Ray E. Truex.	Private Clifford S. Malone.
Private, first class, John A. White.	Private Martin Marks.
Private, first class, Denslow E. Wood.	Private Harold H. Masters.
Private Adolph L. Amauric.	Private Tracy A. McCart.
Private Edward C. Andersen.	Private William T. McDowell.
Private George M. Andrews.	Private Laurence Miller.
Private Edmund O. Appleby.	Private Milton L. Morehouse.
Private John L. Auzerals.	Private Edwin C. Morrow.
Private Tyler M. Bachelder.	Private Douglas M. Neilsen.
Private Gurth M. Bateman.	Private Arthur S. Oakley.
Private Ronald M. Bateman.	Private Commodore D. Oliver.
Private Fred Bischoff.	Private Theodore Parodi.
Private Benjamin P. Brezil.	Private Noel W. Parker.
Private Harry T. Burton.	Private Douglas A. Powning.
Private William H. Carnall.	Private Gerald E. Quinn.
Private Lloyd E. Childers.	Private Thomas N. Reynolds.
Private Earl M. Cole.	Private Thomas A. Rishel.
Private Anthony F. Correo.	Private Richard J. Rook.
Private Leroy Crum.	Private Symmes H. Schafer.
Private Leonard O. Dabner.	Private Marcel H. Schuller.
Private Harold E. Dale.	Private Paul J. Schuller.
Private William L. Davies.	Private John P. Seagrave.
Private Erwin C. Easton.	Private Harold V. Selleck.
Private Byon E. Eib.	Private Wheeler Sells.
Private Oliver J. Ellis.	Private Roy G. Shaw.
Private Richard N. Ellsworth.	Private William J. Shearer.
Private Emmitt L. Farnham.	Private Charles L. Sigourney.
Private Martin H. Farnham.	Private George E. Stombs.
Private Walter D. Fitch.	Private Eber M. Stone.
Private Raymond L. Frick.	Private Sherman H. Stott.
Private Clarence C. Frost.	Private William F. Sullivan.
Private Harry Goldstein.	Private Gunnar I. Sundman.
Private James S. Govan.	Private George D. Swick.
Private Raymond Griffin.	Private Maurice H. Tracie.
Private Walter D. Hausmann.	Private James A. Wallace.
Private Cyril T. Hofmeister.	Private Warren C. Wallsted.
Private Robert E. Hogan.	Private Charles E. Watt.
Private Edward W. Holsworth.	Private George D. Weaver.
Private Frank L. Hulbert.	Private James R. Welsh.
Private Niegel S. Hunt.	Private Laurence E. White.
Private Oliver R. Hunt.	Private Mark S. Whittle.
Private Bernard G. Hyde.	Private Henry T. Williams.
Private Sim E. Hyde.	Private Roy L. Wolfe.
Private Alexius Jensen.	Private Benjamin F. Wright.
Private Henry G. Johnson.	Private Paul A. Wuthe.
	Private Harry L. Young.

Battery C, First Field Artillery.

(Called into Federal Service June 22, 1917.)

Captain Edward Van Vranken.	Sergeant John G. Alley.
Captain Bedford W. Boyes.	Sergeant Clarence L. Armstrong.
First Lieutenant Fred W. Lovely.	Sergeant John W. Bauman.
First Lieutenant William B. Moyle.	Sergeant Glen Gadbury.
First Lieutenant Otto E. Sandman.	Sergeant Earl R. Hawley.
Second Lieutenant Frederick H. Hover.	Sergeant Ernest L. Jones.
Second Lieutenant Charles A. Reyner.	Sergeant LeRoy G. Jones.

Battery C, First Field Artillery—Continued.

Sergeant Wesley L. Kottmeier.
 Sergeant Harmon S. Kelsey.
 Sergeant William K. Landrum.
 Sergeant Edward S. Linton.
 Sergeant Charles L. Rillee.
 Sergeant Percy L. Tindall.
 Corporal Clarence E. Buthenuth.
 Corporal Joseph F. Bloom.
 Corporal Luther Cassell.
 Corporal Frederick E. Golding.
 Corporal Dix C. Garland.
 Corporal Arthur J. Kamerl.
 Corporal Fred B. Post.
 Corporal Edward N. Pierce.
 Corporal Glenn Perryman.
 Corporal Homer G. Page.
 Corporal George B. Roth.
 Corporal William J. Rogers.
 Corporal Edward L. Root.
 Corporal Vivvian L. Yarbough.
 Chief Mechanic Everett M. Goldsmith.
 Mechanic Pete Oblizalo.
 Mechanic Edgar Watt.
 Cook Joseph A. Ramos.
 Cook Grover Seith.
 Cook Douglas T. Tyler.
 Horseshoer Albert E. Bone.
 Horseshoer Ray E. Gaffney.
 Horseshoer Elmo G. Tuttle.
 Saddler James Staysa.
 Private, first class, Hubert Hansen.
 Private, first class, Joseph D. Lake.
 Private, first class, Elmer C. Mangus.
 Private, first class, Michael F. Murray.
 Private, first class, Elwyn F. Reynolds.
 Private, first class, James C. Sherman.
 Private, first class, Charles T. Thorton.
 Private, first class, Elwood H. Vosburgh.
 Private, first class, George White.
 Private, first class, Roy Wilson.
 Private Henry Alcorn.
 Private Delmer L. Aldrich.
 Private Arthur H. Ashton.
 Private Robert S. Allen.
 Private John R. Allington.
 Private Fred Batey.
 Private John Bidart.
 Private Elmer C. Blodgett.
 Private John E. Brewer.
 Private Charles W. Call.
 Private Frank P. Canessa.
 Private Harry L. Carroll.
 Private Adolf Christen.
 Private David B. Christman.
 Private Arthur B. Crowell, Jr.
 Private Glenn B. Cunningham.
 Private David H. Curson.
 Private Everett W. Cantrell.
 Private Charles H. Carleton.
 Private Charles F. Cloudsley.
 Private Arthur J. Chalmers.
 Private Francis M. David.
 Private Emile E. Denuit.
 Private Raleigh Duly.
 Private Charles G. Earl.
 Private George H. Edwards.
 Private Girard W. Eves.
 Private Forrest W. Faight.
 Private Abondio Florina.
 Private Roy C. Flint.
 Private Audley L. Frost.
 Private William H. Fugitt.
 Private Elbridge D. Fairbanks.
 Private George E. Freeman.
 Private Erwin E. Gibbons.
 Private Roy M. Hardy.
 Private Harvey A. Harris.
 Private Bert R. Hartwell.
 Private Edward T. Heinzman.
 Private Edgar R. Herring.
 Private Paul J. Hubner.
 Private Herbert T. Hunt.
 Private John J. Happy.
 Private Alexander F. Irvine.
 Private Delbert E. Jack.
 Private Gilbert L. Johnson.
 Private Maurice W. Jones.
 Private Sperios Kallas.
 Private Eugene P. Kerr.
 Private Charles T. Kinsey.
 Private Wesley L. Kollmeier.
 Private Ralph C. Lamb.
 Private Melvin F. Leffler.
 Private William M. Lind.
 Private Dewey B. Littlejohn.
 Private Howard W. Mackenzie.
 Private Leo E. Mahl.
 Private John T. Maluvius.
 Private George W. Miller.
 Private Lewis M. Moore.
 Private Robert L. Morrison.
 Private Tom J. McBride.
 Private Frank M. McCoy.
 Private James R. McFarland.
 Private Ira D. McIntire.
 Private John F. McNulty.
 Private Harry E. Martin.
 Private Milo Monson.
 Private George D. Mullis.
 Private Leondro H. Madrid.
 Private Claude M. Needham.
 Private Ralph Nichols.
 Private Lloyd C. Norman.
 Private John B. Norton.
 Private Guy L. Nelson.
 Private Jack O'Connor.
 Private William M. Odor.
 Private Homer C. Page.
 Private Clifton K. Palmer.
 Private Wilbur H. Palmer.
 Private Karl I. Pride.
 Private John J. Perl.
 Private Calvin N. Peck.
 Private Edwin A. Roberts.
 Private Fred F. Robles.
 Private Claude E. Robinson.
 Private James H. Rowland.
 Private Carl A. Sawyer.
 Private George K. Scott.
 Private James C. Sherman.
 Private Hector A. Silva.
 Private Harry A. Squire.
 Private Fred A. Stewart.
 Private Charles R. Scheeper.
 Private John L. Shea.
 Private Charles F. Thompson.
 Private Clarence A. Towne.
 Private Paul Tremper.
 Private John H. Turner.
 Private Charles T. Thornton.
 Private Elwood H. Vosburgh.
 Private Joseph P. Walsh.
 Private Clinton E. Webster.
 Private Charles F. White.
 Private George White.
 Private Joshua B. Wiggin.

Battery D, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain J. Carl Schindler.	Private Henry C. Dean.
First Lieutenant Amasa P. Johnson, Jr.	Private Daniel E. Dinsmoore.
First Lieutenant John B. McDougall.	Private Frank A. Devasure.
Second Lieutenant C. Brunner Frailley.	Private Sam J. Engleman.
Second Lieutenant Thomas J. Worthington.	Private William C. Fawley.
Sergeant Thomas J. Aldridge.	Private Warren E. Ferguson.
Sergeant G. Hubert Birch.	Private Charles A. Flanery.
Sergeant Williard T. Butts.	Private George H. Forrester.
Sergeant Carl Floyd.	Private James Garney.
Sergeant John J. Coleman.	Private Ira C. Geddes.
Sergeant Robert H. DeVore.	Private George W. Gentieu.
Sergeant Stanley M. Distel.	Private Walter C. Golden.
Sergeant Fay E. Leith.	Private John G. Goodwin.
Sergeant Arthur W. Martin.	Private James A. Gorman.
Sergeant William W. McCune.	Private Rollie C. Grace.
Sergeant Jack Sartini.	Private Will Grady.
Sergeant Williard E. Speares.	Private Joseph H. Green.
Sergeant Edward L. Tregoning.	Private Robert M. Gutman.
Corporal Walter Birch, Jr.	Private Marcellus Hall.
Corporal Harry L. Blume.	Private Chester W. Hedges.
Corporal Gordon W. Brayley.	Private Frederick Herbert.
Corporal Roy J. Buckles.	Private Bryan M. Hoge.
Corporal John C. Cooper.	Private Charles G. Holme.
Corporal Roy D. Crippen.	Private Carl Huddleston.
Corporal Simons Russel H. Fitz.	Private Harold L. Hug.
Corporal James L. McDaniel.	Private Robert P. Hunter.
Corporal Frank M. O'Connor.	Private John S. Jackson.
Corporal Socar E. Olson.	Private Irvin E. Jessee.
Corporal Earl Pearre.	Private Delbert K. Johnson.
Corporal John A. Pearson.	Private Richard H. Jones.
Corporal Joseph Rutland.	Private Elmer D. Jope.
Corporal Fred M. Scott.	Private Frank E. Kelley.
Corporal Isaac W. Stephens.	Private Mike Lafirza.
Corporal Ross M. Walsie.	Private Thomas LaMay.
Corporal Carl W. Wilson.	Private Franklin P. Lash.
Saddler Joseph L. Coleman.	Private James R. Laughrin.
Horseshoer Carver C. Peck.	Private George C. Long.
Cook L. Z. Beck.	Private Christian G. Ludy.
Cook Sidney J. Burdge	Private Bror E. Lundholm.
Cook William Dawson.	Private Allen M. Lyall.
Cook Albert H. Lund.	Private Rex A. Maddux.
Bugler Dewey F. Ericson.	Private G. Kemper Mason.
Bugler Charles A. Morgan.	Private Andrew J. Millison.
Bugler Compton P. Thorp.	Private Victor O. Moores.
Bugler Lawrence I. Townley.	Private Edwin H. Morgan.
Private Ellis D. Arnett.	Private Harry E. Nelson.
Private Fred W. Ashton.	Private Leonard A. Nelson.
Private Charles E. A. Aubrey.	Private Murl O'Keefe.
Private Ewell Austin.	Private Luther J. Oliver.
Private Albert S. Baker.	Private Christ Panza.
Private Robert E. Barnes.	Private Roy H. Perin.
Private Charles Barnett.	Private Edward A. Perkiss, Jr.
Private Thomas Barnett.	Private Faustinus Phelan.
Private Henry J. Bates.	Private William T. Phillips
Private Aaron Beasley.	Private Evert V. Potter.
Private Charles D. Benbough.	Private Phillip J. Price.
Private Oliver C. Bergren.	Private George B. Printz.
Private Gustav A. Bertermann.	Private Louis H. Quayle.
Private Albert E. S. Boaden.	Private John B. Quinn.
Private Emil H. F. Bohn.	Private John D. Rankin.
Private Henry L. Burris.	Private Frank R. Rath.
Private Romain P. Burt.	Private Frank P. Rearick.
Private Albert E. Carter.	Private Henry I. Reiser.
Private Louis S. Chaption.	Private Walter J. Reynolds.
Private Willis E. Chronister.	Private William F. Roberts.
Private Carl M. Church.	Private Loren J. Robinson.
Private Hoyt Colgate.	Private Fred L. Rose.
Private Frank W. Crocker.	Private William E. Ryan.
Private Hal V. Davis.	Private Arthur F. Schloh.
	Private Franklin O. Schroder.

Battery D, First Field Artillery—Continued.

Private James M. Seggie.
 Private Joseph W. Shafer.
 Private Townsend M. Sharp.
 Private Charles O. Shrode.
 Private Howard E. Smith.
 Private Nolan C. Smith.
 Private Ben M. Squires.
 Private Henry L. Strobel.
 Private Cash L. Swinney.
 Private Clarence E. Taunt.
 Private Edward A. Thoma.

Private Ellis C. Wagner.
 Private Arthur H. Webb.
 Private Clarence J. Welch.
 Private Charles J. Wheeler.
 Private Harvey B. White.
 Private Joseph V. Williams.
 Private Wayne S. Wilsie.
 Private Willis R. Wilsie.
 Private Harrison L. Yarnell
 Private Claudis R. Yates.

Battery E, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Walter J. Petersen.
 First Lieutenant Albert G. Waddell.
 First Lieutenant John H. Fahy.
 Second Lieutenant Harold S. Perkins.
 Second Lieutenant Robert D. Huntington.
 Sergeant Earle M. Barnes.
 Sergeant John A. Cook.
 Sergeant Irving G. Cockroft.
 Sergeant Charles R. Fulweiler.
 Sergeant Roy M. Layton.
 Sergeant Julius B. Littlepage.
 Sergeant George L. Luce.
 Sergeant Allen L. Morrison.
 Sergeant Edward L. Muhm.
 Sergeant Harold C. Shannon.
 Sergeant Fred W. Ziegenfuss.
 Corporal Harry D. Bradford.
 Corporal Eugene J. Cadogan.
 Corporal Lloyd E. Crellin.
 Corporal David G. Curtis.
 Corporal Frank R. Darrow.
 Corporal Wilter Dorwaldt.
 Corporal Norman A. Egilbert.
 Corporal Thornton A. Goldstein.
 Corporal Martin L. Hardwick.
 Corporal Edward J. Jacobs.
 Corporal James S. Kennedy.
 Corporal Edgar D. Meissner.
 Corporal Lloyd M. Morrill.
 Corporal Frank C. Nelson.
 Corporal Frank W. Nichols.
 Corporal Louis J. Rogers.
 Horseshoer John E. Bohan.
 Horseshoer Myron F. Day.
 Horseshoer John E. Roberts.
 Mechanic Robert S. Bendle.
 Mechanic James B. Cattell.
 Carpenter August C. Grabowski.
 Cook Robert W. Blake.
 Cook Felipe Amouroux.
 Bugler Alvin T. Chattock.
 Bugler William H. Gale.
 Private James C. Aber.
 Private Frank Accinelli.
 Private John F. Alferes.
 Private Warren C. Allen.
 Private Alfred A. Anderson.
 Private Stephen H. Angove.
 Private Rome Antone.
 Private Gust N. Balales.
 Private Jasper Barante.
 Private Stanley Barnes.
 Private Oscar S. Barr.
 Private George Barrett.
 Private Joseph T. Bispo.

Private John Bobnik.
 Private Bert Bonde.
 Private Charles E. Boyd.
 Private Harold D. Brainard.
 Private Howard F. Bright.
 Private Ernest L. Brownson.
 Private Nathen Caminsky.
 Private Tony Carlos.
 Private Charles C. Carlton.
 Private John F. Caulfield.
 Private Anthony Centini.
 Private Leo B. Centini.
 Private Lorimer H. Chapman.
 Private Thomas A. Cook.
 Private Martin H. Conner.
 Private Charles Cooper.
 Private Milton G. Currier.
 Private John H. Dawe.
 Private Tracy M. Dobson.
 Private Robert R. English.
 Private Willard L. Erbeck.
 Private Kenneth Erskine.
 Private Vivian J. Firanza.
 Private Ernest R. Flint.
 Private Joseph A. Foster.
 Private Herbert F. Getchell.
 Private N. Winfield Gibbel.
 Private Joseph B. Gomes.
 Private Nicholas F. Gonsalves.
 Private Gustave J. Gullender.
 Private Claud F. Hahn.
 Private William L. Hammond.
 Private James J. Hanan.
 Private William C. Hannagan.
 Private Arthur J. Hansen.
 Private Walter F. Hansen.
 Private Alfred L. Harmon.
 Private Oscar C. Helm.
 Private John J. Hennessy.
 Private Edward E. Higgins.
 Private Melvin D. Holland.
 Private Charles F. Hollfelder.
 Private Richard Jensen.
 Private Einar A. Johnson.
 Private Oscar I. Johnson.
 Private Eugene S. Jones.
 Private Roland H. Kelley.
 Private Phillip Kertz.
 Private Joseph A. King.
 Private Matias Klanjac.
 Private Victor E. Krepper.
 Private Albert J. Laffaille.
 Private William K. Lamb.
 Private John P. Lertora.
 Private Harrison H. Long.
 Private Guy R. Marriner.

Battery E, First Field Artillery—Continued.

Private William Marsh.	Private Oscar C. Reite.
Private Charles D. Mecartea.	Private Carl S. Rettz.
Private Edward C. Mills.	Private Harold D. Rider
Private Samuel W. Morgan.	Private Lester G. Rosenberg.
Private Feodor Muhr.	Private Frank Sangenitto.
Private Bynum D. McCrosky.	Private Theodore Sanderson.
Private Bernard J. McNerney.	Private Emanuel J. Schachterle.
Private Charles A. Neel.	Private Harry Selensky.
Private Frederick G. Nelson.	Private Frank T. Short.
Private William L. Nevis.	Private Edward P. Smith.
Private John R. Nutall.	Private George Smith.
Private William Olsen.	Private Leroy A. Smith.
Private Vido Osulich.	Private Walter E. Stevenson.
Private Cornelius F. O'Sullivan.	Private Lewis Sullivan.
Private Peder M. Pederson.	Private John C. Swinney.
Private Antonio Pejao.	Private Preston R. Theller.
Private Carmelo Pezzolo.	Private Henry F. Theimann, Jr.
Private Herrmann O. Perigo.	Private Howard L. Thompson.
Private Abe Piler.	Private Ernest W. Tucker.
Private Walter D. Pratt.	Private Charles A. Valente.
Private Robert E. Pullen.	Private William P. Van Nostrand.
Private Thomas F. Quigley.	Private Gilbert Westoby.
Private Herbert Raines.	Private Ralph E. Wetmore.
Private Charles F. Randolph.	Private Ray E. Wiseman.
Private George G. Redmon.	Private John Zetz.
Private Edgar E. Reite.	

Battery F, First Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Harry L. Powell, Jr.	Horseshoer Irving B. Hollister.
First Lieutenant Charles E. McDowell.	Horseshoer James B. Thompson.
First Lieutenant Everett Shipley.	Mechanic Benjamin S. Blakmar.
Second Lieutenant Albert Frank Rouse.	Mechanic Ernest A. Elmore.
Second Lieutenant Joe Weston.	Mechanic Alphonso C. L. Kessler.
First Sergeant George P. Williamson.	Bugler Frank D. Bottiller.
Supply Sergeant Charles E. McKenney.	Bugler Clarence L. Jencks.
Mess Sergeant James C. Boyles.	Bugler Jack M. Pyke.
Stable Sergeant Eugene E. Valtaire.	Cook Bert F. Kibler.
Sergeant Roy L. Berryhill.	Cook William R. Lee.
Sergeant Maynard C. Crawford.	Cook Cornelius McReavy.
Sergeant Hubert F. Crowell.	Private Philip Abrams.
Sergeant Archibald M. Gardner.	Private Paul Asimakes.
Sergeant Irvin G. Gordon.	Private Bernard L. Alvey.
Sergeant Joseph M. Hawkins.	Private Adeeb M. Araman.
Sergeant Edwin D. Read.	Private Vern H. Armstrong.
Sergeant James G. Shettel.	Private Harry H. Bassett.
Sergeant Wilbur E. Wright.	Private Daniel A. Baughman.
Corporal Oliver J. Bender.	Private Joseph P. Barry.
Corporal Thomas H. Bradley.	Private Thomas S. Brady.
Corporal Henry P. Crawford.	Private Nicholas P. Brigante.
Corporal Frank E. Dennison, Jr.	Private Leo J. Brungs.
Corporal James A. Grace.	Private James B. Blaisdell.
Corporal William Gilroy.	Private Herbert L. Collier.
Corporal Harry L. Hazzard.	Private Russell M. Caldwell.
Corporal Ray A. Hughes.	Private John B. Campbell.
Corporal Randolph E. Leland.	Private Lewis E. Cantrall.
Corporal Thurman B. Lawrence.	Private Hugh R. Carl.
Corporal Walter J. Little.	Private Joaquin L. Constantine.
Corporal Harold W. Lloyd.	Private Eugene H. Conyers.
Corporal Lloyd O. Miller.	Private Ernest F. Carlander.
Corporal James L. Muir.	Private Leon Cohn.
Corporal Charles E. Plant.	Private Thomas I. Costello.
Corporal Vernon Snively.	Private Loring J. Dale.
Corporal Arthur L. Straus, Jr.	Private James D. Dun.
Corporal Charles E. Sullivan.	Private Lawrence A. Duncan.
Corporal Harold E. Webster.	Private Charles C. Eades.
Corporal Howard W. Wookey.	Private Roland R. Fenton.
Chief Mechanic Philip G. Carlstedt.	Private Bernard W. Ferguson.
Saddler Charles E. White.	Private Robert C. Finlayson.
Horseshoer Melvin C. Arnold.	Private Fred C. Forbes.

Battery F, First Field Artillery—Continued.

Private Charles A. Fowler.	Private John Macdonald.
Private Harry G. French.	Private Thomas A. Maitland.
Private Laurel R. Fugit, Jr.	Private Fay C. Marchant.
Private Haywood E. Fulcher.	Private Joaquin E. Mendez.
Private William J. Gaffny.	Private Thomas O. Miller.
Private Ivan J. Garner.	Private Henry G. Mills.
Private James W. Gaskill, Jr.	Private Russell J. Monroe.
Private Charles L. Gray.	Private Edward B. Moore.
Private Alvin Greenburg.	Private Gordon R. Nightingale.
Private Joseph A. Grisenthwaite.	Private Winfield S. Oliver.
Private Henry N. Greenke.	Private Frank E. Ortega.
Private Willis B. George.	Private John A. Otto.
Private Rolland R. Graham.	Private Shirley W. Owen.
Private Oscar H. Hanson.	Private Harry W. Pearce.
Private George M. Hasper.	Private Joseph A. Pederson.
Private Homer F. Haworth.	Private Horace B. Proctor.
Private Archie Henry.	Private George W. Piner.
Private Ralph M. Hickerson.	Private Frank I. Quinn.
Private Nils Hildingson.	Private John N. L. Randall.
Private Walter R. Hilker.	Private Edward C. Rinck.
Private Franklin M. Holmes.	Private Edwin H. Roe.
Private Edward F. Honan.	Private Henry Rohrich.
Private Ralph M. Hooser.	Private John S. Roughgarden.
Private William S. Hopkins.	Private Harvey C. Rector.
Private Richard D. Hopkins.	Private Harold W. Sampson.
Private Paul T. Howe.	Private Arthur H. Schott.
Private Leon P. Hoyt.	Private David A. Searing.
Private Hugh A. Huddleson.	Private Benjamin T. Sheppard.
Private Leo Hughes.	Private Walter A. Shrewsbury.
Private Jerome J. Hanrahan, Jr.	Private John Silva.
Private Albert L. Hart.	Private Blake G. Smith.
Private Norman W. Hess.	Private Lester H. Smith.
Private Arthur W. Hutchinson.	Private James L. Somers.
Private Irvin E. Ingram.	Private Clyde W. Stapp.
Private Travis A. James.	Private Rollin E. Stevens.
Private Chester M. Johnson.	Private Chester B. Stevens.
Private Earl Johnson.	Private Perry B. Stone.
Private Earl E. Johnson.	Private Gerald M. Sullivan.
Private Hubert W. Johnson.	Private Frederick Summers.
Private Henry F. Keebler.	Private Elmer S. Teer.
Private Leighton S. Keye.	Private Wilber D. Tolerton.
Private Lynton R. Kistler.	Private Samuel H. Thomson.
Private William W. Kerts.	Private Lewis J. Throop.
Private Cecil P. Kyle.	Private Cyrus E. Trumbull.
Private Harold I. Langworthy.	Private Clarence A. Tolle.
Private Alfred Lawson.	Private Ford J. Upton.
Private Elmer J. Labert.	Private Carl H. Vogt.
Private James G. Leevy.	Private James A. Vall.
Private Lewis Leppelman.	Private Nathaniel W. Valentine.
Private Clarence C. Long.	Private Joseph C. Wallis.
Private George B. Lueck.	Private Charles F. Wells, Jr.
Private Fred R. Lutge.	Private Walter C. Wells.
Private Eugene C. Letts.	Private Arthur G. Withrow.
Private Frederick J. McCabe.	Private Roy E. Weibel.
Private William H. McCarthy.	Private Judson J. Wickham.
Private Laurence E. McDonald.	Private Ernest B. Zaback.
Private Wallace D. McPherson.	

Headquarters Company, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

First Lieutenant Knox Maddox.	Private Francis M. Ballantyne.
Sergeant Major Wakefield Baker.	Private Frederick A. Berry.
Private George F. Albertini.	Private Nuncie Bondi.
Private Sheldon Allen.	Private George W. Brown.
Private Robin Anderson.	Private Bruce L. Burlingame.
Private Raymond Angelo.	Private Alvin R. Christian.
Private Robert H. Arnold.	Private Felix A. Cordrey.
Private Arthur C. Ashpaugh.	Private Philip A. Cox.
Private Antone Balcom.	Private Walter Crow.

Headquarters Company, Second Field Artillery—Continued.

Private Clarence W. Crowell.	Private Charles M. N. Munger.
Private Andrew Dallas.	Private Manuel A. Oliver.
Private Henry A. Dahlgren.	Private William G. Paul.
Private Patrick J. Delaney.	Private Edgar L. Payne.
Private William J. Dwyer.	Private Niles F. Pearson.
Private Alvan P. Eberhard.	Private Ray D. Penney.
Private Albert E. Elliott.	Private Ralph G. Perry.
Private Ellsworth E. Eustice.	Private Bertram S. Philip.
Private Paul B. Farnsworth.	Private Henry Reinhold.
Private Joe Fasano.	Private Peter Restivo.
Private Joe Ferrari.	Private Richard F. Robertson.
Private John P. Flynn.	Private George W. Robinson.
Private Clyde W. Fought.	Private Charles Rogan.
Private Cyril C. Frost.	Private Ray J. Rowley.
Private William Gehrig.	Private Ernest H. Savory.
Private Arcangelo Genovese.	Private Roy Schauer.
Private Amerigo Giampaoli.	Private Edward Sell.
Private James M. Goulding.	Private John Silveira.
Private Leo W. Hardy.	Private Lee R. Slatore.
Private John Harsveldt.	Private Roscoe W. Smith.
Private Hamlin E. Hatch.	Private John C. Snow.
Private Leo E. Holthouse.	Private Billie Soto.
Private Sam Howe.	Private Stanley W. Sprung.
Private Eugene C. Hubbard.	Private John J. Stanton.
Private Charles P. Hughes.	Private Robert L. Starr.
Private William A. Irvine.	Private Earl M. Storer.
Private Grover S. Johnson.	Private Senue Swanson.
Private Joe Joseph.	Private Forrest Terry.
Private Burnell A. Lacqte.	Private Arthur C. Thomas.
Private Emmett J. Legg.	Private Thomas W. Twigg.
Private Gordon W. Maples.	Private Albert C. Walker.
Private Mark A. Mathews.	Private Winston W. Walmseley.
Private Michael C. Matteis.	Private Paul A. Watson.
Private Lawrence B. McGreery.	Private Winsor D. Wilkinson.
Private Walter S. McWhorter.	Private Anton Zaputovich.
Private Ralph O. Menasco.	Private George L. Zaro.
Private Victor R. Muller.	

Supply Company, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Frederick B. Hussey.	Private Dana McEwen.
Private Irving Barnes.	Private Paul McGrath.
Private Julius B. Cail.	Private Manuel G. Mello.
Private Gregorio Cantinbuban.	Private Walter H. Morgan.
Private Franklin Cogswell.	Private Harry F. Pool.
Private Jacob H. Denzler.	Private Walter L. Potter.
Private Herbert A. Friedlander.	Private Joe Romondo.
Private William F. Gordon.	Private Fred W. Sayles.
Private Clarence Gorham.	Private Henry Scanovino.
Private Henry Hastings.	Private Eugene Seeba.
Private James H. Jansen.	Private Sydney Plunkett Sutton.
Private Fred A. Kane.	Private Louis Titas.
Private Kasper Koogoolin.	Private Elwood I. Tripp.
Private Frank P. La Mouatt.	Private Antone Vierra.
Private Stephen F. Luck.	Private Glen Van Order.
Private Charles A. Manning.	Private Frank O. Worthington.
Private Samuel Markowitz.	

Battery A, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Peter B. Kyne.	Private Rhett W. Ford.
First Lieutenant Grover S. Tracy.	Private Irvine E. Francis.
Second Lieutenant Thomas Alton, Jr.	Private Clifford C. Garnett.
Second Lieutenant Berrien P. Anderson.	Private Emmett M. Gaul.
Private William B. Ahlstrand.	Private John J. Gillick, Jr.
Private Frank H. Argyle.	Private Harry F. Gleeson.
Private Leland Ayer, Jr.	Private Elwood M. Gray.
Private James Bachigalupi.	Private Louis Greenberg.
Private Fredric B. Bailey.	Private John T. Griffin.
Private Glenn I. Banta.	Private Earl H. Grover.
Private Roy S. Bassett.	Private William L. Guthrie.
Private Arthur E. M. Bateman.	Private Elmer Guy.
Private Dave P. Batiloro.	Private Charles J. A. Halberg.
Private Frank N. Belgrano, Jr.	Private Harry N. Hansen.
Private Raymond A. Belinge.	Private Herbert Harding.
Private Julius T. Berry.	Private Casper Hare.
Private Charles H. Bessett.	Private Edward J. Haughey.
Private Nelson J. Bowen.	Private Donald D. Hayford.
Private Martin Brender.	Private Samuel C. Heard.
Private Joseph D. Brogan.	Private Harry F. Heine.
Private Charles A. Burgess.	Private Frank J. Hickey.
Private Jas. D. Butler, Jr.	Private Frank Hill.
Private John James Callaghan.	Private John F. Homesley.
Private John B. Cantwell, Jr.	Private W. Hopkins.
Private Daniel F. Carmody.	Private Daniel M. Horgan.
Private Frank J. Carter.	Private Cecil L. Hornberger.
Private C. A. Casey.	Private Brice B. Horrall.
Private Melville J. Castillo.	Private Clarence Howard.
Private Alfred Catti.	Private Lester Hubbard.
Private James Chalmers.	Private Edwin L. Jennings.
Private William W. Cole.	Private Irwin Jensen.
Private Arab J. Collins.	Private Johannes B. Jensen.
Private George P. Collins.	Private Samon J. Jaquet.
Private Frank A. Conlon.	Private George Johnson.
Private Vincent T. Connolly.	Private Hugh Johnston.
Private Henry Conserva.	Private Allen B. Jones.
Private Joseph A. Conway.	Private Hayward Willis Jones.
Private Morris C. Cooper.	Private John Ed. Keegan.
Private Chester M. Cotton.	Private John M. Keenan.
Private Stewart C. Cronin.	Private John V. Kilkenny.
Private R. P. Crowley.	Private Richard Kucich.
Private George D. Culverwell.	Private Jean Labarde.
Private Michael K. Curran.	Private Wesley E. Landstrom.
Private Thomas A. Cushing.	Private Henry C. Larrieu.
Private Charles A. Dailey.	Private Arthur Lawrence.
Private Joseph D. Darcy.	Private William C. Little.
Private Leon A. de Lisle.	Private Charles D. Luce.
Private Raymond A. Diaz.	Private Charles L. Lukens.
Private Mancrief P. Dickson.	Private Walter H. Lukens.
Private George A. Dobbs.	Private J. M. McAllister.
Private John J. Doherty.	Private Charles F. McCann.
Private Bertram M. Dolan.	Private Daniel McCarthy.
Private Kelsey C. Doll.	Private Joseph McCarthy.
Private Bernard J. Dooley.	Private Peter J. McCarthy.
Private Frank J. Dolly.	Private Peter McCullough.
Private Ed. Dougherty.	Private Frederick McClaskey.
Private Edward F. Dougherty.	Private Francis McCloy.
Private Edward J. Duggan.	Private Francis J. McClaskey.
Private Thomas M. Dunn.	Private Clifton McDonough.
Private Frank M. Dwyer.	Private William T. Madison.
Private James C. Dyer.	Private Mervyn George Maher.
Private Joseph A. Ebner.	Private Leo Ernest Marchand.
Private Domingo Y. Ebro.	Private Chas. J. McGuire.
Private Douglas F. Edwards.	Private Roger E. McKenna.
Private George B. Emmison.	Private William McLaughlin.
Private Julius C. Erickson.	Private Daniel A. McNulty.
Private Frank Evans.	Private Lester S. McRae.
Private William A. Fine.	Private Mark Melandy.
Private Thomas W. Fitzsimmonds.	Private Peter F. Milan.

Battery A, Second Field Artillery—Continued.

Private Jos. B. Moloney.	Private Homer W. Schubert.
Private Robert N. Morrison.	Private Fred F. Schulz.
Private Ross Munro.	Private Anton F. Schunk.
Private Peter R. Murray.	Private Wm. G. Sellick.
Private Mario Joseph Negro.	Private Rea W. Shaw.
Private Alfred A. Newman.	Private Isaac Silberstein.
Private Frank D. O'Brien.	Private Nicholas J. Siggins.
Private V. O'Brien.	Private Harvey K. Sollars.
Private Ray O'Laugue.	Private Leslie W. Somers.
Private Julian A. Palin.	Private Forest E. Sprague.
Private Robert W. Paterson.	Private Thos. Wm. Stewart.
Private Samuel Petsinger.	Private Edward J. Sweeney.
Private Joseph E. Perry.	Private C. P. Sweet.
Private John Joseph Picetti.	Private Earl G. Taylor.
Private Bernard Pillardon.	Private Victor Sim Thompson.
Private Harold F. Phillips.	Private Colfax C. Tichenor.
Private Albert B. Plotz.	Private Frank C. Tozer.
Private Walter L. Potter.	Private Norwood D. Tichenor.
Private Andrew Pryal.	Private Hugh Toomey.
Private James L. Quigley.	Private Hugh Walker.
Private Carl J. Raab.	Private Everard F. Walker.
Private John W. Randolph.	Private William T. Ward.
Private Bertram A. Richards.	Private Jos. D. Welch.
Private Morton E. Robison.	Private Robert Whitson.
Private William P. Rosewall.	Private F. Ellis Wilcoxon.
Private John T. Russell.	Private George R. Winn.
Private John F. Ryan.	Private Alfred W. Wright.
Private Lemuel D. Sanderson.	Private David John Young.
Private Henry J. Sannes.	

Battery B, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Thomas T. C. Gregory.	Private Joseph R. Davis.
First Lieutenant Alexander W. Bergevin.	Private Joseph DeBare.
First Lieutenant Lawrence D. Sweeney.	Private Ebenezer E. Devoe.
Second Lieutenant David M. Crabtree.	Private Harry Dougherty.
Second Lieutenant Richmond Tatham.	Private Raymond A. Eagan.
Private Walter H. Adams.	Private Clarence P. Earl.
Private Leon H. Ader.	Private Kenneth Eastman.
Private Loyd Alken.	Private Frederick Elgin.
Private Fred B. Baker.	Private John A. Elkins.
Private Domenico Barbera.	Private John F. Fahey.
Private Ernest L. Barnes.	Private Lester J. Fahy.
Private Paul D. Bennis.	Private William S. Ferguson.
Private Murray Benton.	Private Frederick J. Filppini.
Private Henry E. Bianchi.	Private Robert Fischer.
Private Julius Black.	Private Leonard W. Fitzgerald.
Private DeWitt Boggs.	Private Henry S. Foley.
Private Kosta Boris.	Private Donald C. Follis.
Private Thomas J. Bowen, Jr.	Private Thomas L. Follis.
Private James Braghetta.	Private Byington Ford.
Private Byron Brown.	Private John S. Fox.
Private Harry E. Brown.	Private Henry E. Foye.
Private Harold C. Bruntsch.	Private Forest E. Francis.
Private James E. Buchanan.	Private Charles T. Franklin.
Private Ernest V. Burdick.	Private Alver E. French.
Private Claude T. Canavan.	Private Humbert Galiata.
Private Remi Casamayou.	Private Louis Garoutte.
Private Oliver H. Cash.	Private Ernest A. Gisin.
Private William A. Cavanagh.	Private Alphonso F. Glenn.
Private Fred M. Charles.	Private Harry Glenn.
Private Mervyn P. Cheetham.	Private Wilbert Griffin.
Private Cris. Christensen.	Private Robert Griffiths.
Private Frederick Clevenger.	Private Robert R. Griswold.
Private Kenneth G. Collom.	Private August E. M. Guillott.
Private Robert M. Crisman.	Private James A. Hammond.
Private Loyal A. Damon.	Private Hans N. Hansen.
Private Orson H. Davenport.	Private John H. Haquette.
Private George S. Davis.	Private Alburmah Harbough.

Battery B, Second Field Artillery—Continued.

Private Nelson L. Harding.	Private Earl H. Mielenz.
Private Roland W. Harrison.	Private John Moulie.
Private Frank D. Hatton.	Private Alfred Montagne.
Private Edmund Hearne.	Private Clarence M. Moran.
Private Francis R. Heath.	Private George G. Montgomery.
Private Chester A. Hemphill.	Private Edward F. Morrissey.
Private Albert J. Henley.	Private Raymond L. Murphy.
Private Herbert H. Hiestand.	Private Theodore E. Nelander.
Private Colin Hill.	Private Leo Neyt.
Private George W. Hogan.	Private Leonard Nichols.
Private Ralph B. Hogan.	Private Emil C. Nissen.
Private Charles I. Hirsch.	Private Franklin W. O'Brien.
Private Russel R. Ingles.	Private William F. Ohlson.
Private George B. Jackson.	Private George R. Oliver.
Private James G. Jefferys.	Private Thomas Olmo.
Private Louis W. Johnson.	Private Delfino Orecchia.
Private Miley J. Johnson.	Private George R. Page.
Private Dwight D. Johnston.	Private Julius R. Pappa.
Private William P. Johnston.	Private Edwin B. Parker.
Private Dwight W. Jones.	Private John M. Peters.
Private Frank M. Jordan.	Private Eldridge R. Petteys.
Private John J. Kearney.	Private George Poplowske.
Private Herbert C. D. Keith.	Private Kenneth C. Porter.
Private William C. Keith.	Private Edmund R. Powers.
Private Lloyd D. Kelley.	Private Edward J. Preve.
Private Edward P. Kerwin.	Private Chester Pringle.
Private Herbert F. Kilker.	Private Francis E. Quigley.
Private Louis R. Klempf.	Private William F. Rams.
Private Herbert L. Kohler.	Private Herbert F. Rea.
Private Eric F. H. Lange.	Private John M. Reuck.
Private Guthrie Large.	Private Carlo C. Rostoni.
Private James S. Leavy.	Private Cramer E. Russell.
Private Raymond A. Lee.	Private Joseph Saligari.
Private Percy Leland.	Private Albert Sandell.
Private Albert L. Lindholm.	Private Eliot R. Schaffer.
Private George L. Lippert.	Private Etienne A. Schumacher.
Private Robert R. Lockhart.	Private Dwight Selby.
Private Kenneth M. Logan.	Private Albert D. Shaw, Jr.
Private Robert Long.	Private Edward Sheehan.
Private Adam Lowry.	Private Charles H. Shewmaker.
Private Lloyd M. Lyons.	Private Fred A. Smith.
Private Thomas S. Madden.	Private James H. Smith.
Private George Manning.	Private William Starr.
Private Felix Martel.	Private John J. Stelling.
Private Ernest Martin.	Private John E. Stolting.
Private Peter Martin.	Private Robert Stoops.
Private Alfred J. Mathebat.	Private Louis M. Straub.
Private Harry J. Matthews.	Private Charles E. St. Goar.
Private Francis McAuliffe.	Private Chester B. Tantau.
Private William R. McCall.	Private Harry S. Thompson.
Private Andrew H. McCampbell.	Private Albert R. Tompkins.
Private James P. McCarthy.	Private George F. Toomey.
Private Matthew H. McCullough.	Private John F. Trantham.
Private James P. McDonald.	Private Gilbert S. Trood.
Private Jess E. McKillop.	Private Willard F. Waugh.
Private Harold R. McKinnon.	Private Frank R. Wehe, Jr.
Private Elmer M. McLachlan.	Private Neville Weingarten.
Private Hays McMullin.	Private Merton White.
Private John B. Meehan.	Private Charles W. Whitehead.
Private Lionida V. Meek.	Private Arthur Woodman.

Battery C, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Edward White Stewart.	Private Samuel U. Graham.
First Lieutenant Phillip S. Finnell.	Private Allan S. Grover.
First Lieutenant William S. Tevis, Jr.	Private Raymond Grover.
Second Lieutenant Nicholas G. K. Boyd.	Private Abell P. Hatcher.
Second Lieutenant Oliver M. Weed.	Private Earle B. Hayward.
Private Weston G. Akers.	Private Alfred E. Heinrich.
Private Earnest P. Ambler.	Private Leroy Henderson.
Private Carl Anderson.	Private Patrick Henry.
Private William H. Austin.	Private Lloyd E. Hidden.
Private Harlow Bailey.	Private Fred A. Hill.
Private Samuel D. Barkley, Jr.	Private William J. Hill.
Private Bertram S. Barnes.	Private William O. Hoffman.
Private Fallie H. Barnes.	Private Nathan D. Hynson, Jr.
Private Austin C. Barney.	Private Sydney F. Ickes.
Private Robert D. Barton.	Private Augustine J. Jannessens.
Private Eddie C. Bassie.	Private Donald Johnston.
Private Kittredge Batchelder.	Private John Kane.
Private Lewis M. Beatty.	Private Ben B. Kellogg.
Private John W. Beck.	Private Ashby H. Keeney.
Private Edward L. H. Bissinger.	Private Joseph D. Kerr.
Private Vincent P. Blanchard.	Private Joseph A. Kincaid.
Private Cameron F. Bradley.	Private Frank A. Kitching.
Private LeRoy Bourquin.	Private Paul F. Klatt.
Private Oscar Brown.	Private Alphonse J. La Bonte.
Private Robert C. Buchman.	Private John B. La Fontaine.
Private Frank S. Burland.	Private Percy J. Langdon.
Private Frank J. Calderon.	Private George E. Learned.
Private Charles H. Calef.	Private Weston E. Learned.
Private Thomas M. Canvin.	Private Grant W. Lee.
Private Joseph A. Carr.	Private Lyle R. Lester.
Private Lawrence H. Caruthers.	Private Wilmarth S. Lewis.
Private Arthur P. Casey.	Private Warren S. Lincoln.
Private Thomas B. Charlie.	Private William S. Lopez.
Private Phra Christianee.	Private Earnest T. Luttrell.
Private Arthur M. Clark.	Private Vivian F. Mallett.
Private Frank M. Clark.	Private Paul Marinovich.
Private Morrison E. Cleland, Jr.	Private Edwin W. Marole.
Private John E. Coleman.	Private Sherley McAndrew.
Private Frederic W. Conant.	Private Leslie M. McClary.
Private Leandro C. Cordero.	Private George C. McCrea.
Private Thomas E. Cornwall.	Private Joseph J. McDermott.
Private Alonza F. Cota.	Private Angus McGillivray.
Private Lawrence Cowing.	Private Allan P. McIntosh.
Private James I. Cruickshank.	Private John R. McIntosh.
Private Charles Dandy.	Private George A. McMullen.
Private Vincenzo Daniello.	Private Walter S. Millar.
Private Karl R. Day.	Private John W. Miller.
Private Lockwood De Forest, Jr.	Private Paul J. Miller.
Private Stanley R. Dickover.	Private Erbine G. Miles.
Private Edward W. Doll.	Private Henry Milne.
Private Bernie J. Dominguez.	Private William Milne.
Private Robert A. Dominguez.	Private George F. Minsar.
Private John E. Dugan.	Private Benjamin D. Moore.
Private Stanley W. Duncan.	Private Daniel L. Moyer.
Private Conrad L. Ellington.	Private Robert W. Munyon.
Private Arthur E. Fagan.	Private Albert F. Neil.
Private Charles Farrell.	Private Fred C. Nelson.
Private Eugene Fenelon.	Private Melvin C. Nelson.
Private Allen C. Ferguson.	Private Robert Nicol.
Private Juan S. Fostero.	Private Karl S. Norton.
Private Thorne E. Free.	Private Arthur E. Ogilvy.
Private Earl T. Gadbe.	Private Joseph R. O'Laughlin.
Private Bartolo J. Garavatti.	Private Lawrence P. Orella.
Private Seth S. Gidley.	Private Edgar D. Park.
Private Charles E. Gillett.	Private Warner F. Parker.
Private Antolini Giovanni.	Private John N. Pastore.
Private Heber L. Gleason.	Private Dawson R. Pendleton.
Private Theodore P. Gordan.	Private Wilfred H. Penry.
Private Armand Goytino.	Private Edgar A. Peres.

Battery C, Second Field Artillery—Continued.

Private John A. Peres.	Private Henry L. Stambach, Jr.
Private Orrin S. Phillips.	Private Jack G. Stark.
Private Anthony A. Pinney.	Private Donald R. Stevenson.
Private Ulysses S. Poe.	Private John L. Stevenson.
Private Eric B. Potier.	Private Walter J. Stronach.
Private Jay Powers.	Private Clyde S. Tassell.
Private David T. Prenter.	Private Hollis Taylor.
Private Samuel M. Prenter.	Private William R. Taylor.
Private Robert P. Price.	Private James Tex.
Private Oscar C. Pumphrey.	Private Edward Thacher.
Private Stephen Raffour.	Private Howard F. Thurston.
Private Emory Ramey.	Private George M. Toby.
Private Russell Ray.	Private Walter E. Tognazzini.
Private Leslie G. Remley.	Private Martin J. Tompkins.
Private Maynard S. Reynolds.	Private George Troup.
Private Ralph P. Richardson.	Private Ray B. Tuck.
Private Herbert C. Rios.	Private Edward Von Erxleben.
Private John R. Scholl.	Private Walter R. Ware.
Private Herbert H. Schroeder.	Private Harry C. Weorne
Private Clayton S. Searle.	Private Fred C. White.
Private Archie M. Shaw.	Private Harry A. White.
Private Harry A. Shaw.	Private Earl R. Wickham.
Private Carl H. Shedd.	Private Rayburn H. Wilson.
Private Harold M. Sherman.	Private Albert S. Williams.
Private George W. Silverstone.	Private Jillian P. Williams.
Private Clinton R. Skutt.	Private James L. Woods.
Private James L. Snell.	Private William E. Young.

Battery D, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Robert I. Bentley.	Private James B. Clark.
First Lieutenant Richard J. Bond.	Private Bertram J. Coffey.
Second Lieutenant Edwin R. Armsby.	Private Harley A. Coffey.
Second Lieutenant Wilmer J. Gross.	Private Charles A. Cole.
Private William H. Akers.	Private Roger M. Comstock.
Private Floyd L. Allen.	Private George T. Corey.
Private Glenn R. Anderson.	Private Louis J. Corti.
Private John G. Anderson.	Private Paul A. Coules.
Private Elmer Atwood.	Private Howard W. Davis.
Private Alden F. Ayers.	Private David L. DeArman.
Private Beauford S. Baer.	Private Lowell S. Donnell.
Private Lamuel E. Bancroft.	Private Robert E. Driscoll.
Private Carter Barrett.	Private Allen A. Dunfield.
Private T. K. Barton.	Private Leo H. Dunlap.
Private Josiah H. Belden.	Private William Y. Eaves.
Private John R. Benson.	Private Roy M. Edmonds.
Private Jack C. Benton.	Private Alton W. Edwards.
Private Alexander H. Bishop.	Private John B. Eustace.
Private Maurice Blache.	Private William D. Ferry.
Private Raymond Black.	Private John H. Fitzpatrick.
Private Louis C. Blasdel.	Private Harry M. Foulce.
Private Fletcher Bowron.	Private Frank G. Freeman.
Private Kyrle K. Bowsher.	Private Lee W. Fry.
Private William R. Bradley.	Private Andrew D. Fyfe.
Private Casimer J. Brauer.	Private Patrick A. Galgani.
Private Chester H. Breon.	Private Alfred L. Garcia.
Private Spencer D. Brown.	Private Harry B. Garman.
Private Louis V. Bruffet.	Private Leon G. Gates.
Private Sam W. Burke.	Private Henry J. Geimer.
Private Elow L. Burns.	Private Elmer L. Gill.
Private Homer C. Burt.	Private Frank A. Glenn.
Private Willis E. Butler.	Private Norman Goody.
Private Thomas R. Caldwell.	Private Clarence Gray.
Private John C. Campbell.	Private John L. Gray.
Private George T. Carney.	Private Morris M. Guthrie.
Private Allen W. Case.	Private Arthur I. Hall.
Private Ralph O. Chick.	Private Leslie B. Hamel.
Private Herbert B. Childs.	Private Edgar S. Hamilton.

Battery D, Second Field Artillery—Continued.

Private Francis D. Hamilton.	Private Elmer L. Prince.
Private Bennie C. Hampton.	Private Fred W. Pump.
Private Harold Hancock.	Private James G. Reed.
Private Arthur O. Harris.	Private Stanley M. Reingaus.
Private John G. Henderson.	Private Samuel F. Renner.
Private Cecil W. Hess.	Private Harold F. Rich.
Private Roscoe R. Hess.	Private Alexander Robertson.
Private Elmer S. Hinds.	Private Cyril S. Robinson.
Private Jack T. Hunsaker.	Private Paul W. Rothenberg.
Private Bruce Ismay.	Private Cloyd B. Rotz.
Private Andrew Irvine.	Private Joseph W. Russell
Private Cecil W. James.	Private Frank E. Rutledge.
Private Julian M. Johnson.	Private Edwin B. Schaeffe.
Private Percy H. Johnstone.	Private Herman C. Schiebler.
Private John P. Jones.	Private Leland Schmidt.
Private John M. Jordon.	Private Felix B. Seay.
Private Kenneth M. Kirk.	Private Charles H. Shorey.
Private Michael J. Lacey.	Private George Sigigie.
Private Phillip C. Lashan.	Private James F. Sims.
Private Rene L. Legoube.	Private Mathew Slavin.
Private Melville E. Leighton.	Private Arthur J. Smith.
Private Harold Leininger.	Private Clifton R. Smith.
Private Charles P. Lord.	Private Leslie E. Smith.
Private Vern W. Lord.	Private William G. Smith
Private Wynn H. Mace.	Private Raymond C. Spencer.
Private Merit MacKay.	Private John S. Staats.
Private Samuel B. Martin.	Private Frank J. Stepka.
Private Berry F. Massey.	Private Donald G. Stitt.
Private Harry R. Mayer.	Private Francis D. Swaney.
Private Chas. L. Mead.	Private Richard H. Stevenson.
Private Elmer S. Mecham.	Private Richard Talbot.
Private Lindsay M. Mills.	Private Theodore H. Theurer.
Private Joe B. Miller.	Private Paul Thompson.
Private William C. Minger.	Private William J. Tilly.
Private Stanley Morrison.	Private Howard H. Timmons.
Private Harry E. Mull.	Private William H. Tichenal.
Private Phil M. Murray.	Private Oscar C. Toland.
Private Benjamin A. McCourt.	Private Lester F. Toon.
Private Oliver McCullough.	Private George Turk.
Private William H. McDonald.	Private George G. Tyler.
Private Frank I. McGuire.	Private Barry S. Ulrich.
Private Frank K. McIntosh.	Private Edward Ulrich.
Private Russell G. McIntyre.	Private James W. Vermilya.
Private Robert E. McKenzie.	Private Clarence A. Voight.
Private David N. Naftel.	Private Harold L. Watenpaugh.
Private Louis F. Natho.	Private George K. Watt, Jr.
Private Charles E. Nice.	Private Arthur R. West.
Private Albert J. O'Brien.	Private Frank C. Whaley.
Private Fred Ostendorf.	Private George C. White.
Private Julius Pacini.	Private Arthur C. Whitten.
Private William E. Page.	Private Bob Wildhorse.
Private Edward T. Payne.	Private Frederick W. Williams.
Private Elmer Chas. Pedley.	Private Nye H. Williams.
Private Henry O. Phillips.	Private Bruce S. Williamson.
Private Paul J. Phillips.	Private Dean A. Wilson.
Private William Phillips.	Private Herbert E. Wilson.
Private Julius G. Poetz.	Private Herman B. Wilson.
Private Harry R. Pohlmeier.	Private Leon E. Wilson.
Private William A. Preston.	Private Willard L. Wolcott.
Private Howard C. Price.	Private Laurel S. Wynn.

Battery E, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain Jefferson J. Graves.	Private Melville G. Goldstein.
First Lieutenant Edward C. Ford.	Private Charles Goodwin.
Second Lieutenant Philip K. Bekeart.	Private Philip A. Gordon.
Second Lieutenant Cedric R. Richmond.	Private Jesse D. Grayson.
Private Charles Abbey.	Private Leonard C. Gregg.
Private Louis L. Aho.	Private Elmer J. Grossman.
Private Edward E. Anderson.	Private Apollo Hanson.
Private Joseph Bachmurski.	Private Arthur G. Hansen.
Private Joseph Barbe.	Private Rasmus P. Hansen.
Private Leon R. Basye.	Private Asa Harris.
Private Oliver R. Bear.	Private Ira D. Harris.
Private George Biddy.	Private Wesley J. Hawksworth.
Private John W. Bissinger.	Private William A. Hawksworth.
Private Parley Black, Jr.	Private Bernard S. Henry.
Private Charles T. Blankenship.	Private Arthur E. Herrill.
Private William T. Bloyd.	Private Richard M. Hicks.
Private Peter Bottest.	Private Lesley M. Hill.
Private John C. Brame.	Private Earl Hope.
Private James E. Brenton.	Private George V. Hopkins.
Private Thomas C. Briggs.	Private Henry G. Hurst.
Private Robert Brooks.	Private Edwin B. Hyatt.
Private Eugene Browe.	Private James Ingle.
Private Roy Bullard.	Private Harry Ingram.
Private Grant Bullock.	Private James C. Ingram.
Private Archibald Burns.	Private Leonidos F. Johnson.
Private Fred Campedonica.	Private Carl F. Kahl.
Private Joseph A. Camara.	Private William J. Keough.
Private Joseph B. Cannon.	Private Walter G. Kerr.
Private David W. Carlson.	Private Harry Kirmond.
Private Curtis A. Carpenter.	Private Emil J. Kohnman.
Private Frank Carr.	Private Mathas Kolar.
Private Manuel Castro.	Private John M. Kotchevar.
Private Roy N. Chambers.	Private Ernest Kreyenhagen.
Private William Choroski.	Private Henry A. Krueger.
Private Henry J. Clark.	Private Thomas F. Lane.
Private Charles H. Clark.	Private Treffle R. LaSenay.
Private William S. Clary.	Private Rene P. LeFevre.
Private Frank H. Cole.	Private William F. Leio.
Private Patrick Collins.	Private Archie F. Lennox.
Private Foye Cothrin.	Private Albert L. Lertora.
Private Albert L. Coulon.	Private Erwin E. Lewis.
Private Walter R. Covars.	Private Douglas D. Lewis.
Private Arthur Craig.	Private Donald W. Leyden.
Private Mitchell B. Crain.	Private James Little.
Private Archibald L. Crawford.	Private John F. Logan.
Private Joseph Cuneo.	Private Arthur C. Long.
Private Joseph D. Curtis.	Private Cloyce Long.
Private James Dadas.	Private Carleton B. Lyon.
Private John Daneak.	Private Fred D. Lyon.
Private James H. De Lara.	Private Charles F. Marks.
Private William S. Desmond.	Private Robert E. Merkle.
Private Lawrence N. Dinkelspiel.	Private Henry J. Moore.
Private Everett E. Drake.	Private Albert G. Moreño.
Private Ray C. Duncan.	Private Robert M. Murden.
Private Fred C. Ede.	Private John D. McCarty.
Private George D. Ede.	Private Leland G. McGorray.
Private Rudy A. Eissler.	Private Owen McMahon.
Private Ivan C. Ekman.	Private Robert S. McMillin.
Private Thomas F. Enix.	Private Fred McNally.
Private William R. Enix.	Private Neil B. McSwain.
Private George B. Evans.	Private John M. Nielsen.
Private George Eule.	Private Alvan Noble.
Private Ernest S. Fisk.	Private Oscar Noren.
Private Erwin Frane.	Private Joseph A. Norris.
Private John B. Franzina.	Private John H. Norwood.
Private James E. French.	Private Lester J. Null.
Private James M. Frothingham.	Private James A. O'Brien.
Private Dan T. Frye.	Private Emile E. Oddoul.
Private Charles E. Kinney.	Private Marcus R. Ogden.
	Private Jesse Orr.

Battery E, Second Field Artillery—Continued.

Private Manuel J. Peres.	Private John J. Souza.
Private Roy W. Peterson.	Private Harry T. Stoeckel.
Private Joseph A. Picetti.	Private Frank E. Sullivan.
Private Frank Poncini.	Private James Sutter.
Private James G. Porter, Jr.	Private Victor Thaddeus.
Private Arthur W. Pottle.	Private Milton E. Thayer.
Private Clarence H. Quinn.	Private Ira G. Thompson.
Private Chester A. Ray.	Private Allen W. Thornton.
Private Harold C. Raymond.	Private Humphrey Todd.
Private Hugh I. Regan.	Private William A. Tracy.
Private James H. Riley.	Private John Valentine.
Private David Rodgers.	Private William W. Volmer.
Private John T. Rowland.	Private John C. Wagner.
Private Edward C. Sands.	Private George S. Weaver.
Private Nevil V. Sanford.	Private Benjamin H. Weaver.
Private Robt. H. Savage.	Private Clarence Weickert.
Private Edward Savary.	Private Miles Welliver.
Private Claud Scanavino.	Private Alex J. Welte, Jr.
Private John D. Schuster.	Private Oscar L. Wertzba.
Private Manuel J. Sequeira.	Private Merton W. Weymouth.
Private Otto W. Sempner.	Private Carlisle R. Wilson.
Private Fernando Sera.	Private John F. Wilson.
Private Dock P. Shaw.	Private Winfield W. Woodbury.
Private John J. Silva.	Private Aurelio R. Zanetti.
Private Anthony Silver.	Private Charles J. Zetterlund.

Battery F, Second Field Artillery.

(Called into Federal Service August 5, 1917.)

Captain William G. Devereux.	Private Leslie M. Dennis.
First Lieutenant F. J. Solinsky, Jr.	Private Joseph H. DeRose.
Second Lieutenant Elmer E. Chase.	Private John S. Desmond.
First Sergeant Wm. K. Hutton.	Private Byron R. DeWitt.
Cook Millard Goekler.	Private Frank Dinapoli.
Cook Harold J. Miller.	Private J. A. Donohoe, Jr.
Cook James N. Way.	Private Wilbur B. Doyle.
Private Clarence Acree.	Private Wade Eades.
Private Ray C. Adams.	Private George W. Earl.
Private Sidney Allen.	Private Selwyn E. Elledge.
Private Fowler D. Barker.	Private Joseph E. Ennis.
Private James Barton.	Private John J. Farley.
Private Raymond N. Becket.	Private Joseph A. Fiedler.
Private Murt P. Bellus.	Private Wm. S. Firmstone.
Private Ralph P. Beaver.	Private James S. Forrest.
Private Harvey L. Bigelow.	Private Vincent A. Fraga.
Private Wm. R. Bigelow, Jr.	Private Alexander Gilzean.
Private Walter E. Blasing.	Private Phillip Goulden.
Private Joseph A. Blewett.	Private George H. Gowing.
Private Fred A. Bliss.	Private Frank D. Grasso.
Private Ray Bond.	Private Frank H. Gray.
Private Allan H. Bowie.	Private John A. Gray.
Private Joseph M. Brand.	Private Victor E. Green.
Private James E. Brannan.	Private Ray C. Gunderman.
Private Charles D. Brown.	Private Otto B. Haas.
Private Henry F. Brown.	Private Melvin B. Haley.
Private Walter Brown.	Private Adolph E. Harder.
Private Charles F. Burke.	Private Roscoe L. Harper.
Private Wm. J. Burns.	Private Elmer S. Harris.
Private Thomas W. Campbell.	Private Wm. T. Hawkins.
Private Henry M. Center.	Private Harold V. Heffner.
Private Thomas L. Chambers.	Private Thomas B. Henderson.
Private Bozo J. Chepernich.	Private Ernest E. Henrici.
Private Abe Cole.	Private Herbert E. Herring.
Private Milton H. Costillo.	Private Alvin E. Hess.
Private Allison R. Courts.	Private Cleveland Hill.
Private Ransford A. Crook.	Private Harold Hoig.
Private John M. Cunningham.	Private Osmer C. Hopkins.
Private Earl C. Dart.	Private Lester L. Jacobs.
Private James E. Davis.	Private Julian Jensen.
Private James J. Dedrick.	Private Olin S. Johnson.
Private John Denair.	Private Thomas L. Jones.

Battery F, Second Field Artillery—Continued.

Private Elmer D. Kaerth.	Private Emil L. Roff.
Private George W. Kapusta.	Private Marion C. Ross.
Private Raymond J. Kennedy.	Private Joseph W. Schaffer.
Private George W. Klein.	Private Mayo Scurlock.
Private Bozo G. Konevich.	Private Clarence E. Shoup.
Private Ralph E. Lapham.	Private Leslie E. Shoup.
Private Joseph E. Leal.	Private John J. Shuford.
Private Ralph J. Lichty.	Private Manuel Silva.
Private James A. Locy.	Private Frank Silveira.
Private Percy A. Logue.	Private George M. Sinclair.
Private Rolland Long.	Private Emil L. Slaughter.
Private Walter I. Long.	Private Lonzo S. Slaughter.
Private Elmer Lorenz.	Private Budd Smith.
Private Frank W. Lowden.	Private Charles F. Smith.
Private George S. Lowden.	Private Irving Smith.
Private Allen R. Luddy.	Private Milton M. Smith.
Private Charles R. Lynch.	Private Roger W. Smith.
Private James P. Malone.	Private Claude Snider.
Private Herman Maringer.	Private Lloyd D. Spratt.
Private Frederick J. Martinez.	Private Leon R. Stanley.
Private Herbert Mathias.	Private Louis V. Stanton.
Private Thomas B. Maupin.	Private Eugene C. Stephenson.
Private Perry Maupin.	Private Philip C. Stetson.
Private Byron McBain.	Private Wm. F. Stone.
Private Paul D. Martgano.	Private Charles H. Tallant.
Private John J. McCrank.	Private Wm. E. Tamisier.
Private Albert W. McDonald.	Private George H. Taylor.
Private Alexander McIntosh.	Private George I. Thorne.
Private Harry M. Meyers.	Private Leonard S. Tierney.
Private Brice A. Miller.	Private Clarence E. Totten.
Private Jesse Miller.	Private Ross G. Tracie.
Private Kenneth C. Montgomery.	Private Frank L. Trimble.
Private Leo G. Mueller.	Private Frederick B. Trimble.
Private F. Roy Muller.	Private Wm. J. Tunison.
Private James H. Murphy.	Private Lester E. Tuttle.
Private Carl R. Nichols.	Private Archie Tye.
Private Peter C. Nichols.	Private Raymond S. Vandervoort.
Private Ira T. Nichols.	Private Albert E. Viacava.
Private Wm. O'Keefe.	Private George L. Wakerley.
Private Lester J. Parks.	Private James C. Walker.
Private Charles A. Paulsen.	Private John U. Walters.
Private Fred R. Peat.	Private Hary B. Warner.
Private John R. Perkins.	Private Eddie Watson.
Private George Peterson.	Private Milton O. White.
Private Casimir S. Pierozynski.	Private Alfred Whittell.
Private Oscar E. Pinneo.	Private Robert J. Williams.
Private Theodore Poage.	Private Wallace H. Williams.
Private Jesse E. Pratt.	Private William J. Williams.
Private Chester A. Pulse.	Private Carroll B. Williamson.
Private Michael W. Quadrino.	Private Everett R. Wilson, Jr.
Private Louis Quintana.	Private Ray F. Winslow.
Private George W. Riddell.	Private Jesse Wright.
Private David H. Robinson.	Private Herman J. Wolters.
Private Clifford C. Roffee.	Private Roy E. Yancey.

Field and Staff Officers, First Coast Defense Command, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Colonel Henry G. Mathewson.	Captain Joseph P. McQuaide (Chaplain).
Lieutenant-Colonel Charles J. Mund.	Captain Martin C. Walton, Jr.
Major Richard E. Mittelstaedt.	Captain Allen G. Wright.
Major William H. Mallett.	First Lieutenant James G. Devine.
Major Sidney E. Clyne.	First Lieutenant Alva R. Fouratt.
Captain Charles N. Kirkbride.	First Lieutenant Paul J. Weinhausen.

Non-Commissioned Staff, First Coast Defense Command, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Master Electrician William W. Bliss.	Electrician Sergeant, first class, Ralph J. Rorden.
Master Electrician Albert T. Emerson.	Electrician Sergeant, first class, Lane L. Siefkes.
Master Electrician Percy H. Giannini.	Electrician Sergeant, first class, Leo R. Wertheimer.
Sergeant Major (Jr. Gr.) Frank T. Andrews.	Assistant Engineer Charles E. Helin.
Electrician Sergeant, first class, Leon H. Chamberlain.	Master Gunner Fredric E. Ballou.
Electrician Sergeant, first class, Herbert M. Claybaugh.	Electrician Sergeant, second class, Eric A. Rutledge.
Electrician Sergeant, first class, Aylmer D. Duncan.	Fireman Bert Seavy.
Electrician Sergeant, first class, Roy M. Perry.	

First Band, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Band Leader Harry C. Payson.	Bandsman Lincoln L. Edgar.
Assistant Band Leader William H. Lee.	Bandsman Max W. Firestone.
Sergeant Alvin J. Giacomini.	Bandsman George L. Frederick.
Sergeant Louis E. Spadina.	Bandsman Josiah E. Hosken.
Sergeant Samuel T. Wooley.	Bandsman Byron C. Indig.
Corporal Harry F. Anderson.	Bandsman Antonio Mancini.
Corporal Frederick P. Anthes.	Bandsman Charley McCord.
Corporal John W. Person.	Bandsman Herbert E. Olmsted.
Corporal Harry A. Williams.	Bandsman Celestino Ratti.
Cook Joseph A. Condit.	Bandsman John A. Schipillite.
Cook Frank Quintero.	Bandsman Vincent F. Schipillite.
Bandsman Gaetono Bolice.	Bandsman Floyd H. Steele.
Bandsman Alexander K. Burns.	Bandsman Edwin H. Toepke.
Bandsman George Czinger.	

First Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain David P. Hardy.	Private, first class, Richard A. Fisk.
First Lieutenant Glenn R. Castle.	Private, first class, William H. Galvin.
Second Lieutenant Allison W. Jones.	Private, first class, Frederick Gilson.
Sergeant Arthur M. Crocker.	Private, first class, Samuel F. Hall.
Sergeant Manning M. McIntire.	Private, first class, Lloyd M. Hansen.
Sergeant Roland F. McDonald.	Private, first class, Dominic Hogan.
Sergeant Richard S. O'Connor.	Private, first class, Bertia F. Hunter.
Sergeant Edward R. Palmer.	Private, first class, Frederick R. Linser.
Sergeant Richard J. Shirley.	Private, first class, John McLaren.
Sergeant Walter R. Shoaff.	Private, first class, Daniel J. Meyer.
Sergeant Ross L. Webber.	Private, first class, Herbert N. Probasco.
Sergeant Benjamin H. Wilder.	Private, first class, John A. Russell.
Corporal Norman P. Birkenstock.	Private, first class, George Strasser.
Corporal Fred Ehrhardt.	Private, first class, Harry W. Wagner.
Corporal Harvey G. Foote.	Private, first class, Otto H. Webber.
Corporal Daniel L. Greenley.	Private Armour J. Anderson.
Corporal Joseph R. Hunter.	Private Edwin H. Angelius.
Corporal John R. Northup.	Private Theodore Auga.
Corporal Desmond O'Brien.	Private Eugene Bailly.
Corporal Victor M. Rubenevitch.	Private Benjamin J. Bouyssou.
Corporal Charles D. Roark.	Private Francis D. Bowie.
Corporal Charles C. Smith.	Private August Cantalocabe.
Corporal Harold J. Ure.	Private Alfred Cerisier.
Corporal William L. Young.	Private Cyril C. Clem.
Mechanic Leo B. Drew.	Private Arthur J. Cleu.
Mechanic Edward L. Fisher.	Private Charles Cohn.
Cook Paul Astorg.	Private Roy A. Cordy.
Cook Claude Payne.	Private Milton I. Crosby.
Bugler Lloyd Cunningham.	Private Dante Darini.
Bugler Charles F. Rooney.	Private Percy DeVaul.
Private, first class, George P. Blind.	Private Jackson E. DeWolf.
Private, first class, Eugene F. Brownne.	Private Buel Dinsmore.
Private, first class, Eugene F. Chatet.	Private James Douglas.

First Company, Coast Artillery Corps—Continued.

Private Frank R. Dunn.	Private Robert McQueen.
Private Harry S. Elsdon.	Private Andrew J. Montoya.
Private Richard K. Erving.	Private Edward M. Nuhn.
Private William Freshman.	Private Gregory Palliegrou.
Private Charles J. Gentoso.	Private Francis G. Perkins.
Private Samuel R. Graff.	Private Lloyd R. Pryor.
Private Earnest R. Grant.	Private John T. Petter.
Private Roy J. Haven.	Private Frank J. Reed.
Private Elmer R. Heisinger.	Private Edmond Rhodes.
Private Louis G. Hemmeter.	Private Charles H. Rooney.
Private Fay Harrison.	Private John F. Roscelli.
Private Frederick G. Higgs.	Private William Schwall.
Private Ludd Hinton.	Private Robert A. Shackell.
Private Milton R. Holbert.	Private Louis Silverman.
Private Otto H. House.	Private Herbert L. Taylor.
Private Alfred Kahn.	Private Felix Uri.
Private Oswald A. Klinger.	Private Roland M. Urquhart.
Private Garrett Lacey.	Private Lovell G. Utterback.
Private Cyril Lichtenstein.	Private Herman Vogel.
Private Melvin G. Lynch.	Private William A. Witte.
Private William L. Marlow.	Private William L. Wood.
Private Alfred M. McMillen.	

Second Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Clarence E. Heald.	Private Guiseppe Borbano.
First Lieutenant George H. Hagar.	Private Tony Boyt.
Second Lieutenant Robert L. Ackerman.	Private Henry P. Brouillet.
Sergeant Frank Baumgardner.	Private Robert J. Butler.
Sergeant Casler M. Burton.	Private Mario Cirie.
Sergeant Walter L. Calderwood.	Private John C. Daly, Jr.
Sergeant Napoleon Geoffrion.	Private Flonie J. DeClercq.
Sergeant William D. Hiltbrand.	Private Williams Eggers.
Sergeant Emile J. Hitte.	Private Edmond Esmiol.
Sergeant Michael S. Keller.	Private William R. Gift.
Sergeant Randal Lucas.	Private John J. Farrell.
Sergeant Henry E. Scofield.	Private Frank B. Flaherty.
Sergeant Harry H. Siler.	Private Richmond Flatland.
Sergeant Peter Tissier.	Private Ernest H. Foster.
Corporal J. Allen Ackerman.	Private Marvin L. Fowler.
Corporal Clarence E. Leathurby.	Private Jay M. S. Goin.
Corporal Louis Magnus.	Private Albert E. Goulet.
Corporal Elbert J. Mitchell.	Private Walter J. Greer.
Corporal Charles H. Orbeck.	Private Clovis Gres.
Corporal Harold Y. Schueler.	Private Theodore T. Hansen.
Corporal Archibald T. Stewart.	Private Roderick Heydenfeldt.
Corporal Herman Wulbers.	Private Charles J. Heyermann.
Mechanic Louis Z. Geoffrion.	Private Charles E. Hill.
Mechanic Joseph T. Saitz.	Private Arthur E. Jacobson.
Cook Charles H. Bird.	Private Robert H. Jackson.
Cook Peter Etschcopar.	Private Richard L. James.
Private, first class, Eugene L. Allen.	Private Earl B. Kenny.
Private, first class, William C. Brooks.	Private William Koeh.
Private, first class, James W. Cook.	Private Howard J. Konrad.
Private, first class, John Cournale.	Private Harry Lande.
Private, first class, Lloyd Jacobs.	Private "J" Harold Lannon.
Private, first class, Berendt Randlow.	Private Edward Laplace.
Private, first class, Frank Roggi.	Private John Lavoria.
Private, first class, Ivan L. Slavich.	Private Chester Leard.
Private William Ahern.	Private Leonard L. Lippert.
Private Chester A. Ames.	Private Harold B. Lucas.
Private Frank L. Andrews.	Private Leslie P. Lund.
Private Maurice Barosco.	Private Dan Magnan.
Private Harold V. Baumgartner.	Private Frederick Martens.
Private Felix Belloni.	Private Adolph L. Mauberret.
Private Burt W. Black.	Private James McDevitt.
Private Raymond Bocarde.	Private Joseph McDevitt.
Private William Bodirsky.	Private Harry A. Merrill.

Second Company, Coast Artillery Corps—Continued.

Private John J. Mosinko.	Private Joe W. Simpson.
Private Joseph M. Murtha.	Private Otto P. Sior.
Private Irvin J. Neubauer.	Private Frank Siri.
Private Emile Novak.	Private Earl D. W. Stanley.
Private Robert B. Ostorero.	Private Charles G. Stockird.
Private Melvin A. Ostrom.	Private Walter W. Stohlman.
Private Louis Perasso.	Private Thomas A. E. Stratton.
Private Albert Picard.	Private Harold D. Sweet.
Private Sully Pouydesseau.	Private Howard P. Talman.
Private Augustus J. Prindiville.	Private Rene Viguie.
Private Stevo Radulovich.	Private George B. Wild.
Private William H. Randall.	Private Frank E. Williams.
Private Thomas F. Roberts, Jr.	Private Harry V. Wolff.
Private Louis A. Segale.	

Third Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Elmer H. Schwarz.	Private Frank J. Burke, Jr.
First Lieutenant Guy A. Barker.	Private John F. Cartamo.
Second Lieutenant Washington B. Mel.	Private Edward J. Coffey.
Sergeant James T. Dunworth.	Private Elmer Critchlow.
Sergeant Theron L. Davis.	Private Ralph H. Cromwell.
Sergeant Edmond C. Franzen.	Private Leo Dallin.
Sergeant Irwin E. Farington.	Private Frank Dolan.
Sergeant Thomas S. Irvine.	Private George Dixon.
Sergeant Leslie B. McKinnon.	Private Earl Euler.
Sergeant Lee E. Rubart.	Private Julian Feinberg.
Sergeant Luther E. Way.	Private Edward P. Flaherty.
Corporal Lawrence H. Boyd.	Private John A. Ferrari.
Corporal Leo J. Devlin.	Private Richard K. Fox.
Corporal David K. Donelson.	Private Reynolds Francke.
Corporal Roland L. Doan.	Private Sydney Fraser.
Corporal George E. Garthorne.	Private Louis C. Friedman.
Corporal John D. Holt.	Private Alfred W. Gallagher.
Corporal Albert Hillendahl.	Private Chester M. Glasson.
Corporal Herbert Hillendahl.	Private A. Bertram Goodwin.
Corporal William R. Maude.	Private Malcolm K. Hamilton.
Corporal Lloyd R. Richards.	Private Austin R. Hann.
Mechanic Oliver R. Anderson.	Private Louis J. Hay.
Mechanic Milton S. Sternan.	Private John J. Hennessy.
Cook Guiseppe Besso.	Private Raymond Herman.
Cook Alban Lee.	Private Clayton A. Hexter.
Bugler Frederick A. Hess.	Private Arthur G. Hyams.
Bugler Stanley Walkerdine.	Private Jacob E. Jacobi.
Private, first class, Armad D. Antchagno.	Private Lawrence E. James.
Private, first class, George V. Briggs.	Private Albert Jenkins.
Private, first class, William A. Cameron.	Private Elmer J. Kelley.
Private, first class, Harrison Gere.	Private Herman J. Kihn.
Private, first class, William Goffin.	Private Karlos Kolos.
Private, first class, George Gorham.	Private Peter Kroencke.
Private, first class, Robert L. Heald.	Private Benjamin E. Lazarus.
Private, first class, Paul E. Holmdahl.	Private Vincent S. Logan.
Private, first class, Oswald Ingold.	Private Forrest Leek.
Private, first class, David M. Jacobs.	Private Domenico Maggiora.
Private, first class, John A. Lanfear.	Private Clinton H. Maher.
Private, first class, Cecil Pendrey.	Private John J. McCormick.
Private, first class, George O. Sagen.	Private Edward M. McGlade.
Private, first class, Isidore Siegeltouch.	Private Reynolds McIntire.
Private, first class, James D. Williamson.	Private Tobias McMyler.
Private Carleton B. Anderson.	Private Norman J. Mooney.
Private John Antips.	Private Ven Morris.
Private William H. Barrett.	Private George Moukoufian.
Private Max Bernberg.	Private Robert L. Moy.
Private George Blumenfeld.	Private John W. Newman.
Private Virgilio Boro.	Private John Nicholas.
	Private Newell L. Nickerson.

Third Company, Coast Artillery Corps—Continued.

Private William S. Nock.
 Private Harry Ober.
 Private Daniel C. Pelucca.
 Private Walter C. Pierce.
 Private James J. Reardon.
 Private John A. Rhodus.
 Private Basil F. Rafferty.
 Private Fred Richardson.
 Private Lynwood C. Rimassa.

Private Thomas A. Rubart.
 Private Frederick J. Sachau.
 Private Isadore Saliman.
 Private Clifford Shobe.
 Private Sidney H. Siddall.
 Private Fred R. Smith.
 Private Frederick O. Sperry.
 Private Samuel M. Theller.
 Private Jean M. Victor.

Fourth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Leonard A. Purdy.
 First Lieutenant Theo. E. J. Haley.
 Second Lieutenant Richard I. Heller.
 Sergeant Ben F. Blount
 Sergeant Carl G. Casattas.
 Sergeant Lester G. Dean.
 Sergeant Albert H. Hayward.
 Sergeant Frederick F. Hilder.
 Sergeant Leroy G. Manning.
 Sergeant Robert H. Morris.
 Sergeant Frederick E. Strickland.
 Sergeant Harry D. Thomas.
 Sergeant Grant Welch.
 Sergeant Stanley Witkowaki.
 Corporal Alden J. Berwert.
 Corporal Harlan B. Bristol.
 Corporal Stephen L. Busk.
 Corporal Charles W. Harris.
 Corporal John F. Kerrigan.
 Corporal James L. Landon.
 Corporal Lionel Manning.
 Corporal Henry A. McCall.
 Corporal Vernon E. O'Brien.
 Corporal Thomas J. Rauch, Jr.
 Mechanic Francis O. Bethel.
 Mechanic Maurice A. Rothschild.
 Cook Louis Mialocq.
 Bugler Arthur Elgunet.
 Bugler Mike Shetookin.
 Private, first class, Frank H. Anderson.
 Private, first class, Eugene Azevedo.
 Private, first class, Peter Bargetto.
 Private, first class, James J. Boyle.
 Private, first class, Arthur E. Burke.
 Private, first class, George L. Filmer.
 Private, first class, William C. Filmer.
 Private, first class, Edward M. Herndon, Jr.
 Private, first class, John Hey.
 Private, first class, Charles E. Hill, Jr.
 Private, first class, Eugene E. Hood.
 Private, first class, Nicholas A. Laundrie.
 Private, first class, James J. McNess.
 Private, first class, John M. Moss.
 Private, first class, James R. O'Donnell.
 Private, first class, David N. Rogers.
 Private, first class, Melville S. Schlamm.
 Private Harold L. Anderson.
 Private Lawrence Bailey.
 Private Lewis G. Baldwin.
 Private Raymond Banahan.
 Private Stanley H. Barrows.
 Private Frank Blue.
 Private William J. Brady.
 Private James J. Brennan.
 Private Lester L. Brooks.
 Private Milton E. Callan.
 Private Angelo P. Campi.

Private Leon M. Carroll.
 Private Gail B. Carver.
 Private Harry S. Day.
 Private Robert J. Dunne.
 Private Edward D. Fitzgerald.
 Private Thomas Fordyce.
 Private Ive Foster.
 Private Marquez Francisco.
 Private Alexander Fraser.
 Private Douglas E. Gadman.
 Private Philip A. Gordon.
 Private Michael S. Grassis.
 Private Harold Greenberg.
 Private John K. Greene.
 Private James S. Grimshaw.
 Private Louis Guerema.
 Private Joseph L. Harrigan.
 Private Sanford L. Harris.
 Private Daniel H. Herel.
 Private James Horan.
 Private John Husk.
 Private Willebaldo Izaguiere.
 Private Joseph T. Judd.
 Private John P. Kelly.
 Private Thomas Kelly.
 Private Willen C. Kern.
 Private Paul T. Koster.
 Private Elmer M. Lenzen.
 Private Weston Linville.
 Private William Lyman.
 Private John J. Mahern.
 Private Eugene J. McCann.
 Private Joseph P. McCarthy.
 Private Whitney S. McDonald.
 Private Edward Mussel.
 Private Thomas R. Pengilly.
 Private Russell Phillips.
 Private Frank Preve.
 Private Edwin L. Rathbun.
 Private Alex. Rehfeld.
 Private Joseph Rich.
 Private Albert F. Ross.
 Private Richard A. Rubie.
 Private Joseph L. Ryan.
 Private Andrew Schunk.
 Private Frank J. Scully.
 Private Ray W. Sherman.
 Private Paul Skiadas.
 Private George A. Smith.
 Private Alexander J. Spinner.
 Private Russel H. Stackhouse.
 Private George F. Staton.
 Private Joseph Sutter.
 Private Eugene White.
 Private Clarence Williams.
 Private Robert E. Wright.
 Private James J. York.
 Private Benjamin Zadielovich.

Fifth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain Wade W. Rhein.	Private, first class, Oliver A. Sumner.
First Lieutenant Charles W. Frost.	Private, first class, Abdullah B. Tahar.
Second Lieutenant Samuel R. Dows.	Private Iver O. Anderson.
Sergeant Roy C. Daniel.	Private Lawrence F. Berry.
Sergeant Francis K. Elliott.	Private Ray D. Blake.
Sergeant Julius A. Kemmer.	Private Lafayette Eulitt.
Sergeant Joseph C. Kneeshaw.	Private William Freericks.
Sergeant Lolo A. Murrell.	Private Arthur S. Hayward.
Sergeant Benjamin C. Pittman.	Private Clarence R. Hill.
Corporal Monte De Leon.	Private Lyle J. Hoffman.
Corporal Adrian B. Elliott.	Private Louis D. Hopking.
Corporal George S. Jamison.	Private Einer R. Jensen.
Corporal Josef D. Lane.	Private Donald J. Jewell.
Corporal John H. Sherman.	Private David E. Keep.
Mechanic Harry M. Bibby.	Private Harry N. Koehler.
Mechanic Harry C. Brown.	Private Fred Kunzel.
Mechanic Miles D. Rombaugh.	Private Forest V. Lamb.
Mechanic James Ward.	Private James R. Lewis.
Cook Frank Crane.	Private Ronald J. Mulville.
Cook Roy Dunn.	Private Roy A. Meyers.
Cook Louis D. Hopking.	Private John L. Olmsted.
Cook Walter Maybee.	Private Alvin E. Onstad.
Bugler Oscar L. Bagwell.	Private Wallace R. Onstad.
Private, first class, Clyde G. Bartel.	Private Milton W. Phillips.
Private, first class, Richard Barbieri.	Private Edward K. Ramsey.
Private, first class, Fred B. Cole.	Private Paul H. Robenort.
Private, first class, Laurence L. Creelman.	Private Clifford C. Ross.
Private, first class, Charles Dobb.	Private Lester C. Sammons.
Private, first class, Guy E. Hardy.	Private Robert Sieben.
Private, first class, Allen Hawk.	Private Ira A. Sluss.
Private, first class, Lauren T. Hosey.	Private Victor R. Spaulding.
Private, first class, Charles S. King.	Private William Tweed.
Private, first class, Alvin W. Lyles.	Private Robert Wagner.
Private, first class, Norman H. Lynn.	Private Ronald H. Washburn.
Private, first class, Hugh A. Miller.	Private Perry Watt.

Sixth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Milo F. Kent.	Private, first class, Louis D. Carmichael.
First Lieutenant Albert Schoenfeld.	Private, first class, Herbert H. Dubois.
Second Lieutenant Philip F. Biehl.	Private, first class, Harry Flood.
Sergeant Henry Finke.	Private, first class, Bernard Hanafin.
Sergeant Arthur Ferrari.	Private, first class, Ernest E. Haws.
Sergeant William S. Liddy.	Private, first class, Arthur Karp.
Sergeant Abe L. Lubfin.	Private, first class, Bruce F. Knott.
Sergeant Robert D. Mayer.	Private, first class, Nathaniel H. Naal.
Sergeant John W. Reiner.	Private, first class, George E. Oxender.
Sergeant Arthur R. Tucker.	Private, first class, George H. Reeves.
Corporal Hyman Bernstein.	Private, first class, Ralph R. Riley.
Corporal Wendell A. Ebner.	Private, first class, Frederick A. Rockingham.
Corporal Joseph H. Finke.	Private, first class, Harold C. Silvershield.
Corporal Cornelius W. Greene, Jr.	Private, first class, Richard J. Von Der Mehden.
Corporal Walter S. Goldberg.	Private, first class, Fred A. William.
Corporal William DeA. Hendricks.	Private, first class, Genaro E. Zenizo.
Corporal William Kirby.	Private Leon H. Albin.
Corporal George H. Oyer.	Private Douglas N. Allan.
Corporal Herbert Stevenson.	Private Charles Andreen.
Corporal Charles D. Tudor.	Private Douglas Atkinson.
Corporal George A. Young.	Private Joseph A. Axen.
Mechanic Joseph J. Courier.	Private Harold V. Brossman.
Mechanic Charles A. Hagan.	Private Cyril L. Cairns.
Cook Andrew E. Johnson.	Private John F. Carey.
Cook Charles H. Lewis.	Private Lester Castillo.
Bugler Charles Bell.	Private Chester Cole.
Bugler Wayman S. Watts.	
Private, first class, Reynolds J. Barbieri.	
Private, first class, Homer J. Boucher.	

Sixth Company, Coast Artillery Corps—Continued.

Private Harry L. Colip.	Private Alfred Matthews.
Private Clarence A. Crosby.	Private Charles H. Meitzler.
Private John H. Campbell.	Private John H. Meyer.
Private Walter M. Delfs.	Private Alva M. More.
Private Vincent Donofra.	Private Raymond Morrison.
Private John E. Doyle.	Private Launce O. McCoy.
Private Joseph Dudzik.	Private John McFarlane.
Private Leroy T. Farnham.	Private Millard G. McKinlay.
Private Thomas W. Finn.	Private Fred C. Maynard.
Private Lloyd A. Flatland.	Private Lemuel R. Mercer.
Private Harry L. Fledderman.	Private James Miskel.
Private Albert E. Forrest.	Private Frank H. Overton.
Private John C. Freedman.	Private Edwin A. Patterson.
Private Alfred Giovannoni.	Private Richie L. Pearce.
Private Donald McK. Glendon.	Private Albert A. Purnhagen.
Private Edward A. Hallett.	Private George A. Sandberg, Jr.
Private Roger F. Hamilton.	Private George A. Schastey, Jr.
Private Valentine C. Hammack.	Private John W. Scott.
Private Vernal F. Hickok.	Private Ernest Seagrave.
Private Earl Hopkins.	Private Lawrence F. Seeber.
Private Warren S. Hyde.	Private Manuel B. Silva.
Private Marcus H. Hyde.	Private Richard Simon.
Private William A. Irwin, Jr.	Private George H. Skinner.
Private Richard H. Jones.	Private George H. Sockolov.
Private Maurice Levy.	Private Hiram Steele.
Private Roy L. Luck.	Private Ralph I. Sylvester.
Private Walter C. Ludin.	Private Harvey C. Tyrel.
Private Harry Lundy.	Private Ephraim Wylie.
Private Ramon Martinez.	Private Lloyd C. Wyrick.
Private Harold C. Marvin.	

Seventh Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Richard L. Dineley.	Private, first class, August O. Gerdes.
First Lieutenant James B. Oliver.	Private, first class, Lawrence V. Jordan.
Second Lieutenant William G. Brey.	Private, first class, George Mahler.
First Sergeant Eldon S. Oliver.	Private, first class, Peter Ratto.
Supply Sergeant Ira M. Neumann.	Private, first class, Richard F. Ryan.
Mess Sergeant George O. Schneider.	Private, first class, Harry J. Schilling.
Sergeant Charles Eckland.	Private, first class, Earl W. Wood.
Sergeant Albert G. Haskell.	Private Emelio Amerio.
Sergeant Gordon S. Jones.	Private Charles W. Armstrong.
Sergeant Joseph W. Kincannon.	Private Douglas J. Armstrong.
Sergeant William D. Oliver.	Private Jack L. Avery.
Sergeant Charles O. Roberts.	Private Anthony R. Backus.
Sergeant Sigmund Walker.	Private Robert C. Baker.
Sergeant Herbert L. Winterrowd.	Private William R. Bates.
Corporal Alfred A. Anderson.	Private Jean P. Bernet.
Corporal Osborn H. Bradley.	Private Fred Bishop.
Corporal John D. Fitzgerald.	Private Stanley Brady.
Corporal James S. Hook, Jr.	Private Homer G. Brown.
Corporal Charles E. Justis.	Private Lester D. Bryant.
Corporal Carl F. Kroenke.	Private John Burgue.
Corporal Ralph L. Mills.	Private Edward S. Betlach.
Corporal Francis K. Snowden.	Private William L. Bowen.
Corporal Earle A. Sanborn.	Private George R. Bunch.
Corporal Jesse D. Stockton.	Private Downing W. Burke.
Corporal Ferlys W. Thomas.	Private Jean Chapot.
Corporal Walter Warren.	Private Frank J. Daly.
Mechanic Tillio L. Demattei.	Private Alfred C. Driscoll.
Mechanic Shirley Davis.	Private George Drolet.
Cook Joseph J. Blessing.	Private Claude D. Evans.
Cook Oliver S. Wallace.	Private Louis A. Forner.
Bugler Willis E. Post.	Private Gustave C. Floren.
Private, first class, Charles W. Bowles.	Private Valentine Furnich.
Private, first class, Joseph Brennan.	Private Elmer Hagen.
Private, first class, Bernard E. Chapin.	Private George J. Hansen.
Private, first class, David Davis.	Private James J. Hansen.
Private, first class, Samuel L. Eisenstein.	Private Jefferson G. Hatch.

Seventh Company, Coast Artillery Corps—Continued.

Private Fred W. Henning.	Private Giovanni Romano.
Private Eugene G. L. Hoeber, Jr.	Private Frank J. Riviere.
Private David J. Jerome.	Private Claude J. Sanborn.
Private Albin Johnson.	Private Hilding L. Sandberg.
Private Ray S. Keyes.	Private Edwin Sandkulla.
Private Kasull Kligerman.	Private Earl R. Shopo.
Private George Lanckenau.	Private Frank Smith.
Private Roy LeGrande.	Private August E. Stadthaus.
Private Nels Madsen.	Private Arnold H. Slater.
Private George W. McFarland.	Private Frank Szerminski.
Private John F. Mello.	Private Glenn D. Swegle.
Private Peter Millas.	Private John D. Theriot.
Private Frank Mitchell.	Private Bryant B. Titcomb.
Private William P. Mitchell.	Private William Volk.
Private Harold C. Odell.	Private Joseph E. Walter.
Private John J. O'Grady.	Private William P. Walter.
Private Hugh J. Owen.	Private Robert V. Watson.
Private Pierre Oron.	Private Walter Watt.
Private John Payne.	Private George C. Woods.
Private Walter S. Petrie.	Private David W. Willard.
Private Thomas Richards.	

Eighth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain James Muirhead.	Private Henry J. Boeckh.
First Lieutenant George W. Fisher.	Private Willie M. Curry.
Sergeant Roy T. Barrett.	Private Harry B. Check.
Sergeant James L. Creelman.	Private Bert H. Christian.
Sergeant Arthur M. Davis.	Private Charles H. Cooper.
Sergeant Harry S. Nelson.	Private Charles F. Creelman.
Sergeant Edward M. Smith.	Private Jack Downey.
Sergeant Charles D. Sheldon.	Private Wylie Dawson.
Sergeant Thomas P. Strader.	Private Thomas H. Dee.
Corporal Howard McK. Jobe.	Private Charles J. Estep.
Corporal Charles I. Jenny.	Private Oscar L. Estill.
Corporal Donald F. Loudon.	Private Harry A. Flenner.
Corporal William McBlair.	Private Ward Gillen.
Corporal Carleton G. Sprinkle.	Private Millard Greenbaum.
Mechanic Thomas Fiala.	Private Leonard L. Hogue.
Mechanic Calvin C. Newman.	Private Perley B. Hale.
Cook Harry R. Young.	Private Harold McK. Haley.
Cook Lucian W. Willis.	Private Harry A. Harris.
Bugler William K. Shadden.	Private Jens Jensen.
Private, first class, Lloyd G. Brown.	Private Auguste A. Jaussaud.
Private, first class, Benjamin B. Byerly.	Private Frank J. Kelly.
Private, first class, Edward Davis.	Private Smith Kimball.
Private, first class, Frank Larceval.	Private Thomas G. Lewis.
Private, first class, Tilson O. Mann.	Private Axel R. Lennarsen.
Private, first class, Milton E. Orrell.	Private Charles Louis.
Private, first class, Anthony Ross.	Private Donald B. Martin.
Private, first class, Frank G. St. Peter.	Private Thomas B. Mobley.
Private, first class, Charles O. Schock.	Private William W. McHenry.
Private, first class, John C. Von Bloeker.	Private Maurice P. Mitchell.
Private, first class, Joseph Winegarden.	Private Charles O. Morse.
Private, first class, Aloyseus Zellmer.	Private Alva A. Nosler.
Private Joseph R. Agnew.	Private Samuel M. Patterson.
Private William J. Adams.	Private Alma D. Ramseyer.
Private Orvan Anderson.	Private James Roberts.
Private Harry Ashenfelter.	Private William A. Rogoway.
Private Percy S. Bailey.	Private Arthur J. Robbins.
Private Robert E. L. Ball.	Private David Swain.
Private Ernest A. Barnett.	Private Harry C. Walker.
Private Benjamin B. Bowdish.	Private Dan S. Wetherg.
Private Melvin Barritt.	Private George T. Young.
Private William Boyle.	Private Charles Zimmerman.
Private George R. Beasley.	

Ninth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Henry W. McClure.	Private Vernon S. Bernstein.
First Lieutenant John D. Hatch.	Private Hugh L. Boyd.
Second Lieutenant Joseph Sturm.	Private Oliver D. Brubaker.
Sergeant Marc Anthony.	Private George A. Bryant.
Sergeant Alois S. Beach.	Private Colin Campbell.
Sergeant Benjamin H. Blanco.	Private Marvin Campbell.
Sergeant Thomas J. G. Blumenrother.	Private John B. Casson.
Sergeant John D. Chace.	Private Allen J. Close.
Sergeant Arthur H. Cousins.	Private Joseph J. Conlin.
Sergeant Randall S. Dunn.	Private Raymond A. Cosby.
Sergeant Frank M. Melka.	Private Claude M. Dixon.
Corporal Charles F. Atkinson.	Private Harold Emmich.
Corporal Earl C. Cavin.	Private Louis F. Enz.
Corporal Edward J. Condon.	Private George H. Frolich.
Corporal George J. Donovan.	Private Benjamin F. Goldberg.
Corporal Albert E. Gordon.	Private Frank W. Gordon.
Corporal Willis L. Grafton.	Private Rolland A. Hamblen.
Corporal Edwin R. Harter.	Private Walter H. M. Hill.
Corporal William J. Hussey.	Private Robert A. Holetz.
Corporal Roy L. Meigs.	Private Fred Howard.
Corporal Charlie R. Pollard.	Private Walter L. Jensen.
Corporal Lionel J. Soracco.	Private Edward E. Johnson.
Corporal Joseph A. A. Voss.	Private Everett C. Johnson.
Mechanic Rome Codoni.	Private John C. Ketler.
Cook William Hofmeister.	Private William B. Ketler.
Cook John P. Rollar.	Private Burton E. Laughlin.
Bugler H. Glen Graham.	Private Frank Lindholm.
Bugler William J. Needham.	Private Robert A. Lindsay.
Private, first class, Walter G. Ahlf.	Private Edward R. Martin.
Private, first class, A. Clyde Alexander.	Private George L. Mason.
Private, first class, Francis C. Allen.	Private Hawley M. Masterson.
Private, first class, Stanley E. Brown.	Private Thomas F. McDermott.
Private, first class, Arthur Chaty.	Private Leslie B. Mickell.
Private, first class, Harold B. Ciucci.	Private Irving W. Miller.
Private, first class, James O. Dempsey.	Private Carl J. E. Nygren.
Private, first class, Ormal W. Dodd.	Private Percy O'Connor.
Private, first class, James S. Garnett.	Private David A. Pradar.
Private, first class, Philip Kling.	Private Henry J. Puckhaber.
Private, first class, Edwin A. Koch.	Private Charles W. Remmers.
Private, first class, Edward H. Lannin.	Private Ernest Ribera.
Private, first class, Frederick McDonald.	Private Frank Sanchez.
Private, first class, Herman C. Nattkemper.	Private Frederick W. Schulz.
Private, first class, Ernest L. Perks.	Private Francis A. Schwarze.
Private, first class, Edward O. Taylor.	Private George A. Schaffer.
Private, first class, Steven H. Welch.	Private Wesley A. Simons.
Private Joseph D. Adams.	Private Rodney R. Smith.
Private David K. Atkinson.	Private Kenneth W. Stevens.
Private Thomas V. Barnett.	Private Charles P. Ware.
Private Arthur W. J. Bartell.	Private Winfred A. Williamson.
Private Arthur M. Behrendt.	

Tenth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain William R. Maris.	Sergeant Homer B. Spence.
First Lieutenant Everard F. Olsen.	Corporal Alexander Alvarado.
Second Lieutenant Ray M. Jones.	Corporal Jean P. Herdman.
Sergeant Alamo H. Albin.	Corporal Earl S. Mills.
Sergeant Paul J. Alvarado.	Corporal Roderick McDonald.
Sergeant Pierce B. Birkenseer.	Corporal Earl S. Petersen.
Sergeant Leslie G. Collins.	Corporal Magnus Petersen.
Sergeant Henry Chicourrat.	Corporal Edward J. Queen.
Sergeant Eugene A. Chaubin.	Corporal Frank Schaefer.
Sergeant Augustine Donovan.	Corporal Raymond E. Stobener.
Sergeant Leonard C. Dengel.	Corporal Francis W. Swain.
Sergeant Arthur DeVeuve.	Corporal Stuart E. Williamson.
Sergeant Neil S. Laidlaw.	Mechanic James E. Kent.
Sergeant Raymond L. Paquette.	Mechanic Laurence L. Parker.
Sergeant Peter H. Petersen.	Cook Paul Dabes.

Tenth Company, Coast Artillery Corps—Continued.

Cook Frank Courade.	Private Cyril A. Kashevaroff.
Bugler France L'hermite.	Private George E. Kibby.
Bugler Monroe J. Shreve.	Private Edward L. Kinsey.
Private Baldwin Alvarado.	Private Moses Little.
Private Fred Alvarado.	Private Howard L. Lundy.
Private Otto Auer.	Private William Lancaster, Jr.
Private Earl A. Attlesey.	Private James J. Law.
Private James W. Bailey.	Private Joseph E. McKenna.
Private Joseph E. Byrne.	Private John E. McNamara.
Private William L. Bouzer.	Private Bert J. Mulcrevy.
Private Fred W. Baker.	Private Irving Nelson.
Private Earl Boyce.	Private Leslie R. Newnan.
Private Leon P. Birkenseer.	Private John Neves.
Private Franklyn C. Burley.	Private Arthur E. Packer.
Private Lester L. Black.	Private Robert R. Palmgren.
Private Harry C. Britt.	Private Arthur E. Peck.
Private Alfred D. Boardman.	Private Harold O. Pratt.
Private James W. Blum.	Private William M. Queen.
Private Delbert W. Bliven.	Private Oliver H. Ramsey.
Private Byron A. Collins.	Private Frank Reynolds.
Private Gerald J. Chalmers.	Private Albert H. Roche.
Private Clarence L. Cox.	Private James M. Rattray.
Private Alfred A. Childs.	Private Lloyd Reed.
Private Robert C. Delwig.	Private Walter Roach.
Private Eugene Densmore.	Private Charles R. Roduner.
Private Vincent J. Doyle.	Private Jesse F. Roberson.
Private Herbert Dittrich.	Private Edgar A. Rice.
Private James M. Fleisher.	Private Edwin Summers.
Private Arthur G. Fritch.	Private Frank D. Smith.
Private Millard Gann.	Private Walter Sutter.
Private Leon Gagne.	Private William J. J. Schreckengost.
Private Robert J. Gill.	Private Alvin Schryer.
Private Malcolm E. Grubbs.	Private Jake E. Stiver.
Private Ray Guelfi.	Private Frank E. Singer.
Private Vivien E. Hiester.	Private Eugene H. Shreve.
Private Clarence B. Hanning.	Private John J. Trudrung.
Private Louis R. Hauchecorne.	Private Manuel P. Thomas.
Private Homer B. Hermann.	Private George F. Tobin.
Private Melvern S. Hogan.	Private Frank A. Winchell.
Private Edgar J. Kelly.	Private Harold W. Webb.
Private William F. Krone.	Private Clifford Watkins.
Private Henry G. Kuhn.	Private James E. Younger.

Eleventh Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain John McHenry, Jr.	Mechanic Charles S. Atkinson.
First Lieutenant Aubrey D. Cagwin.	Mechanic Ralph M. Lane.
Second Lieutenant Callen Tjader.	Cook Ashby A. Casey.
First Sergeant Arthur L. Blount.	Cook Fred Pennington.
Supply Sergeant Fred B. Clements.	Bugler Elwood L. Kimmel.
Mess Sergeant Richard I. Stone.	Bugler Marc F. Miller.
Sergeant Edward V. Blount.	Private, first class, Edwin Amark.
Sergeant Phillip Collischenn, Jr.	Private, first class, Clarence Christensen.
Sergeant John M. Dyer.	Private, first class, Thomas J. Crowley.
Sergeant Parker J. McConnell.	Private, first class, Edgar Eastman.
Sergeant Russell A. Pierce.	Private, first class, Clark Franklin.
Sergeant Leonard R. Salfey.	Private, first class, Charles A. Johnson.
Sergeant George W. Turner.	Private, first class, Dan W. Lantheaume.
Sergeant Paul Wormser.	Private, first class, Clive H. McGill.
Corporal Joseph E. Anderson.	Private, first class, Orry Marr.
Corporal Earl L. Bagot.	Private, first class, Frederic H. Matthews.
Corporal Harry M. Bailey.	Private, first class, Burton A. Olsen.
Corporal Otto H. Jemm.	Private, first class, John H. Peterson.
Corporal William C. Peterson.	Private, first class, Louis A. Potthoff.
Corporal William P. Sheehan.	Private, first class, Ernest Rohde.
Corporal Monroe R. Schwartz.	Private, first class, Carl A. Rohde.
Corporal Vincent J. Seltzer.	Private, first class, Melville I. Schwartz.
Corporal Carlos Von Blix.	Private, first class, Julian L. Swindelle, Jr.
Corporal Sigel G. Webb.	

Eleventh Company, Coast Artillery Corps—Continued.

Private, first class, Howard I. Weymouth.	Private Joseph H. Kelly.
Private Harry Albert.	Private Louis A. Londreville.
Private Selmar Anker.	Private Edward Lawlor.
Private William R. Barnes.	Private Edwin Lenhart.
Private David Belle.	Private Justin W. Leser.
Private William S. Booker.	Private Chester J. Lippert.
Private Donald E. Bradner.	Private Edward F. McCaughey.
Private Edwin W. Clements.	Private Arthur B. McIntyre.
Private Albert I. Cohn.	Private Eugene H. MacMurray.
Private Charles E. Cole.	Private Walter L. Mackey.
Private George T. Cole.	Private Frederick A. Murasky.
Private Robert C. Cowan.	Private Alfred J. O'Brien.
Private John E. Crowley.	Private Henry J. Olin.
Private Samuel L. Cutler.	Private Natale Podesta.
Private George C. Davis.	Private Edwin J. Porter.
Private Carl M. Day.	Private George G. Prescott.
Private Lester Dowling.	Private Richard F. Romioh.
Private Frank Dowsett.	Private Wesley A. Russell.
Private Wallace Durbrow.	Private Wendell D. Scheib.
Private Jacob P. R. Edsberg.	Private Joseph Seeley, Jr.
Private Clyde W. Fisher.	Private John E. Simpson.
Private Edward J. Glinden.	Private Frank W. Smith.
Private Elmer M. T. Hansen.	Private Robert L. Smith.
Private Elmer R. Hale.	Private Lincoln Stewart.
Private Edward I. Harris.	Private Leonard A. Steele.
Private John J. Hogan.	Private Russell Steiger.
Private Lionel Hurst.	Private Mervin H. Stimson.
Private Clifford T. Hurston.	Private Walter L. Stoll.
Private Reginald Jobson.	Private Thomas R. Sullivan.
Private Wallace A. Johnstone.	Private Edwin J. Trinies.
Private Arthur E. Keating.	Private Theodore H. Trueman.
Private Frank A. Kahn.	Private Rudolph L. Winham.
Private Robert L. Katz.	Private Paul Widecoq.

Twelfth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Claude R. Corbusier.	Private, first class, Arthur J. Gamma.
First Lieutenant Edward L. Macaulay.	Private, first class, Jay A. Knuth.
Second Lieutenant Joseph A. Dias.	Private, first class, Chris Larsen.
Sergeant Walter J. Cardiff.	Private, first class, Eugene F. Link.
Sergeant Hugh H. Donovan.	Private, first class, Henry W. Longfel- low.
Sergeant Henry J. Fricke.	Private, first class, Albert Metzger.
Sergeant Harry Gartley.	Private, first class, Arthur W. Morgan.
Sergeant Will S. Link.	Private, first class, William F. J. Oster.
Sergeant Arthur L. Marston.	Private, first class, Llewellyn B. Peck.
Sergeant Arthur T. Page.	Private, first class, Conger F. Shur.
Sergeant August Peiffer.	Private, first class, Stanley R. Thomp- son.
Sergeant Frederic Vincent.	Private, first class, George D. Wilko.
Sergeant Owen H. Wynne.	Private, first class, Harold D. Wilter- mood.
Corporal Thomas A. Dethlefsen.	Private, first class, Leroy Wiltermood.
Corporal Milton C. Fox.	Private Patrick J. Andre.
Corporal Bert Harrison.	Private Adamo Andreatti.
Corporal John J. Kinrod.	Private Benjamin E. Black.
Corporal Robert L. Lomax.	Private Fred G. Blacklock.
Corporal Lloyd A. Lundstrom.	Private Leland S. Blackwell.
Corporal Alfred J. Morgan.	Private Roy E. Blanton.
Corporal Rolf Nass.	Private Harry Blasman.
Corporal George W. Nimrnat.	Private Martin J. Bloom.
Corporal Howard H. Smith.	Private Julius Boggiano.
Mechanic Vincent A. Bono.	Private William H. Broghetta.
Mechanic Leon Pritchett.	Private Wilfred Burke.
Cook William A. Olsen.	Private Frank Canatella.
Cook Harry Swanson.	Private Herbert A. Castlen.
Bugler Abe Lefkowitz.	Private Peter A. Cava.
Bugler Chester E. O'Brien.	Private Crolidano Consani.
Private, first class, George N. Agnew.	Private George Crotty.
Private, first class, Achille Cartopassi.	
Private, first class, Charles O. Fren- berg.	

Twelfth Company, Coast Artillery Corps—Continued.

Private Warren DeMerritt.	Private Cecil A. Nelson.
Private Thomas F. J. Dolan.	Private George D. Oster.
Private Leonard J. Dorand.	Private Allen F. Peek.
Private Edward Duffy.	Private Claude W. Phillips.
Private Hilary J. Ford.	Private Charles Potter.
Private John Garavaglio.	Private Allen Presley.
Private Valerie V. Gibson.	Private Isaac D. Radinsky.
Private Ira V. Gilchrist.	Private Frank L. Railton.
Private Clarence B. Harvey.	Private Joseph H. Roberts.
Private Martin Herson.	Private Bernard Ross.
Private Filbert F. Hubley.	Private Paul Rutkowski.
Private Edgar M. Hustler.	Private George Sorensen.
Private Douglass E. Johnson.	Private Albert E. Stratford.
Private Alva Jordan.	Private Peter Sunseri.
Private John B. Keith.	Private James L. Thomas.
Private Vernon Kelleghan.	Private John A. Thompson.
Private Edmund C. LeFevre.	Private Alfred C. Ulman.
Private David Lefkowitz.	Private Otto E. Washburne.
Private Merie Marsh.	Private Thomas E. Williams.

Sanitary Detachment, First Coast Defense Command.

(Called into Federal Service August 5, 1917.)

Major Frank S. Emmal.	Private Joseph A. Collins.
Captain Chester S. Harris.	Private Arthur J. Danielson.
First Lieutenant Charles E. Schwartz.	Private Bruce W. Fargo.
Sergeant, first class, Harold E. Richard.	Private Joseph B. Faries.
Private, first class, Herman R. Ascher.	Private Walter Fratheringill.
Private, first class, Edmund S. Boyd.	Private Charles A. Fernish.
Private, first class, Frank W. Collett.	Private William Gruening.
Private, first class, Gervase G. Gaffney.	Private Loren Clyde Harlan.
Private, first class, Stanley H. Jones.	Private Victor Johnson.
Private, first class, Frank Kolos.	Private Charles J. Scanlan.
Private, first class, Ernest P. Kuckein.	Private Arthur L. Spence.
Private, first class, Joseph B. Swim.	Private Neil C. Steinbaugh.
Private, first class, Elmer Treuting.	Private Wilson W. Suggett.
Private, first class, Robert A. Weir.	Private John E. Tompkinson.
Private Don Jose F. Aubertine.	Private Cairns H. Vogelmann.
Private Rene Clemenceon.	

Field and Staff, Second Coast Defense Command, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Colonel Harry B. Light.	Sergeant Major (junior grade) Robert L. Hanley.
Major John H. J. Cunningham.	Sergeant Major (junior grade) Grove T. Vail.
Major Edwin G. Mettler.	Master Gunner Laurence A. Donnelly.
Major Frank R. McReynolds.	Master Gunner Alfred W. Knight.
First Lieutenant Clifford W. Macfarlane.	Master Gunner Herbert W. Stanton.
First Lieutenant Russell Ryan.	Electrician Sergeant, second class, John C. Downs.
First Lieutenant Roy T. Sharp.	Electrician Sergeant, second class, Jay M. Gowanlock.
First Lieutenant Herschel R. Griffin, Chaplain.	Electrician Sergeant, second class, Fred Vernon.
Second Lieutenant Marshall Bryan Craig.	Electrician Sergeant, second class, George K. Whitworth.
Second Lieutenant John W. Haynes.	Fireman Ernest B. Schoedsack.
Second Lieutenant Thomas Duncan Howard.	
Sergeant Major (senior grade) Alonzo W. Jones.	
Sergeant Major (junior grade) Virgil Marr.	

Second Band, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Band Leader Edgar A. Ball.	Musician, third class, Earl S. Dalton.
Assistant Band Leader Fred E. Kruse.	Musician, third class, Ray L. Fetterman.
First Sergeant Chas. N. Willits.	Musician, third class, John N. Garner.
Band Sergeant Russell J. Drake.	Musician, third class, William L. Hale.
Band Sergeant Clark C. McCrary.	Musician, third class, Horace N. Hauck.
Corporal Otto O. Adams.	Musician, third class, Ward L. Heller.
Corporal Leo W. Dowling.	Musician, third class, Rex G. Lane.
Corporal Angus F. Greene.	Musician, third class, Harry E. Moore.
Corporal Homer R. Renouf.	Musician, third class, William E. Panton.
Musician, first class, Earl R. Dalbey.	Musician, third class, Wayne T. Satchel.
Musician, first class, Arthur T. Munns.	Musician, third class, Louis C. Stiewel.
Musician, second class, Ralph C. Durke.	Musician, third class, Jim Valenti.
Musician, second class, Clarence O. Mit-	Musician, third class, Richard A. Van Pelt.
tendorf.	Musician, third class, Eugene Velzy.
Musician, third class, Harold J. Burt.	Cook Edward F. Basse.
Musician, third class, Kurtz M. Croyley.	Cook Frank Horeges.

Thirteenth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain Charles F. Huston.	Private, first class, Stuart M. Burns.
First Lieutenant Alfred T. Slaten.	Private, first class, Jack S. Colgate.
Second Lieutenant Herman F. Martens.	Private, first class, Arthur B. Douglas.
First Sergeant Clyde Whitney.	Private, first class, George N. Erickson.
Supply Sergeant Wesley Z. Shaw.	Private, first class, Clifford N. Farrar.
Mess Sergeant Oscar D. Dague.	Private, first class, Theodore F. Hamann.
Sergeant Herman E. Dearing.	Private, first class, Max Kimensky.
Sergeant Jessie C. Fountain.	Private, first class, Albert F. Kuhnle.
Sergeant William N. Hunter.	Private, first class, John J. Ollenburger.
Sergeant Joseph Kitt.	Private, first class, William N. Overley.
Sergeant Wallace M. MacKay.	Private, first class, Hughie Patterson.
Sergeant John G. Magness.	Private, first class, Gay Pribble.
Sergeant Albert F. Nathan.	Private, first class, Russell Stanton.
Sergeant Edgar M. Spurrier.	Private, first class, Allen W. Steen.
Sergeant Walter C. Tiffany.	Private, first class, John R. Vaughn.
Sergeant Kenneth H. Vail.	Private Frank G. Barrow.
Sergeant Theodore Von Minden.	Private Robert H. Bernhard.
Sergeant Paul C. Winters.	Private Charles F. Boehme.
Sergeant Harry Winters.	Private Albert Boehme.
Sergeant Morrison H. Weidman.	Private William J. Brannigan.
Corporal Ralph H. Benson.	Private William A. Booker.
Corporal Cecil K. Bolles.	Private Roy L. Bradley.
Corporal Paul F. Chester.	Private William L. Brown.
Corporal Arthur C. Gehrman.	Private Cris Bryant.
Corporal Leo E. Honey.	Private Robert E. Calgary.
Corporal Oscar F. Hurst.	Private Richard Charters.
Corporal William D. Hazelhurst.	Private Jasper M. Corales.
Corporal Earl W. Kingsley.	Private Howard D. Chase.
Corporal Peter McNeil.	Private Paul F. Chester.
Corporal George Moulendyk.	Private Clarence O. Clark.
Corporal Bert L. Robinson.	Private Charles F. Clark.
Corporal Lucein J. Rous.	Private Owen T. Coffin.
Corporal Wayne F. Stewart.	Private Marvin A. Compton.
Corporal John T. Thomas.	Private Dan Carillo.
Corporal Henry Thon.	Private Arthur Curtis.
Corporal Walter W. Wellpott.	Private Leslie S. Cole.
Corporal J. Harold Wilson.	Private Chester A. Donley.
Mechanic Harold J. Benson.	Private Arthur L. Emrick.
Mechanic Spencer E. Davis.	Private John G. Faithorn.
Mechanic Francis C. Hawthorne.	Private Mike Flores.
Cook Henry B. Engbarth.	Private Benjamin F. Fletcher.
Cook Otto H. Haese.	Private Louis C. Gestner.
Cook Nikolas Jurisich.	Private Walter H. Glanzman.
Cook Ernest S. Manning.	Private Cornelius J. Groen.
Cook Percy L. Sneathen.	Private George J. Glanzman.
Bugler Oliver B. DeHoog.	Private William Gasquoine.
Bugler Homer L. Riggs.	Private Louis F. Goldbach.
Private, first class, Horace C. Barragar.	Private Martin C. Hamilton.
Private, first class, Virgil R. Bourland.	Private Oscar E. Hanson.

Thirteenth Company, Coast Artillery Corps—Continued.

Private Robert T. Hardy.	Private George P. Prechacq.
Private Howard A. Hardy.	Private Garland P. Poff.
Private Arthur R. Hayes.	Private Horace M. Porter.
Private Charles F. Hendricks.	Private Luverne C. Powers.
Private Frank G. Hess.	Private Frank M. Ramirez.
Private Samuel H. Hicks.	Private Henry Redmond.
Private LeRoy D. Johnson.	Private Walker Redmond.
Private Willard Johnson.	Private John M. Robertson.
Private Arthur Jones.	Private Fred C. Robinson.
Private Edwin M. Jones.	Private George H. Rief.
Private Frank A. Kelly.	Private George H. Rice.
Private Ralph H. Kelsey.	Private William J. Ryan.
Private Harvey A. Kenyon.	Private Patrick A. Ryan.
Private George A. Kirkpatrick.	Private Frank G. Saurez.
Private Richard H. Kincheloe.	Private Arthur F. Schreiber.
Private Henry P. Cruse.	Private Allen L. Smith.
Private Henry J. Larracou.	Private Arthur J. Schmultz.
Private Charles C. Latino.	Private Ernest M. Smith.
Private John Lopez.	Private Charles K. Stephens.
Private Joseph Q. Lopez.	Private Edward Turner.
Private Charles E. Lister.	Private Frank E. Tiffany.
Private James A. Manos.	Private Roy L. Vail.
Private Harry W. Martin.	Private Arthur D. Vance.
Private Donald J. McLean.	Private Thomas W. Westrick.
Private Archie C. McIntyre.	Private Walter C. Williams.
Private William I. Moffitt.	Private Frank M. Wilson.
Private Edwin L. Metcalf.	Private Vincent J. Wintermute.
Private Edward Newfield.	Private Sidney J. Winter.
Private William M. Nelson.	Private Stewart W. Williams.
Private Edwin J. Pelbraugh.	Private John J. White.
Private Pennick J. Powell.	

Fourteenth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain Daniel K. Smyth.	Cook Joseph J. Melville.
First Lieutenant Harry J. L. Atwood.	Bugler George A. Neustedt.
Second Lieutenant Albert K. Boeckmann.	Bugler Harold J. Stone.
Second Lieutenant James T. Miles.	Private, first class, Ronald E. Bowen.
Second Lieutenant Arthur Moody.	Private, first class, George R. Burke.
Second Lieutenant William Mowry.	Private, first class, Harold E. Carr.
Sergeant Langdon W. Atwood.	Private, first class, Carl E. Catron.
Sergeant Frederick L. Baker.	Private, first class, Cornelius J. Cook.
Sergeant Clinton K. Coburn.	Private, first class, William A. Clark.
Sergeant Robert C. Flournoy, Jr.	Private, first class, John F. Dunlap.
Sergeant Edwin W. Jagow.	Private, first class, Raymond E. Evans.
Sergeant Walter J. King.	Private, first class, Lloyd A. Ferrell.
Sergeant Pierrie V. Ludin.	Private, first class, Charles S. Gottfried.
Sergeant Curtis C. Legerton.	Private, first class, Nicholas D. A. Graney.
Sergeant Otis F. Millsap.	Private, first class, Emil P. Klich.
Sergeant Richards Matthews.	Private, first class, Joseph O. Lovett.
Sergeant Lewis H. Roland.	Private, first class, Ferdinand E. Meine.
Sergeant Lee E. Sherwood.	Private, first class, Samuel A. Mosgrove.
Sergeant Victor E. Zerman.	Private, first class, Walter B. Nelson.
Corporal Stanton T. Abbey.	Private, first class, Alfred M. Pedersen.
Corporal William B. Abrams.	Private, first class, Charles B. Phyle.
Corporal Charles Z. Bailey.	Private, first class, William C. Rogers.
Corporal Edward Curtis.	Private, first class, Paul A. Shuman.
Corporal William A. Clark.	Private, first class, George F. Stransky.
Corporal Wilson P. Cannon.	Private, first class, Don H. Travis.
Corporal Albert G. Gilruth.	Private, first class, Joseph A. Trombley.
Corporal Victor A. Legerton.	Private, first class, Roland C. Truesdell.
Corporal Frank P. Lockett.	Private, first class, Charles A. Tuttle.
Corporal John J. Mersch.	Private, first class, Horace E. Walker.
Corporal Alfred C. Page.	Private, first class, Wilbur L. Welch.
Corporal Stephen J. Reznichek.	Private, first class, Henry V. Wilcox.
Corporal Peter J. Thompson.	Private James B. Abbey.
Corporal Wilbert Wadleigh.	Private Walker Abbey.
Corporal Charles H. Weis.	Private James B. Adams.
Corporal William C. Wolford.	Private Arthur J. Benapfi.
Mechanic James C. Ginter.	Private William F. Bolson.
Mechanic Claire W. Putenney.	Private Sylvester Braiden.

Fourteenth Company, Coast Artillery Corps—Continued.

Private Earl L. Brown.	Private Ferdinand E. Meine.
Private William J. Cogan.	Private Byron C. Millhouse.
Private Howard W. Creighton.	Private Irwin W. Moore.
Private Ariel W. Covey.	Private Arthur E. Matlock.
Private William M. Cameron.	Private Sanford T. Moore.
Private Russell D. Clarke.	Private William A. Morton.
Private Henry L. Carmichael.	Private Emilio B. Martinez.
Private Mark L. Cardwell.	Private Oliver S. Matlock.
Private William K. Carr.	Private Henry A. McCabe.
Private Lloyd R. Collins.	Private William M. McConnell.
Private Roy J. Clemens.	Private Elmore B. McCollum.
Private Bert J. Conliffe.	Private Kenneth A. Nairne.
Private Warren J. Cowles.	Private Arthur H. Needham.
Private Lewis Dicker.	Private Manuel D. Nelson.
Private Raymond J. Dunbar.	Private Earl B. Norton.
Private Henry W. Dalo.	Private Donald T. Oster.
Private Norman W. Enz.	Private Carl C. Overpeck.
Private Charles A. Engle.	Private Fred E. Olson.
Private Frank B. East.	Private Walroth G. Oliver.
Private Arthur P. Funke.	Private George D. Polloreno.
Private John W. Feutz.	Private Duff A. Papineau.
Private Walter R. Fitzgerald.	Private Lester P. Pearson.
Private Tom Yen Fook.	Private William M. Pinckney.
Private Charles F. Ganther.	Private Arthur A. Page.
Private James C. Ginter.	Private Paul P. Ragan.
Private Hope Glover.	Private Rex Ragan.
Private Max W. Glantz.	Private George K. Reynolds.
Private Adolph Goldenberg.	Private Palmer Reznicek.
Private Adolph Grotjahn.	Private John A. Strong.
Private Richard C. Haimbaugh.	Private Gilbert A. Saunders.
Private Elmore F. Henel.	Private Thomas E. Sewell.
Private Clarence W. Herron.	Private Joseph M. Sherman.
Private Lee H. Hubbard.	Private Lyman D. Sherwood.
Private Robert L. Hall.	Private Raymond C. Smith.
Private Samuel W. Hawver.	Private Ralph R. Steele.
Private Maurice S. Hand.	Private Clarence M. Strader.
Private Wayne A. Huffman.	Private George K. Topper.
Private Harry C. James.	Private William H. Tullos.
Private Merle T. Jessup.	Private Harold S. Twombly.
Private Verne G. Johnson.	Private Philip K. Udell.
Private Lewis Jones.	Private William C. Vice.
Private Frederick W. Kirkpatrick.	Private Jay C. Vincent.
Private Earl J. Klingaman.	Private John B. Vigare.
Private Madison T. Lewis.	Private Charley S. Walbridge.
Private Frank M. Leiby.	Private Jay A. Wescott.
Private E. T. Loftus.	Private Ward M. Whitten.
Private Martin Loftus.	Private Edward W. Welty.
Private Frank P. Lockett.	Private William S. Watts.
Private Clarence T. Lee.	Private Guy D. Wiggins.
Private Smith Lee.	Private George H. Wilson.
Private Arthur Lyttle.	Private Ferdinand H. Wadsworth.
Private Howard N. Mason.	Private Francis Weiss.

Fifteenth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain Robert R. Jones.	Sergeant William H. Silke.
First Lieutenant Arthur P. Slocum.	Corporal Earl A. Barnett.
Second Lieutenant Henry B. Lowell.	Corporal Arthur E. Bogusch.
Sergeant Carleton B. Bell.	Corporal Joseph L. Bremm.
Sergeant Julian L. Brannon.	Corporal Thomas N. Chase.
Sergeant Arthur J. K. Depew.	Corporal William H. Coleman.
Sergeant Arthur Diegel.	Corporal Norman D. Gilbert.
Sergeant Rufus Hisey.	Corporal Franklin L. Grouard.
Sergeant Ebenezzer Ingram.	Corporal Francis M. Hall.
Sergeant Francis W. Juden.	Corporal Joseph E. Kirk.
Sergeant Benjamin H. Mathews.	Corporal Cyril S. Koumrian.
Sergeant Ralph R. Pearson.	Corporal Glen I. Miller.
Sergeant Robert R. Robertson.	Corporal John Plummer.
Sergeant Norman Russell.	Corporal Joseph Storie.
Sergeant Samuel C. Sault.	Corporal Roy C. Yourstone.

Fifteenth Company, Coast Artillery Corps—Continued.

Mechanic Granville E. Anderson.	Private Louis Foix.
Mechanic Philip J. Klotzbach.	Private Harold D. Gardner.
Mechanic Lloyd F. La Grange.	Private Cyrus H. Gates.
Mechanic Daniel J. O'Grady.	Private James N. Gilmore.
Cook Joseph R. Aguilar.	Private Herbert A. Gray.
Cook Walter G. Charles.	Private Joseph I. Gulick.
Cook Chester A. Park.	Private Roy M. Hamilton.
Cook Austin G. Phenix.	Private Marion W. Hays.
Bugler William L. Brown.	Private Thomas L. Hays.
Bugler Carroll W. Coleman.	Private Clarence P. Heninger.
Bugler Louis F. Wolfinger.	Private Gordon G. Hoslett.
Private, first class, Lester A. Blette.	Private Merle F. Jessup.
Private, first class, Frank B. East.	Private Thomas Jester.
Private, first class, Fritz C. Fricke.	Private Charles H. Keeler.
Private, first class, Earl L. E. Gardner.	Private Glenn J. Knox.
Private, first class, Ralph T. Ginn.	Private George Lallich.
Private, first class, Thomas H. Green.	Private Waldo M. Lewis.
Private, first class, David M. Hatton.	Private Forrest McHenry.
Private, first class, Fred I. Hutchison.	Private Roy D. McLeod.
Private, first class, Scott Jensen.	Private Peter McNeil.
Private, first class, Frederick C. Johnson.	Private Clyde R. McQuiston.
Private, first class, Albin E. Len.	Private Arthur L. Merwin.
Private, first class, Thomas Lotridge.	Private Holman P. Midcalf.
Private, first class, Clarence A. Mount.	Private James H. Mitchem.
Private, first class, Paul P. O'Neill.	Private Sanferd T. Moore.
Private, first class, Michael J. Parker.	Private George E. Reap.
Private, first class, George M. Rear.	Private William J. Rice.
Private, first class, Delbert B. Sands.	Private William H. Roehl.
Private, first class, Bernard N. Scofield.	Private William E. Rogers.
Private, first class, Orville C. Sharp.	Private Howard D. Root.
Private, first class, William L. Woolaver.	Private Jesse E. Rountree.
Private George F. Anstee.	Private Marshall H. Salisbury.
Private Martin Badostain.	Private Charles W. Schwartz.
Private George D. Berkheiser.	Private William S. Scribner.
Private Harold G. Bogel.	Private Alvin A. Seidel.
Private Fred E. Bressler.	Private Robert M. Sharp.
Private Ebbert R. Bundren.	Private Charles W. Smith.
Private Thomas S. Cave.	Private James H. Steger.
Private Edward W. Chenoweth.	Private Henry G. Stieler.
Private Alexander R. Compas.	Private Joaquin P. Stokes.
Private Lester A. Darling.	Private Paul R. Thompson.
Private Nicholeno Demarino.	Private Joseph C. Weber.
Private Henry E. Doak.	Private John C. Wilkins.
Private Edgar C. Fleck.	Private Thomas E. Williams.
Private Ralph R. Foerster.	

Sixteenth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Lawrence P. McClellan.	Bugler Ai Gillaspie.
First Lieutenant Guy W. Mac Clure.	Private, first class, Henry R. Boehm.
Sergeant Belton C. Abel.	Private, first class, John De Lantsheer.
Sergeant Jeremiah F. Ahern.	Private, first class, Thomas J. Garcia.
Sergeant Willard T. Bender.	Private, first class, Raymond L. Gould.
Sergeant Edgar F. Gead.	Private, first class, Charles A. Henze.
Sergeant Verle J. Hanson.	Private, first class, Marion C. Isaacson.
Sergeant Roy J. Hicks.	Private, first class, Hannon E. Jeans.
Sergeant Wells Oviatt.	Private, first class, Barney L. Jordon.
Sergeant William F. Sewell.	Private, first class, Phillipp G. Krelle.
Sergeant Ralph Zani.	Private, first class, William B. Logue.
Corporal Robert L. Davis.	Private, first class, Francisco Manning.
Corporal John T. Harms.	Private, first class, Clyde K. Maloy.
Corporal George C. Lund.	Private, first class, Reuben H. Moore, Jr.
Corporal Theo. J. Storer.	Private, first class, Arthur H. Newton.
Corporal Benjamin Spingath.	Private, first class, Domingo Sabano.
Corporal Arnold C. Von Der Lohe.	Private, first class, John Steltzer.
Mechanic Thomas E. Milne.	Private, first class, Cecil F. Westphalen.
Cook Henry A. Nelson.	Private Alex C. Anderson.
Cook Melvin T. Saffell.	Private Rolland A. Barton.
Cook Alfred S. Spencer.	Private John G. Bauman.
Bugler Edwin M. Glaze.	Private Fred H. Butterfield.

Sixteenth Company, Coast Artillery Corps—Continued.

Private Henning Carlson.
 Private Dewey L. Chilson.
 Private Avery B. Christensen.
 Private John F. Clausson.
 Private William L. Codner.
 Private Quincy Cotting.
 Private Ernest E. Covell.
 Private Marcus J. Cummins.
 Private George B. Dixon.
 Private Thomas F. Doyle.
 Private Harold G. Dunn.
 Private Leon L. Dwight.
 Private Joe Edwards.
 Private Clarence H. Erickson.
 Private Lester M. Fuqua.
 Private George W. Groat.
 Private Frank A. Guerero.
 Private Frank Hoss.
 Private Harry Harms.
 Private Harold S. Helsley.
 Private Claud F. Hodge.
 Private Samuel A. Horner.
 Private Derlin P. Kimberlin.

Private Johann G. Leipold.
 Private Antonio Longo.
 Private Wert D. Lockhart.
 Private Joseph F. Morrell.
 Private John F. O'Fallon.
 Private Silas M. Partridge.
 Private Thomas F. Pfanstiel.
 Private Chester A. Reed.
 Private Glenn Romberger.
 Private Ralph O. Saunders.
 Private James H. Seay.
 Private Peyton T. Self.
 Private Earnest E. Shaw.
 Private Lawrence L. Smith.
 Private Frank E. Stone.
 Private Roy Stone.
 Private John B. South.
 Private Oscar A. Thompson.
 Private Chester E. Treer.
 Private Albert E. Utecht.
 Private Henry N. Wall.
 Private William T. West.

Seventeenth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Taylor E. Duncan.
 First Lieutenant Walter H. Long.
 Sergeant William S. Blystone.
 Sergeant Charles E. Cuthbert.
 Sergeant James G. Caplinger.
 Sergeant Stanley G. Fitz.
 Sergeant John Neeb Hoag.
 Sergeant Robert E. Lee.
 Sergeant Ernest W. Shield.
 Sergeant LeRoy A. Siegel.
 Corporal Fred Burnworth.
 Corporal Byron J. Clifford.
 Corporal Bazel D. Copper.
 Corporal Watts R. Clarke.
 Corporal Lawrence F. Eplund.
 Corporal Tom P. Forman.
 Corporal Victor B. Goss.
 Corporal Burt Howell.
 Corporal George G. Lownsbery.
 Corporal Dallas D. McClish.
 Corporal Edward H. Morrison.
 Corporal Willard Nico.
 Mechanic Howard B. Daniels.
 Cook Billie Broderick.
 Cook Willard L. Seanor.
 Bugler Harold W. Hindman.
 Bugler Lloyd T. Whitlock.
 Private, first class, John A. Bertelsen.
 Private, first class, Harold S. Bucquet.
 Private, first class, Leonard Clapham.
 Private, first class, Henry DeFiennes.
 Private, first class, Wesley T. Hagadorn.
 Private, first class, William B. Hunkins.
 Private, first class, Herbert J. Kirkpatrick.
 Private, first class, Erich Meisel.
 Private, first class, Thomas J. Morgan, Jr.
 Private, first class, Charles L. Morris.
 Private, first class, Elmer G. Mueller.
 Private, first class, Langton Prager.
 Private, first class, Stockton Quincy.
 Private, first class, Albert G. Ralphps.

Private, first class, Charles W. Ryder.
 Private, first class, John R. Taylor.
 Private, first class, George F. McGonigle.
 Private Harold G. Babeock.
 Private Earl W. Barton.
 Private Harry E. Bean.
 Private Ben B. Bloys.
 Private Paul R. Bravender.
 Private Robert C. Cline.
 Private Alford A. Connors.
 Private Samuel Daniels.
 Private Thomas C. Deane.
 Private John A. Dewar.
 Private Clair W. Dunton.
 Private Wallace A. Dunton, Jr.
 Private Frank F. Elliott.
 Private Otis V. Ellsworth.
 Private Harold N. Enfield.
 Private Walter S. Erhardt.
 Private Lee E. Ermel.
 Private Douglas A. French.
 Private Louis H. Gibbs.
 Private Guy G. Gilchrist.
 Private Harold W. Gleason.
 Private Clifton E. Godwin.
 Private Frank H. Greve.
 Private William L. Harper.
 Private James A. Harrison.
 Private Fenn A. Hart.
 Private Roy S. Hastings.
 Private Robert E. Hayes.
 Private Donald M. Hicks.
 Private Thomas R. Hosler.
 Private Floyd K. Humphrey.
 Private Elihu R. Jones.
 Private Herbert W. Koch.
 Private William B. Laing.
 Private Myron J. Lakey.
 Private Elbert H. Larrimer.
 Private Sam Latta.
 Private Ray Lincoln.
 Private Wilfred J. Lockett.

Seventeenth Company, Coast Artillery Corps—Continued.

Private Frank E. Lowry.	Private Gilbert G. Rorick.
Private Marshall Mackey.	Private Oscar Ruff.
Private Tom E. Mankey.	Private Oscar Searles.
Private Charles Marchand.	Private Russell D. Smith.
Private Stanley C. McCulloch.	Private Robert W. Smith.
Private George E. McNulty.	Private Paul Snyder.
Private Alexander L. Mitchell.	Private Ernest E. Sweeney.
Private John W. Morris.	Private Henry R. Symonds.
Private Ross A. Moore.	Private Ralph E. Tebow.
Private Joseph L. Neary.	Private Walter I. Tebow.
Private August V. Nelson.	Private William Tomlinson.
Private Wilmer Paquette.	Private J. Robert Turner.
Private Mark C. Parmeter.	Private Howard F. Ward.
Private Philip S. Postell, Jr.	Private Jack M. Whitney.
Private Russell H. Palmer.	Private Frank Wilkin, Jr.
Private Robert J. Reeves.	Private Howard W. Willard.
Private Homer H. Reynolds.	Private Errol J. Wilson.
Private Orval Richmond.	Private Mayre R. Woodward.
Private Merle E. Roberts.	Private Fred H. Waring.
Private Adam J. Robinson.	Private Mack V. Wright.
Private Dwight H. Robinson.	

Eighteenth Company, Coast Artillery Corps.

(Called into Federal Service April 12, 1917.)

Captain William Ergenzinger.	Bugler Thomas F. Botello, Jr.
Second Lieutenant Robert L. Henderson.	Bugler John J. Jordt.
Second Lieutenant Aels M. Lander.	Bugler Fred R. Nelleman.
Second Lieutenant Robert W. McClellan.	Private, first class, Carl W. Brockmann.
First Sergeant James H. Davidson.	Private, first class, Raleigh M. Clay.
First Sergeant Ward E. Grant.	Private, first class, Doyle S. Cox.
Supply Sergeant William C. Baldwin.	Private, first class, James L. DeGraffenreid.
Supply Sergeant Charles E. Sawyer.	Private, first class, Walter R. Ellis.
Supply Sergeant William C. Van Antwerp.	Private, first class, Lang G. Finn.
Mess Sergeant Herbert T. Smith.	Private, first class, Eugene P. Flaws.
Mess Sergeant Myron J. Smith.	Private, first class, Cyril L. Forsyth.
Sergeant George L. Bugbee.	Private, first class, Joseph M. Glines.
Sergeant Royal J. Burgess.	Private, first class, Marcellus Goddard.
Sergeant Belcher Cooley.	Private, first class, Hugh R. Hall.
Sergeant Milton B. Clay.	Private, first class, Clarence Harrison.
Sergeant Russell C. Crouse.	Private, first class, Thomas E. Harrington.
Sergeant Jacques C. Franklin.	Private, first class, David H. Hurley.
Sergeant Warren P. Hilt.	Private, first class, Zack F. Knapp.
Sergeant William G. McGurrin.	Private, first class, Harry L. Kottinger.
Sergeant Victor B. Sayre.	Private, first class, Mark A. Langlois.
Sergeant Benjamin D. Small.	Private, first class, Robert A. McKibben.
Corporal Cleo C. Blalock.	Private, first class, Francis J. McLearn.
Corporal Charles H. Bonsey.	Private, first class, Benjamin Murphey.
Corporal Claude S. Bulloch.	Private, first class, Foster W. Murphy.
Corporal Herbert E. Clyne.	Private, first class, Harold L. Putnam.
Corporal Harry Dean.	Private, first class, Cecil C. Rice.
Corporal Robert R. Green.	Private, first class, Paul J. Speth.
Corporal Kenneth Kent.	Private, first class, Nicholas Taylor.
Corporal Ivan B. Kahn.	Private, first class, Archie Utter.
Corporal Karl J. Lindsey.	Private, first class, Albert E. Workman.
Corporal John A. McCandlish.	Private Lewis J. Baier.
Corporal James W. McVicar.	Private Vester L. Best.
Corporal William A. Miller.	Private Carl E. Beaver.
Corporal Raymond S. Misner.	Private Thomas Ballringer.
Corporal Michael McCloskey.	Private John W. Bradley.
Corporal Ross O. Porter.	Private Allen H. Biggs.
Corporal George E. Ruperich.	Private Edward Bimat.
Corporal Russell J. Thompson.	Private Martin Becker.
Corporal Bert W. Thomas.	Private Rubin Bradshaw.
Mechanic Charles N. Brown.	Private Arthur R. Breashear.
Mechanic Karl L. Greiff.	Private Jesse F. Brockway.
Mechanic Norman J. Reining.	Private Charles M. Clopton.
Cook Robert C. Long.	Private Frank A. Clark.
Cook Mariano Ruiz.	
Cook Alfred E. Warren.	

Eighteenth Company, Coast Artillery Corps—Continued.

Private Raymond C. Crowell.
 Private Earl F. Cody.
 Private Frederick C. Campbell.
 Private Royal S. Cox.
 Private William F. Dale.
 Private La Verne E. De Wolfe.
 Private Claude P. Davidson.
 Private Ralph E. Durler.
 Private Charles Y. Dyer.
 Private Victor DeGrazie.
 Private Elmer C. Ensign.
 Private Edward I. Farias.
 Private Robert J. Fields.
 Private Hugo L. Frostefer.
 Private John E. Fitzwater.
 Private Harry W. Fauser.
 Private Willis La Roy Friz.
 Private Charles M. Gallegos.
 Private Charles J. Gallaway.
 Private John A. Greene.
 Private Olaf C. Hanson.
 Private Hubert H. Haslam.
 Private Eugene C. Hatfield.
 Private Halbert Hill.
 Private Max Holmn.
 Private Ray Holmn.
 Private William C. Hoskins.
 Private Cecil C. Haworth.
 Private Bernard Hubbard.
 Private Robert O. Hubbard.
 Private David A. Hunter.
 Private Louis P. Harrison.
 Private Albert J. Hesik.
 Private Russell W. Jefferys.
 Private Louis W. Jacobsen.
 Private Dean D. Karr.
 Private Henry R. Koehler.
 Private William J. Kennedy.
 Private Albert J. Korber.
 Private William F. Kroener.
 Private Rudolph A. Kroener.
 Private Austin A. Lee.

Private Fred Lough.
 Private Ernest Luginbuhl.
 Private Peter Mackay.
 Private James J. McMiron.
 Private Holcomb Mathews.
 Private Arthur C. Meadows.
 Private Frank H. Moore.
 Private Irwin Moore.
 Private Russell P. Moore.
 Private John B. Murray.
 Private George W. Peterkin.
 Private Raymond J. Potter.
 Private Earvin A. Robson.
 Private John J. Reed.
 Private Hal Robinson.
 Private Sol Rosenberg.
 Private John Russell.
 Private Ernest Louis Rudloff.
 Private George Runice.
 Private David Stokvis.
 Private Arthur Stern.
 Private William R. Stein.
 Private Orrin T. Smith.
 Private Bert C. Smith.
 Private Frank B. Silva.
 Private Allen I. Sabin.
 Private Benicio F. Salazar.
 Private Henry L. Schwartz.
 Private Alfred W. Smith.
 Private John Spiropoulos.
 Private Carl F. Stoltz.
 Private Joseph C. Sweeny.
 Private Eldridge W. Thomas.
 Private Dewey S. Thompson.
 Private Hugh C. Trunnel.
 Private Osborn J. Wedgeworth.
 Private Parker E. Walker.
 Private Fred L. Wickman.
 Private Gwilym E. Williams.
 Private Loyd E. Witt.
 Private Dewey E. Wilhite.

Nineteenth Company, Coast Artillery Corps.

(Called into Federal Service, August 5, 1917.)

Captain John T. Riley.
 First Lieutenant Clifford J. Nix.
 Second Lieutenant Newton J. Hopcraft.
 Sergeant Percy M. Bowman.
 Sergeant David H. Chapman.
 Sergeant Harold M. Dunham.
 Sergeant Nelson H. Lane.
 Sergeant Edgar M. Lowell.
 Sergeant James T. McCann.
 Sergeant Jesse F. Ormsby.
 Sergeant William T. Russell.
 Sergeant Edward Seguin.
 Sergeant Earl G. Ulrich.
 Corporal Roy E. Bauer.
 Corporal George B. Ennever.
 Corporal John R. Kittrell.
 Corporal Howard L. Porter.
 Corporal John R. Reasoner.
 Corporal Paul L. Rhodes.
 Corporal Clyde Smith.
 Corporal Bartley S. Swartz.
 Corporal Joseph Williamson.
 Mechanic Homer M. Harwood.
 Mechanic Dorrel B. Kampmann.

Cook Dudley B. Ryall.
 Bugler Edwin M. Wyckoff.
 Bugler James D. Wyckoff.
 Private, first class, James F. Armstrong.
 Private, first class, Stewart N. Beam.
 Private, first class, Joe N. Buckmaster.
 Private, first class, Clifford J. Cottrell.
 Private, first class, James E. Davis.
 Private, first class, Earl C. Grow.
 Private, first class, Ralph E. Johnson.
 Private, first class, Frank G. Martin.
 Private, first class, Isadore J. Mendell.
 Private, first class, Wilbert R. Morand.
 Private, first class, Theodore L. L. Mytton.
 Private, first class, Earl N. Ostrom.
 Private, first class, Roy S. Sessions.
 Private, first class, Samuel B. Silbert.
 Private, first class, Earl Tanning.
 Private, first class, Elmer C. White.
 Private Harry L. Alexander.
 Private Leo A. Anderson.
 Private Robert L. Babcock.
 Private Arthur R. Beardeley.

Nineteenth Company, Coast Artillery Corps—Continued.

Private Harvey L. Baird.	Private William F. Lasham.
Private Louis Roy Black.	Private George M. Lewis.
Private Carl B. Blumberg.	Private William F. Lester.
Private Gaston Chassain.	Private Charles R. Leverett.
Private Omar Christy.	Private David A. Loutzenhiser.
Private Edward W. Cook.	Private Benjamin Lynde.
Private Alfred R. Collins.	Private Ferdinand M. McAllister.
Private Audel B. Cota.	Private Richard W. F. Mohr.
Private Laron D. Culley.	Private John V. R. Morrison.
Private Philip F. Dodson.	Private Dewey L. Moss.
Private William O. Duncan.	Private Wilbur E. Murphy.
Private Val Percy Dunlap.	Private Neal R. New.
Private Will M. Fawcett.	Private Sylvester O. Newton.
Private Otto C. Gerken.	Private Samuel E. Nichols.
Private Herschal W. Goodknight.	Private Jack E. Nolan.
Private Roy T. Grande.	Private William W. Page.
Private Forrest W. Granger.	Private Louis Polaski.
Private Leo S. Grindley.	Private Edson A. Ranney.
Private Martin L. Harbarger.	Private Horace E. Ranney.
Private Leonard A. Harvey.	Private Cecil G. Reed.
Private Walter J. Haschke.	Private Leon Reinhart.
Private Homer J. Hause.	Private Eugene B. Rice.
Private James H. Hill.	Private George C. Schweitzer.
Private Raymond D. Huckmuth.	Private Eugene Singer.
Private Wesley Howell.	Private Arthur H. Shipley.
Private George E. Hummel.	Private William Soper.
Private Harry R. Jones.	Private John A. Steinmetz.
Private Edward Joseph Kelly.	Private Jot G. Stone.
Private Frank J. Kunz.	Private Charles Maynard Towner.
Private Frank H. Larrabee.	Private Robert K. Vanderlip.

Twentieth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Roy C. Prentiss.	Private, first class, Joe H. Murphy.
First Lieutenant Charles E. Berry.	Private, first class, Robert E. Power.
Second Lieutenant Frank Harlan.	Private, first class, Paul L. Prairo.
First Sergeant Everett R. Woods.	Private, first class, Clarence E. Rayburn.
Supply Sergeant Asa C. Morton.	Private, first class, Vito Rivello.
Mess Sergeant David E. Voorhees.	Private, first class, Carl T. Shenefield.
Sergeant Haydn C. Lee.	Private, first class, Homer H. Schwinger.
Sergeant Lloyd B. Powell.	Private James H. Allen.
Sergeant Paul E. Stretch.	Private Rupert V. Allen.
Sergeant Rudolph A. Wellpott.	Private Leslie A. Anderson.
Sergeant Claude L. Waer.	Private Hurshel Bailey.
Corporal Albert J. Allen.	Private Walter E. Baldwin.
Corporal William P. Crowe.	Private John J. Beck.
Corporal George S. Doe.	Private Buford O. Boyce.
Corporal Otto N. Grillingham.	Private Sylvester Brock.
Corporal Forest J. Johnston.	Private Harry H. Brussow.
Corporal Edward P. Koogh.	Private Claude A. Bailey.
Corporal Joseph H. S. Kendall.	Private Norfleet Callicott.
Corporal Francis C. Lee.	Private Chester C. Carner.
Corporal Byron C. Levy.	Private Leon H. Carpenter.
Corporal Wesley W. Lodge.	Private Macy Cobb.
Corporal Stanwood N. Rogers.	Private Albert R. Cochener.
Mechanic Leon L. Jadwin.	Private Harry J. Coqueugniut.
Cook Grover C. Forsberg.	Private Edmund J. Clark.
Cook Earl M. Willit.	Private Jewell G. Dahlstead.
Bugler Harold D. Cooper.	Private Malcolm S. Dahlstead.
Bugler Laurence A. Sheriff.	Private Cameron N. Dawson.
Private, first class, Gilbert L. Bowers.	Private Charles DeBrouwer.
Private, first class, Raymond U. Bowers.	Private Dixon F. Deemer.
Private, first class, Elza J. Brown.	Private Erwin DeLaVergne.
Private, first class, Archie B. Cree.	Private Leander Demeyere.
Private, first class, Lloyd J. Dillon.	Private Vern DeMott.
Private, first class, George R. Ferrell.	Private Otto F. Dietrich.
Private, first class, Linn O. Hanselman.	Private Dennis H. Dillon.
Private, first class, Ralph C. Hill.	Private Edward L. Dithridge, Jr.
Private, first class, Keith B. Morgan.	Private Ralph W. Eaby.

Twentieth Company, Coast Artillery Corps—Continued.

Private Edwin E. Edmiston.	Private Howard C. Park.
Private Casper L. Estep.	Private Paul R. Pence.
Private Colbert L. Fountaine.	Private Ferris N. Pfaffenberger
Private Arthur Fay.	Private Henry C. Rand.
Private Joe J. Fishel.	Private John J. Rettig.
Private Ellsworth D. Gage.	Private Clarence E. Reynolds.
Private Earl J. Grisham.	Private Angus S. Richardson.
Private Fred C. Hall.	Private Joseph E. Rogers.
Private William Hamilton.	Private Narcisse Rous.
Private Thomas B. Harrison.	Private Raymond S. Rowe.
Private Thaddeus P. Harvey.	Private Max R. Sage.
Private Theodore S. Horine.	Private John H. Selis.
Private Earl H. Hover.	Private Carson Smart.
Private Harry H. Harkey.	Private Walter C. Smith.
Private Ford E. Jackson.	Private Vernon H. Stetzer.
Private Robert G. Johnson.	Private Paul H. Stevens.
Private Percy G. Juer.	Private Leighton R. Stewart.
Private William I. Kime.	Private Frank A. Stimpson.
Private Emil E. Klein.	Private Roy J. Stockwell.
Private Eugene Lamb.	Private James A. Sturgis.
Private Amos C. LeFevre.	Private Jack M. Sunner.
Private Leo R. Lowman.	Private Thomas B. Scott.
Private Henry W. Mangold.	Private James G. Taylor.
Private Paul E. Mann.	Private Paul L. Taylor.
Private Clarence L. McComb.	Private Dwight H. Thornburg.
Private Leigh C. McWhorter.	Private Joseph S. Uppman.
Private William H. Metz, Jr.	Private Charles Van Ness.
Private Frank B. Midgley.	Private Newell T. Vincent.
Private Robert N. Miller.	Private Clifford V. Ward.
Private Gerald E. Moore.	Private William M. W. Ward.
Private Marion E. Martin.	Private Lloyd J. Welch.
Private Edward G. Martinez.	Private Edwin L. Wilson.
Private Honore R. Noppe.	Private Orlando S. Woodard.

Twenty-first Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Frank J. Baum.	Private, first class, Chas. A. Oliver.
First lieutenant Ben B. Blair.	Private, first class, Rae Riggs.
Second Lieutenant Dru W. Nicoles.	Private, first class, Harold H. Scott.
Sergeant Laurence R. Clapp.	Private, first class, Ray I. Underwood.
Sergeant Hal Hughes.	Private, first class, Herbert A. Walter.
Sergeant Winthrop S. Jackson.	Private Howard L. Anderson.
Sergeant Louis A. Lewis.	Private Howard M. Anderson.
Sergeant Harold A. McElroy.	Private Donald H. Barager.
Sergeant Harold W. Redmond.	Private Charles P. Binder.
Sergeant Edward R. Sullivan.	Private William R. Black.
Corporal Carl H. Beahm.	Private Floyd A. Boss.
Corporal Harry C. Chandler.	Private Robert D. Brigance.
Corporal Clarence L. Edwards.	Private Virgil E. Brown.
Corporal Jesse H. Flower.	Private Arthur J. Budway.
Corporal George A. Grist.	Private James A. Bullis.
Corporal Harold V. Hansen.	Private Ralph C. Ceder.
Corporal Raymond N. Lee.	Private Wendell P. Chambers.
Corporal George D. Leonard.	Private Lorel E. Chastain.
Corporal Donald H. Packer.	Private Grant E. Clayton.
Corporal Roy B. Sherriff.	Private John H. College.
Corporal Washington F. Watkins.	Private Warren H. Cottle.
Mechanic Alphonse M. Moniot.	Private John F. Davis.
Mechanic Louis N. Roberts.	Private Walter E. Deal.
Cook Walter C. Humphreys.	Private Ralph E. Dodsworth.
Bugler Ralph W. Carmichael.	Private Gene W. Dopp.
Bugler Paul J. Howard.	Private Orvar A. Ehrenclou.
Private, first class, Virgil H. Best.	Private Miller W. Fishel.
Private, first class, Chas. A. Chapman.	Private Roland A. Gray.
Private, first class, John H. Harrigan.	Private Waldo C. Hardison.
Private, first class, Chas. R. Hartshorn.	Private Oliver C. Hardy.
Private, first class, Daniel E. Heald.	Private Benjamin Hobbble.
Private, first class, Loren G. Jones.	Private Leon D. Hurlburt.
Private, first class, Edgar G. Lee.	Private Oliver D. Keese.
Private, first class, Donald A. McMillan.	Private Harold F. Latter.
Private, first class, Chas. E. Moore.	Private Christian B. Levy.

Twenty-first Company, Coast Artillery Corps—Continued.

Private Harry E. Malin.	Private Charles C. Riggs.
Private Walter H. Martin.	Private Richard W. Royce.
Private Howard M. McGillis.	Private Frederick J. Schott, Jr.
Private Edward E. Moniot.	Private John W. Sharpe, Jr.
Private Alvin L. Nelson.	Private Maxwell Sherager.
Private John C. Padelford.	Private Louis B. Sweet.
Private Jack H. Parry.	Private Otto A. Thorman.
Private Arthur C. Pederson.	Private Carrol M. Wakeman.
Private Evan E. Peterson.	Private Lloyd E. Weller.
Private Roy E. Phillips.	Private Albert G. Whellon.
Private Homer Plannette.	Private Frederick B. Winter.
Private Frank F. Reed.	Private Frank Verges.

Twenty-second Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Leonidas W. Stampley.	Private Thatcher H. Coffey.
First Lieutenant Louis O. La Mont.	Private Louis C. Compas.
Second Lieutenant Frederick L. Macfarlane.	Private Frederick P. Cowles.
Sergeant George H. Drinkwater.	Private Kenneth Current.
Sergeant Ernest Elliott.	Private Leo A. Deatrick.
Sergeant Berte R. Haigh.	Private Lee B. Doyle.
Sergeant Howard S. Harris.	Private Neil M. Erskine.
Sergeant Elmer D. Mitchell.	Private Ottoo Farra.
Sergeant Dan T. Pencil.	Private Fred W. Ferry.
Sergeant Roy H. Seals.	Private Frank C. Ganahl.
Sergeant William C. Shute.	Private Clifford R. Gillespie.
Sergeant George H. Van Sant.	Private Joseph H. Goyke.
Sergeant Robert R. Williamson.	Private Kenneth W. Hall.
Corporal Howard J. Bare.	Private Wesley B. Hallack.
Corporal William C. Bierman.	Private Vivian E. Hatch.
Corporal Charles D. Black.	Private William V. Hamsley.
Corporal John F. Hopkins.	Private Forrest E. Hershey.
Corporal John S. Hunter.	Private Harry G. Jaetkne.
Corporal Frank Niehaus.	Private Charles S. Johnson.
Corporal Cacho Ortega.	Private Collins E. Jolley.
Corporal Lester P. Stockman.	Private Lyle L. Keelin.
Corporal Arthur H. Valentine.	Private Ernest J. Lafrens.
Corporal Robert F. Winterton.	Private William N. Llewellyn.
Corporal Peter S. A. Wulff.	Private Harold B. Lloyd.
Mechanic Sylvester B. Kurtz.	Private Harold E. Lochridge.
Mechanic Waldo Wiens.	Private Kent H. Lucas.
Cook Marion L. Ley.	Private Frank J. Madonia.
Bugler Jack P. Fraser.	Private Galvin E. Marr.
Private, first class, Franz W. Ackerman.	Private Walter D. Mayes.
Private, first class, Sberald Adams.	Private Arthur McDonald.
Private, first class, Allen A. Baxter.	Private Thomas R. McGaff.
Private, first class, William E. Bledsoe.	Private Edward H. McGee.
Private, first class, Leo J. Bordelon.	Private Percy C. Meyers.
Private, first class, Daniel J. Collins.	Private George P. Moseley.
Private, first class, Mack S. Ferguson.	Private Ralph T. Ogier.
Private, first class, Willis L. Fletcher.	Private William Pennell.
Private, first class, Thomas S. Gamble.	Private Fred K. Prouty.
Private, first class, Herbert P. Gunderson.	Private Arnold B. Quiroz.
Private, first class, Harold S. Ostrander.	Private Wendell Rapp.
Private, first class, Charles J. Rush.	Private Harry H. Renek.
Private, first class, Raymond P. Smith.	Private Sam Riave.
Private, first class, Charles W. Speas.	Private James McC Reid.
Private, first class, Burt B. Starr.	Private Max S. Rittenberg.
Private, first class, Omar H. Sturgis.	Private James O. Robinson.
Private Charles N. Aselin.	Private Louis Rutt.
Private Ernest C. Baker.	Private Sam Simmering.
Private Reuben A. Ballew.	Private Harvey B. Snodgrass.
Private William M. Banbury.	Private Maurice J. Sopp.
Private Donald D. Barton.	Private Fred B. Stever.
Private William J. Benedict.	Private Mark E. Tate.
Private Charles E. Bloom.	Private Edward F. Taylor, Jr.
Private Wilford M. Boyer.	Private Raymond H. Taylor.
Private Frank Brkich.	Private Joe W. Wiseman.
Private Durward Bunnell.	Private Monte V. Woodruff.

Twenty-third Company, Coast Artillery Corps

(Called into Federal Service August 5, 1917.)

Captain Roland G. Swaffield.	Private Dewey Hinkley.
First Lieutenant Henry M. Ward.	Private William Alvin Hinkley.
Second Lieutenant Volney G. Hill.	Private Leonard G. Holman.
Sergeant Wayne E. Bales.	Private Halfred Buris Holmes.
Sergeant Edgar F. Day.	Private Samuel S. Holloway.
Sergeant Robert C. Harris.	Private Edward L. Howard.
Sergeant Herbert H. James.	Private John A. Howell.
Sergeant Roy S. Melvin.	Private William E. Huyck.
Sergeant Leon H. Mosher.	Private Arthur M. Jensen.
Sergeant William R. Riemeyer, Jr.	Private James F. Jester.
Sergeant Homer C. Russell.	Private Clarence O. Johnson.
Corporal Harold H. I. Calkins.	Private Fred M. Johnson.
Corporal Fred A. Conover.	Private Harley K. Johnson.
Corporal Harlan T. Filer.	Private David A. Jones.
Corporal Thomas H. Gildea.	Private Oliver E. Jones.
Corporal John E. Hatch.	Private George A. Kidwell.
Corporal Edward A. Leatham.	Private Edward F. Kilday.
Corporal Verne McCormick.	Private Clifford M. Kingsbury.
Corporal Archibald S. Smith.	Private Harold E. Kline.
Mechanic William E. Lasater.	Private O. K. Kraus.
Mechanic Julius C. Thorp.	Private Wesley Landreth.
Cook Keith Karl Kimmell.	Private Arthur W. Lawrence.
Cook Charles D. Whiting.	Private David D. Layton.
Bugler Terence I. Blackwell.	Private Harold L. Lee.
Bugler Robert Ira Reese.	Private Kenneth H. Lee.
Private, first class, Charles H. Eastwood.	Private Benjamin F. Mace.
Private, first class, Elbert S. Gann.	Private Armin O. Manger.
Private, first class, Edward P. Hasty.	Private Theodore W. Marks.
Private, first class, Bryan L. Hendricks.	Private Lorin G. Martin.
Private, first class, Charles C. Hughes.	Private Francis R. McCrea.
Private, first class, Charles V. Jones.	Private Volney E. McCutchen.
Private, first class, Walter E. Larson.	Private Ray A. Meacham.
Private, first class, Stillman O. Lightle.	Private Albert C. Megede.
Private, first class, Ray C. McCullough.	Private Juro P. Millovich.
Private, first class, Ralph W. Millard.	Private Fred H. Mitchell.
Private, first class, Albert E. Pitman.	Private Orien W. Moxley.
Private, first class, Harold F. Riebe.	Private Walter A. E. Mueller.
Private, first class, Wallace G. Tilton.	Private Charles R. Mulick.
Private, first class, Tracy Trim Truex.	Private Elmer R. Myers.
Private Verle L. Albertson.	Private Merton D. Nevius.
Private Frank H. Andrews.	Private Ralph M. Olson.
Private Benjamin Arnold.	Private Warren A. Patton.
Private Harold P. Baird.	Private Raymond E. Powell.
Private Arthur Mayers Barlow.	Private Ellis O. Price.
Private Kenneth G. Barnes.	Private William D. Puryear.
Private Arthur C. Bauter.	Private Frank M. Quail.
Private Graydon F. Beeks.	Private William Merle Rankin.
Private Oliver W. Bell.	Private Jack C. Reach.
Private John B. Bidingier.	Private Enos L. Reeder.
Private Edmund Blazewski.	Private Harry C. Roberts.
Private David G. Bonna.	Private Claude E. Robertson.
Private LeRoy H. Bouhall.	Private Paul Courtney Robinson.
Private Dean C. Bowman.	Private Charles A. Rogers.
Private Frederick W. Carlsgaard.	Private Claude Raymond Rolleg.
Private Charles B. Casterline.	Private Michael Romero.
Private George E. Chambers.	Private Emerson C. Savage.
Private John R. Chambers.	Private Max M. Scanlan.
Private Edwin G. Clague.	Private Wilbur Glenn Schall.
Private Cheley Cowley.	Private Cecil C. Smith.
Private George Crane.	Private Harold H. Speaker.
Private Earl V. Eastman.	Private Lynn R. Starrett.
Private Walter K. Elsey.	Private Rubie O. Steele.
Private Cecil L. Fish.	Private Ray V. Strickler.
Private Fayette L. Foster.	Private Frank K. Swift.
Private Paul Joseph Fuire.	Private Howard R. Tell.
Private Edward H. Galbraith.	Private Thomas H. Tewhill.
Private Clarence E. Golwitzer.	Private Joseph K. Tinsley.
Private Mathew L. Good.	Private Paul V. Wall.
Private Harry C. Gorman.	Private Wiley M. Wallace.
Private James A. Greene.	Private Thomas O. Whiting.
Private Charles E. Hambleton.	Private Chester A. Wilcox.
Private Adlai G. Hauck.	Private Paul J. Wonder.
Private James L. Heunenstein.	Private Frank V. Woods.
Private John L. Herring.	

Twenty-fourth Company, Coast Artillery Corps.

(Called into Federal Service August 5, 1917.)

Captain Charles O. Brown.	Private Charles S. Downs.
Second Lieut. Williamson W. Bacon, Jr.	Private Robert Elsinger.
Sergeant Charles L. Beaman.	Private William F. Fallis.
Sergeant Kenneth P. Carter.	Private Wallace W. Fish.
Sergeant John W. Casner.	Private Alvin H. Fisher.
Sergeant Lewis M. Collins.	Private Curtis D. Fuller.
Sergeant Morris E. Conable.	Private William A. Fuquay.
Sergeant Ralph A. Densmore.	Private Paul Gaines.
Sergeant Robert E. Densmore.	Private John M. Galvin.
Sergeant George Kerchenschloger.	Private Frank J. Gard.
Sergeant Arthur G. Maddock.	Private George A. Gorham.
Sergeant Paul Morrison.	Private George M. Gowen.
Corporal Major L. Balcher.	Private Charley V. Gray.
Corporal Charles M. Downs.	Private Chester R. Hannah.
Corporal Edward A. Evans.	Private Harold O. Hawkins.
Corporal Montavelle D. Flowers.	Private Alba W. Hibsch.
Corporal Bartle M. Harvey.	Private Rosser Hoggan.
Corporal Maurice F. Hoerger.	Private Earl E. Howard.
Corporal Donald E. Jackson.	Private Roy H. Howard.
Corporal Harold W. Morton.	Private Paul Hughes.
Corporal Gilbert W. Nigg.	Private Frank Jackley.
Corporal Paul C. Rockwood.	Private Lloyd B. Jacobs.
Corporal James D. Summers.	Private Frank A. Jessup.
Corporal Charles M. Warren.	Private Charles L. Judson.
Mechanic Godfrey E. Olson.	Private Earl L. Kelly.
Mechanic Paul B. Spence.	Private Claude M. Knox.
Cook Harold E. Hansen.	Private Otto E. Koch.
Cook Frank C. Painter.	Private William Kruse.
Bugler Joseph B. Gallagher.	Private James C. Lane.
Private, first class, Harry B. Barber.	Private Arthur E. Laun.
Private, first class, Theodore C. Boge.	Private Justo Leano.
Private, first class, Arney H. Brewer.	Private Douglass R. Leeson.
Private, first class, Herman P. Brownfield.	Private Lloyd S. Leeson.
Private, first class, Clarence K. Cantonwine.	Private Eric R. Loughran.
Private, first class, Frank B. Carter.	Private Melvin T. Loynd.
Private, first class, William W. Crandall.	Private Glenn Mapes.
Private, first class, Theo. C. Gibson.	Private Clarence N. Miles.
Private, first class, Howard E. Hutchinson.	Private David M. Miller.
Private, first class, Percy R. Jackson.	Private Hugh H. Morgan.
Private, first class, Fred Judson.	Private Floyd E. Monia.
Private, first class, Eugene E. LaRosse.	Private Robert McKenna.
Private, first class, Ward M. Melton.	Private Alonzo G. Nicholas.
Private, first class, Leslie J. O'Day.	Private Francis W. Northcutt.
Private, first class, Lloyd J. Roby.	Private George Phelps.
Private, first class, Herman L. Stewart.	Private Edward A. Pielemeier.
Private, first class, Grant M. White.	Private Harold W. Potter.
Private, first class, Paul G. Washington.	Private Emmet E. Sache.
Private Bryon J. Akard.	Private Leo W. Sargeant.
Private Oscar F. Anderson.	Private Arnold F. Schaetzle.
Private Claude C. Baldrige.	Private Ethan C. Scofield.
Private Melvin K. Beaty.	Private Samuel G. Scofield.
Private Herbert F. Berry.	Private Reginald H. Sherwood.
Private George A. Boswell.	Private Howard S. Shimmin.
Private Jesse W. Canawan.	Private Harold A. Stanton.
Private Leon R. Cartier.	Private Joseph P. Sullivan.
Private Prince H. Clark.	Private Clarence H. Teter.
Private Harold J. Cone.	Private Lewis M. Thomas.
Private Virgil M. Cunningham.	Private Wallace J. Thomson.
Private Irvin J. Curtis.	Private Meredith T. Waternan.
Private Harry S. Devlin.	Private Heth Wharton.
Private Ralph L. Dingman.	Private Alvin C. Whitcomb.
Private August Doubrawa.	Private George M. Whitner.
Private Howard T. Douglas.	Private Chauncey L. Wilbrite.
	Private Richard C. Young.

CALIFORNIA STATE BOARD OF EDUCATION

REPORT

OF THE

Commissioner of Industrial

and

Vocational Education

For the Biennial Period Ending June 30, 1922



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

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LETTER OF TRANSMITTAL.

*To the Honorable STATE BOARD OF EDUCATION,
Sacramento, California.*

LADIES AND GENTLEMEN:

Pursuant to law and at your request, I hereby submit Division I of the annual reports of the Commissioner of Industrial and Vocational Education for the biennial period ending June 30, 1922. This division of the report deals mainly with the administration of the Federal and State Vocational Education Acts, vocational education in the secondary schools of the state, and the training of teachers for vocational subjects.

Division II of the report deals exclusively with the subject of Vocational Rehabilitation under the federal and state acts.

Very respectfully yours,

EDWIN R. SNYDER,
Commissioner of Industrial and Vocational Education.

ACKNOWLEDGMENT

As part of the period of post-war reconstruction, the last two years have been years of economic readjustment. Industrial and business conditions have been unsettled, with the result that public improvement has somewhat languished. In many of the states the programs for special fields of education have suffered. On the other hand, in this state vocational education has greatly developed. This improvement has been due largely to the efforts of the teachers, principals, special supervisors, and superintendents, who have interested themselves in the cause of vocational education, the promotion of which is essential if we are to provide for all youths an education that properly fits them for the duties and responsibilities of full citizenship.

I wish to express to the members of the State Board of Education, to the Superintendent of Public Instruction and his assistants, and especially to Mr. J. B. Lillard, Supervisor of Agricultural Instruction, to Miss Maude I. Murchie, Supervisor of Home Economics Instruction, and to Mr. J. C. Beswick, Supervisor of Trade and Industrial Instruction, my appreciation of their splendid cooperation in advancing the work of vocational education in the state. I wish also to express to Professors Robert J. Leonard, Edwin A. Lee, Fred L. Griffin, Benjamin W. Johnson, and John G. Miller, of the University of California and its Southern Branch, my gratitude for their cordial support in furthering the program for the training of vocational teachers.

DIVISION I.

RECOMMENDATIONS FOR LEGISLATION.

In general, the vocational education program of the state has been progressing satisfactorily. In two respects only does it appear that the securing of further legislation is sufficiently important to be taken up in this report.

Due to the lack of funds, this department has found it impossible to cooperate with a number of high schools that have applied to maintain agricultural divisions under the provisions of the Federal and State Vocational Education Acts.

The evening high schools and special classes for adults are constantly increasing in number and yet no special provision has been made for the training of teachers for this important service.

Relating to Departments of Agriculture.

Last year we expended for the promotion of agricultural divisions, in fifty high schools of the state, \$63,913.86. One-half of this fund was received from the federal government; the other half was appropriated by the state under the provisions of the vocational education act.

There are now more than 350 four-year and senior high schools in the state. Of this number nearly 300 are located in rural communities, the economic future of which depends upon the promotion and refinement of the industry of agriculture.

California is rapidly assuming leadership as a manufacturing state. Its population is increasing very much faster than that of other states. These millions must be sheltered, fed, and clothed. The question is, shall California supply this demand, or shall its citizens find it necessary to import the raw material for food and factory?

We have the natural resources in climate, water, power, and soils. But modern farming is a highly skilled occupation that requires either a very long apprenticeship, or a short apprenticeship with special education and training. The content of instruction, the influence of the usual teacher, the press and other publicity all tend to extoll urban life, with the result that there is a constant flow of the youth of the land to urban communities.

We must reach the boy and girl during the early years of adolescence if we desire to instruct them in farming and rural life. We cannot hope to persuade the parents of these youths to send them away from home in order to secure their education and training. Only a reorganized local high school can successfully overcome the tendency to educate away from rural life, and provide the needed training to prepare for the occupation of farming.

During the first years of their establishment vocational departments are relatively more expensive than book courses of instruction. Agricultural instruction is especially so because it requires a teacher who has had a high grade of technical training, and who has had also successful experience in farming.

Because of the additional cost involved, and the risk of failure due to lack of proper supervision by an expert, the high school authorities of the state are not inclined to take up the work except in cooperation with the State Vocational Education Department.

With the special aid and the assurance of expert supervision, which we have been able to provide, we have succeeded during the last five years in having fifty high schools undertake the training.

However, there are about 250 other rural high schools that should be starting the work; but while the special funds available for promoting instruction during the coming years will gradually increase, this increase will be absorbed in providing for the upper years of the course in the fifty high schools now operating under the vocational education acts.

For three years past this department has been compelled to deny special aid to many schools that wished to undertake the work. In fact, we feel sure that, if we had the necessary additional funds, we could add at least fifty other rural high schools to the list of those that maintain courses of instruction preparing for farming and rural life.

Under the provisions of the Federal and State Vocational Education Acts, the following funds are available for the promotion of agricultural education in secondary schools:

For the fiscal year ending June 30, 1922-23.....	\$74,566 18
For the fiscal year ending June 30, 1923-24.....	85,218 48
For the fiscal year ending June 30, 1924-25.....	106,523 10
For the fiscal year ending June 30, 1925-26, and annually thereafter	127,827 72

Recommendation for Appropriation for Agricultural Department.

In view of the pressing need for the further promotion of agricultural divisions in the rural high schools of the state, we would recommend that legislation be sought which will appropriate additional funds for the promotion of farm education in the high schools, as follows:

For the fiscal year ending June 30, 1923-24.....	\$85,218 48
For the fiscal year ending June 30, 1924-25.....	106,523 10
For the fiscal year ending June 30, 1925-26, and annually thereafter	127,827 72

This will provide double the funds now available for the promotion of the work, and will enable the State Department of Vocational Education to cooperate in the promotion of vocational courses in agriculture with all schools now in position to profitably introduce the work.

Relating to the Training of Teachers for Part-Time and Adult Classes.

In his biennial report of two years ago your Commissioner discussed at some length the teacher-training problem presented by the recent rapid growth in the number of part-time general continuation classes, special day and evening classes for adults, and evening high school organizations.

The students in part-time and adult classes generally fall into two classes, one of which is composed of aliens and illiterates, who are seeking to better prepare themselves for the duties and responsibilities of citizenship, the other of which is composed of youths and adults who wish to secure instruction in English, mathematics, science, drawing, or the arts, supplementing their day occupations.

The teachers of these persons are at the present time recruited from two sources. A part of them are selected from the regular day school force; the remainder are from the various vocations in the community. By and large, neither group has ever had the teacher-training that would make them highly expert instructors of the special subjects, and of the class of students that they are supposed to teach, so a relatively small amount of teacher-training would very greatly increase their efficiency as teachers.

Part-time and adult education present problems of teaching peculiarly their own. With a teaching force thoroughly trained to cope with these problems, much time could be saved by those who are in attendance upon these classes and schools, and thereby indirectly a large saving in public expenditures could be made.

Those persons who are teaching for a part of the day only and who have local business establishments find it impossible to attend teacher-training classes maintained at a distance during a summer session. Likewise, the regular teachers frequently find it very difficult and expensive to attend the same; besides, better instruction could be provided locally where the teacher-trainer would have an opportunity to observe these teachers at work. Up to date the attempt to solve this problem by having special class and evening school teachers attend summer sessions has failed.

This department has had experience in training on the job. It has also had experience in training locally, teachers for part-time general continuation pupils. Both ventures have proven successful.

Recommendation Concerning the Training of Teachers for Part-Time, and Adult Classes and Schools.

In view of the above, we would, therefore, recommend that legislation be sought which will enable the State Board of Education to provide for the maintenance of itinerant classes for the training of teachers of part-time classes for minors, and of special classes and evening schools for adults.

Relating to Vocational Rehabilitation.

This subject has been dealt with in Division II of the Biennial Report of the Commissioner of Industrial and Vocational Education.

DIVISION II.

RETROSPECT.**The First Movement for Vocational Education.**

As early as fifty years ago, some of the leading educators of this country began to voice the need for vocational education of less than college grade. At that time and for many years public education in this country was in the frontier stage of its development. The population was greatly scattered, school houses were far apart, trained teachers were scarce and school terms were short, with the result that only a limited number of persons succeeded in eradicating illiteracy by the time that they reached the age of eighteen. The wail of wealthy property owners against the excessive gross cost of education and the resulting high school-tax rate was, if possible, much louder than at present. In fact, many of the people did not yet believe in free education at public expense. Population was increasing so fast that school authorities found great difficulty in providing for the resulting increase in school attendance.

Under these conditions advance in public education was possible in several directions, as follows: School terms could be extended, schools could be more widely distributed, better school plants could be provided, universal school attendance could be attained, better methods of teaching could be applied, better teachers could be secured and, finally, a broader curriculum could be provided. The latter of these was, of course, the last to be achieved, so it is not surprising that the movement for vocational education made little or no headway, except in theory, for nearly twenty years. However, the discussion of this subject did result in giving it a theoretical place in the schemes for public education set forth by the leading educators of the country.

Commercial, Technical, and Manual Training Introduced.

In the late eighties and early nineties the subject became a burning issue with certain educational leaders, with the result that there were established throughout the country many technical schools of secondary grade, designed to prepare young men for industrial pursuits.

Commercial education, which had prior to this time been almost entirely a private venture, also found its way into the public high schools.

Drawing and manual training were alike introduced into the elementary and high schools of the country.

In some instances skilled workers were employed to teach the crafts; in others, the teaching was done by persons who had made special preparation for the work.

During all of this period the public education forces of the country were divided into two groups: Those who opposed the introduction of the new lines of work; and those who favored the same.

At first, industrial subjects were defended and introduced on the basis of their practical value in preparing young people for occupations. But this aim was not considered a legitimate one by those opposed to the work; and the supporters of the movement allowed themselves to be sidetracked into defending the subject on the ground

of its liberal, rather than its special, educational value. The result was that the courses of instruction were made over to meet the aims and ideals of a general, rather than a special, education. Thus the vocational value of these subjects was almost, if not entirely, lost.

The Recent Movement for Vocational Education.

The recent movement for vocational education began less than twenty years ago.

The first state to seriously interest itself in the problem was Massachusetts, the legislature of which established a commission on industrial education in 1906. In 1908 this commission issued a voluminous report containing the status of the subject in the United States and the principal foreign countries.

About this time The National Society for the Promotion of Vocational Education was organized. This institution immediately began to develop a national program for vocational education. Several of the states at once formed organizations which cooperated with the Federal Society in its program of promotion. Local and state teachers' associations, the National Education Association, local, state, and national organizations of farmers, manufacturers, merchants, and labor unions, and prominent educators and laymen in other vocations joined with the Federal Board in furthering the program for vocational education.

In the meantime, bills providing federal subsidies for the promotion of vocational education had been introduced in Congress. In 1913, near the end of the session, two of these measures, the Page-Lever bills, passed their respective houses and were referred to a joint conference committee, where they died with the closing of the session.

This congress did, however, provide for the appointment of a commission to study the question of the need for federal aid for vocational education, and to report, with recommendations, on or before December 1, 1913.

It was upon the basis of the findings of this commission that the Federal Vocational Education Act was finally passed, in 1917.

In the meantime, a number of the states had already passed legislation and made special appropriations for the promotion of the work.

California Officially Takes Up Movement.

In 1912 the people of the State of California amended the Constitution, thereby authorizing the legislature to provide for a State Board of Education. When, under this constitutional amendment, the legislature of 1913 created a new board, it provided for a Commissioner of Elementary Schools, a Commissioner of Secondary Schools, and a Commissioner of Industrial and Vocational Education. The board appointed these commissioners in December of that year and they took charge of their respective offices on January 1, 1914.

They, with the Superintendent of Public Instruction, are the professional advisers of the board in all matters relating to public education. They are, however, by statute also made responsible for the development of the fields of education indicated by their respective titles.

During the first years of his service a large part of the time of the Commissioner of Vocational Education was spent in arousing public interest in vocational education.

In 1911 a measure for the promotion of vocational education was introduced in the legislature, but it failed to pass. In 1913 a second measure was introduced, which also failed of passage. However, by the time the legislature met in 1915 the people were so thoroughly converted to the idea that public vocational education was a pressing need that the legislature of that year passed, without a dissenting vote, a very comprehensive vocational education act fostered by your honorable body.

This measure carried a large appropriation and, due to the financial stringency and the indefinite prospects of future income for the state, the Governor found it impossible to approve the bill.

The County High School Fund Measure

The county high school fund measure, passed by this same legislature, was a great aid in stimulating the introduction of new subjects into the curricula of the secondary schools of the state.

Since this act provided for the raising and apportioning of county funds on the basis of average daily attendance, high school authorities did everything in their power to increase attendance upon their respective schools.

In order to secure such additional attendance, courses of instruction were expanded to include many new subjects. And in order to retain this attendance it was necessary for the teachers to modify the content and method of instruction in the various subjects already maintained in the high schools.

Due to the operation of this law and to the promotion of vocational education, under the provisions of the federal and state acts, adult education began to develop very rapidly.

Legislation for Adult Education.

In 1917 legislation was secured providing for the establishment of special day and evening classes for the benefit of persons (minors and adults) not in attendance upon the regular full-time day schools.

The law provides that these classes may convene at such hours and for such length of time during the school day or evening, and at such periods and for such length of time during the school year as may be determined by the local boards. It also provides that the enrollment and attendance upon these classes shall be kept, and the units of average daily attendance added to the attendance of the high schools.

Prior to the passage of this act it was impossible for a high school to maintain classes outside of the regular school hours or to maintain evening classes without establishing and maintaining a complete evening high school.

The counting of the attendance of pupils upon these classes enables the high schools to secure state and county aid for the same on a basis proportionate to that allowed for the attendance of regular full-time students.

This section of the law freed the high school from restrictions that made it impossible to meet the educational needs of the community, and enabled it to provide educational opportunities for those who are already serving the state in the capacity of producers.

The act of 1915, which provides county aid, a prior act which provides state aid, and a new method of apportionment adopted by legis-

lative action in 1921, enable the high school district not only to open its doors to the entire community, but also to finance courses of instruction that meet the needs of all of the people of the community.

Federal and State Vocational Education Acts Passed.

In 1917 the Federal Vocational Education Act, known as the Smith-Hughes Act, was passed. The California legislature immediately accepted the provisions of the act, passed the necessary legislation and appropriated the necessary funds to put the act into operation.

The state act designates the State Board of Education as the Board for Vocational Education, and provides for appropriations which shall equal the apportionments made to the State of California through the operation of the federal act, thus placing in the hands of your honorable body a fund for the promotion of vocational education in this state, which is double the amount provided by the federal act.

The various sums from federal and state sources provided for vocational education for the next few years are set forth in Bulletins Nos. 23 and 23-A, California State Board of Education.

The fact that the federal act sets up in detail many restrictions as to the use of the funds led to the adoption of a state act which in effect merely accepts the provisions and the benefits of the federal act, which authorizes the State Board of Education to make plans and to establish regulations for the promotion of vocational education in the state.

Compulsory Part-Time Education for Minors. --

In 1919 the legislature passed the Part-time Education Act, which requires illiterate persons between eighteen and twenty-one years of age to attend evening classes for at least four hours per week; and persons between sixteen and eighteen years of age, not in attendance upon full-time schools, to attend part-time classes for not less than four hours per week for the entire annual school term.

Special State and County Aid for Part-Time and Adult Education.

Up to 1921 the laws covering the apportionment of the state and county high school funds operated to the interests of large urban communities by providing a special allotment for evening high schools and making no special provision for allotment on account of special classes, the only type of organization that could provide instruction for part-time pupils and for adults in small high school communities.

The new high school apportionment acts provide special state and county aid to high schools for adult education as follows:

State aid:

- \$80 for each and every unit or major fraction of a unit of the first ten units of average daily attendance upon evening schools or upon classes maintained for adults.
 - \$60 for each and every unit or major fraction of a unit of the second ten units of average daily attendance upon such classes.
 - \$40 for each and every unit or major fraction of a unit of the third ten units of average daily attendance upon such classes.
- And, in addition thereto, the usual average daily attendance allotment which amounts to approximately \$20 per unit of attendance.

County aid:

- \$40 for each and every unit or major fraction of a unit of the first ten units of average daily attendance upon evening schools or upon classes maintained for adults.

\$30 for each and every unit or major fraction of a unit of the second ten units of average daily attendance upon such classes.

\$20 for each and every unit or major fraction of a unit of the third ten units of average daily attendance upon such classes.

And, in addition thereto, the usual county apportionment on the basis of average daily attendance.

These acts also provide special state and county aid to *high school districts* for part-time general continuation classes as follows:

State aid:

\$80 for each and every unit or major fraction of a unit of the first ten units of average daily attendance upon part-time general continuation classes.

\$60 for each and every unit or major fraction of a unit of the second ten units of average daily attendance upon such classes.

\$40 for each and every unit or major fraction of a unit of the third ten units of average daily attendance upon such classes.

And, in addition thereto, the usual average daily attendance allotment which amounts to approximately \$20 per unit of attendance.

County aid:

\$40 for each and every unit or major fraction of a unit of the first ten units of average daily attendance upon part-time general continuation classes.

\$30 for each and every unit or major fraction of a unit of the second ten units of average daily attendance upon such classes.

\$20 for each and every unit or major fraction of a unit of the third ten units of average daily attendance upon such classes.

And, in addition thereto, the usual county apportionment on the basis of average daily attendance.

Thus, a small high school district that has an attendance of 20 pupils for four hours each week for the annual high school term will have an average daily attendance of four pupils which will automatically allow the district an apportionment as follows:

From the state:

\$80 x 4 or \$320.

\$20 x 4 or \$ 80.

From the county:

\$40 x 4 or \$160.

The usual county allotment x 4, or ?.

Total ----- ?.

Since the county must as a minimum raise for high school purposes twice the amount received from the state for such purposes, but not less than \$60 for each unit of average daily attendance, it will be seen that part-time and adult education is well financed in the high schools of the state.

The state and county aid mentioned above and the special funds provided for the promotion of vocational education place California in an unusually good position to develop a system of secondary schools which will provide adequate vocational, part-time, and adult education.

Federal and State Vocational Rehabilitation Acts Passed.

During the period of the late war there were introduced in congress measures providing federal funds for the rehabilitation of persons injured in the military service of the United States and persons injured

in industry. The measures were amended by striking out the provision for the rehabilitation of civilians and, in due time, passed.

Those interested in the subject of vocational rehabilitation for persons injured in civil life still continued to press the matter with the result that the Sixty-sixth Congress passed an act appropriating a million dollars per annum for the four successive fiscal years beginning June 30, 1920, and ending June 30, 1924.

There being no session of the legislature in 1920, California was unable to take advantage of the act for the first year. However, in 1921 the legislature passed an act accepting the provisions and benefits of the federal act and making an appropriation of \$35,000 per annum for the fiscal years ending June 30, 1922, 1923, and 1924.

The State Board of Education administers these acts through the Commissioner of Vocational Education.

The organization maintained for the promotion of the work is as follows: a general state and district office at Sacramento; a district office at San Francisco; and a district office at Los Angeles.

A State Supervisor of Vocational Rehabilitation is employed who, under the general direction of the Commissioner of Vocational Education, has charge of the entire state service. The San Francisco and Los Angeles offices are each manned by an Assistant Supervisor and a Training Officer.

The Sacramento office was opened on August 3, 1921; the San Francisco office on September 6, 1921; and the Los Angeles office on October 17, 1921.

A special report dealing with the subject of Vocational Rehabilitation will be submitted to your honorable body as Part II of the Biennial Report of the Commissioner of Industrial and Vocational Education.

DIVISION III.

REPORT ON VOCATIONAL EDUCATION.

The California Plan.

The original plan for the promotion of vocational education adopted by the State Board of Education in 1917 has, with the approval of the Federal Board, been readopted for a period of five years. The only material modifications made in the original are those relating to the special aid provided for the part-time general continuation classes.

Some school authorities have felt that the requirements set forth in the bulletin are in some respects unnecessarily restrictive. However, five years of experience have convinced us that the vocational department in high schools must be real and distinct from other departments.

Where high schools have allowed pupils to dip into the vocational department for certain subjects and into other departments of the school for certain other subjects, the work has not been fully successful.

The strongest vocational departments in the state are to be found in those schools that have conformed strictly to the requirements of Bulletin No. 23. As a matter of fact, every high school in the state that has closely followed the instructions set forth in Bulletin No. 23, has succeeded in establishing a permanent vocational department.

Lack of permanency of policy is the greatest enemy to the establishment of a new department in a high school. Where the organization of the work has not been set forth in considerable detail in writing, or in print, policies and procedures are constantly being changed.

For various reasons boards of education, principals of high schools, heads of departments, and teachers are constantly changing. A change in any one of these factors has in the past usually meant the upsetting of the entire high school course of instruction.

The fixing of objectives and the restriction of procedure, set up in Bulletin No. 23, make it possible for us to maintain a constant aim, a constant content, and a constant method of instruction, long enough to enable a class of pupils to secure an ordered course of instruction.

Vocational education has been attempted by secondary schools for years. Except when the program has been organized under the federal and state acts, it has usually failed. Without doubt its failure has been due either to complex objectives or to frequent changes of plan.

It is our opinion that the present California plan should remain in operation for at least five years more. At the end of that time, when we shall have had a decade of experience to draw upon, we can decide with intelligence upon the modifications necessary.

Development of Vocational Courses in Agriculture.

In my last biennial report it was pointed out:

“That the purpose of the vocational acts is to promote vocational education.

“That the first and most important problem in this promotion is the building up of workable high school courses for the training of farmers and other skilled workers, as type courses for the various high schools of the state.

"That in order to reduce the possibility of failure, as far as possible, a selection should be made of the larger rural high schools and of such high schools in cities as had large attendances of rural pupils, as the institutions in which to promote courses in farming.

"That high schools should be selected in one or two of the large cities for the purpose of establishing courses in farming that would meet the needs of city boys who anticipate taking up their life work in the country.

"That the schools selected for such work should be distributed over the largest possible geographical area.

"That a selection should be made which would enable the development of courses covering all of the various phases of agriculture."

These objectives and policies have been constantly kept in mind by this department.

Also it was stated in our department report rendered in 1918, that:

"There is only one way to train the student in the business of farming and that it to have him, while under instruction in the high school, engage in the business of farming. This experience can be secured only through the project method of instruction. If a strict accounting is made of everything that goes into the project, as well as of everything that comes out of the same, and if this accounting is conducted on a common sense, practical basis, then at the end of the school course the youth, his parents, the school authorities and the community will know whether or not he can make a commercial success of farming. If the people of the community, as well as the parents, know that he can make a commercial success, he will have no trouble in securing the financial assistance necessary to establish himself in his chosen occupation."

STATISTICAL TABLE I.

Federal and State Aided Classes in Agriculture for the Year 1917-18.

Place and school	Full-time part-time or special class	Number of classes	60-minute hours of instruction per week	Enrollment	Amount of federal and state aid
Ontario—Chaffey Union High.....	Full-time	4	30	60	\$1,000 00
Clovis Union High.....	Full-time	1	30	21	500 00
Fresno High.....	Full-time	1	30	10	450 00
Holtville Union High.....	Full-time	1	30	12	950 00
Los Angeles—					
Gardena High.....	Full-time	1	30	20	410 00
Jefferson High.....	Full-time	1	30	12	433 23
Pomona City High.....	Full-time	1	30	11	400 00
Pasadena High.....	Full-time	1	30	7	500 00
Roseville Union High.....	Full-time	1	30	8	900 00
Visalia High.....	Full-time	1	30	11	450 00
Totals.....		13		172	\$5,993 33

The following statistical tables set forth the number of classes, the enrollment, and the reimbursement of the high schools of the state cooperating with the State Board of Education for the promotion of agricultural education during the last five years.

The fifty schools listed in Table V are located wholly or partly in thirty different counties of the state. The territory covered extends from Adin, in Modoc County, and Fortuna in Humboldt County, to El Centro in Imperial County. The counties in which these schools are located include every type of farming found in the state.

In addition to these schools, forty-two other four-year and junior high schools offer instruction in agriculture. The work in these institutions varies greatly: some give only one or two textbook courses in certain phases of the subject; others maintain well organized agricultural departments that maintain full four-year courses. Between these extremes we find as many different types of courses as schools.

For the purpose of supervision and conference work the state has been divided into five regions. The localities composing each of these regions present more or less homogeneous agricultural conditions. At least two regional conferences of teachers are held during each year. At these conferences administrative as well as teaching problems are considered.

STATISTICAL TABLE II.

Federal and State Aided Classes in Agriculture for the Year 1918-19.

Place and school	Full-time, part-time or special class	Number of classes	60-minute hours of instruction per week	Enrollment	Amount of federal and state aid
Anderson Valley Union High, Boonville.....	Full-time	1	30	19	\$1,000 00
Arcata Union High.....	Full-time	1	30	6	950 00
Chaffey Union High, Ontario.....	Full-time	4	30	30	2,500 00
Esparto Union High.....	Full-time	1	30	6	800 00
Fresno High.....	Full-time	1	30	16	850 00
Gonzales Union High.....	Full-time	1	30	4	1,000 00
Healdsburg High.....	Full-time	1	30	16	1,000 00
Holtville Union High.....	Full-time	2	30	19	1,296 64
Huntington Beach Union High.....	Full-time	1	30	9	1,000 00
Kingsburg Joint Union High.....	Full-time	1	30	7	1,000 00
Los Angeles—					
Gardena High.....	Full-time	1	30	17	625 00
Jefferson High.....	Full-time	1	30	26	625 00
McKinley Ave. Intermediate.....	Full-time	1	30	28	625 60
San Fernando High.....	Full-time	1	30	22	625 00
Oakland, Fremont High.....	Full-time	1	30	24	935 62
Roseville Union High.....	Full-time	1	30	11	900 00
Saltinas Union High.....	Full-time	1	30	20	1,000 00
San Juan Union High, Fair Oaks.....	Full-time	1	30	10	950 00
Santa Rosa High.....	Full-time	1	30	9	888 88
Selma Union High.....	Full-time	1	30	13	970 00
Templeton Union High.....	Full-time	1	30	5	866 66
Visalia High.....	Full-time	1	30	11	900 00
Totals.....		26		337	\$21,307 82

The statistical table below shows the comparative distribution of the schools of the state by regions.

Federal and State Aided Departments of Agriculture for the years 1917-1922.

Regional divisions of state	1917-18	1918-19	1919-20	1920-21	1921-22
Southern California	6	7	9	11	13
South Coast, Contra Costa to Ventura	0	4	6	7	8
North Coast, Marin to Del Norte.....	0	4	6	6	8
San Joaquin Valley	3	4	6	5	8
Sacramento Valley	1	3	5	10	13
Total schools reimbursed.....	10	22	32	39	50
Total enrollments in above schools	172	337	640	1097	1281

It will be noticed that twenty-five schools maintain one-year courses; twenty, two-year courses; four, three-year courses; and one a four-year course. It is the policy to lengthen the courses just as soon as the number of pupils desiring the work is sufficient to warrant the same.

The shortage of competent teachers of agricultural subjects, which has heretofore handicapped the development of the work, is being overcome; and the standards for the special credential in agriculture are being raised so that by the year 1924, five years of college training will be required.

STATISTICAL TABLE III.

Federal and State Aided Classes in Agriculture for the Year 1919-20.

Place and school	Full-time, part-time or special class	Number of classes	60-minute hours of instruction per week	Enrollment	Amount of federal and state aid
Analy Union High, Sebastopol.....	Full-time	1	30	14	\$975 91
Antelope Valley Union High, Lancaster.....	Full-time	1	30	11	893 24
Arcata Union High.....	Full-time	1	30	12	893 24
Campbell Union High.....	Full-time	1	30	8	992 49
Chaffey Union High, Ontario.....	Full-time	4	30	65	2,481 22
Chico High.....	Full-time	1	30	21	934 58
Esparto Union High.....	Full-time	1	30	13	992 49
Fresno High.....	Full-time	2	30	24	1,687 23
Fullerton Union High.....	Full-time	1	30	13	992 49
George Jr. Republic, Chino.....	Full-time	1	30	24	744 36
Geyserville Union High.....	Full-time	1	30	8	942 86
Gilroy High.....	Full-time	1	30	12	992 49
Gonzales Union High.....	Full-time	1	30	6	992 49
Healdsburg High.....	Full-time	1	20	22	493 24
Holtville Union High.....	Full-time	1	30	29	992 49
Huntington Beach Union High.....	Full-time	1	30	4	942 86
Kingsburg Joint Union High.....	Full-time	1	30	15	992 49
Lodi Union High.....	Full-time	1	30	26	992 49
Los Angeles—					
Gardena High.....	Full-time	1	30	15	727 84
Jefferson High.....	Full-time	1	30	19	727 79
McKinley Ave. Intermediate.....	Full-time	1	30	31	727 84
Madera Union High.....	Full-time	1	30	17	992 49
Marysville High.....	Full-time	1	30	15	985 03
Oakland, Fremont High.....	Full-time	3	30	60	1,687 23
Paso Robles High.....	Full-time	1	30	8	893 24
Petaluma High.....	Full-time	1	30	15	992 49
Roseville Union High.....	Full-time	2	30	18	1,455 63
Salinas Union High.....	Full-time	1	30	26	992 49
San Juan Union High, Fair Oaks.....	Full-time	2	30	32	1,417 91
Santa Rosa High.....	Full-time	1	30	25	939 54
Selma Union High.....	Full-time	1	30	23	992 49
Visalia High.....	Full-time	1	30	9	727 84
Totals.....		40		640	\$33,191 51

The University of California cooperates with the State Board of Education in the training of teachers for agricultural instruction. Special courses in education are offered to seniors and to post-graduates during the regular session of the university. However, up to date a large part of the special teacher-training has been provided by inter-sessions and summer sessions. Four of the latter have been held at the Davis Farm, and one at the Ontario Junior College, in Southern California. During the last summer session at Davis, 130 teachers and prospective teachers were in attendance.

The importance of having broadly trained teachers of agriculture cannot be over-emphasized. These teachers must be leaders who are capable of convincing teachers, parents, and students that the full course in agriculture provides ample opportunity to secure a sound, liberal education of secondary grade.

STATISTICAL TABLE IV.

Federal and State Aided Classes in Agriculture for the Year 1920-21.

Place and school	Full-time, part-time or special class	Number of classes	60-minute hours of instruction per week	Enrollment	Amount of federal and state aid
Adin, Big Valley Joint Union High.....	Full-time	1	30	11	\$477 18
Azusa, Citrus Union High.....	Full-time	1	30	20	954 34
Campbell Union High.....	Full-time	2	30	20	1,154 74
Chico High.....	Full-time	1	30	20	954 34
Chino, George Jr. Republic.....	Full-time	2	30	30	1,065 70
Coiusa High.....	Full-time	1	30	18	477 18
Esparto Union High.....	Full-time	1	30	23	954 34
Fair Oaks-San Juan Union High.....	Full-time	3	30	36	1,779 84
Fresno High.....	Full-time	4	30	91	1,622 38
Fullerton Union High.....	Full-time	1	30	20	954 34
Geyserville Union High.....	Full-time	1	30	11	954 34
Gilroy High.....	Full-time	2	30	15	1,049 76
Holtville Union High.....	Full-time	2	30	38	1,647 34
Kingsburg Joint Union High.....	Full-time	2	30	17	954 34
Lakeport, Clear Lake Union High.....	Full-time	2	30	17	954 34
Lancaster, Antelope Valley Union High.....	Full-time	1	30	11	954 34
Lodi Union High.....	Full-time	2	30	30	1,622 40
Los Angeles—					
Gardena High.....	Full-time	2	30	10	596 46
Jefferson High.....	Full-time	2	30	25	596 46
McKinley Junior High.....	Full-time	1	30	34	596 46
Owensmouth High.....	Full-time	1	30	23	596 46
Los Molinos High.....	Full-time	1	30	20	954 34
Marysville High.....	Full-time	1	30	25	954 34
McArthur, Fall River Joint Union High.....	Full-time	1	30	10	954 34
Modesto High.....	Full-time	2	30	52	1,399 70
Morgan Hill, Live Oak Union High.....	Full-time	2	30	17	1,049 76
Napa High.....	Full-time	1	30	20	881 82
Oakland, Fremont High.....	Full-time	3	30	71	1,860 90
Ontario, Chaffey Union High.....	Full-time	4	30	120	2,385 50
Oroville Union High.....	Full-time	1	30	9	715 78
Pasadena High.....	Full-time	2	30	47	954 34
Paso Robles Union High.....	Full-time	1	30	15	954 34
Petaluma High.....	Full-time	2	30	28	1,399 70
Roseville Union High.....	Full-time	1	30	19	1,355 16
Salinas Union High.....	Full-time	2	30	30	1,622 38
Santa Cruz High.....	Full-time	2	30	25	1,206 50
Sebastopol, Analy Union High.....	Full-time	1	30	17	954 34
Selma Union High.....	Full-time	1	30	18	954 34
Upper Lake Union High.....	Full-time	1	30	22	954 34
Totals.....		64		1,097	\$42,389 40

The project method predominates in all phases of agricultural instruction. It is the best method because it provides for practical business experience, farm economics, plant and animal care, and farm science. It gives the pupil an opportunity to measure his qualifications for, and his interest in, his occupation.

Each high school district maintaining a department must be surveyed by the teachers of agriculture. Based upon the findings of this sur-

STATISTICAL TABLE V.

Federal and State Aided Classes in Agriculture for the Year 1921-22.

Place and school	Full-time, part-time or special class	Number of classes	60-minute hours of instruction per week	Enrollment	Amount of federal and state aid
Adin, Big Valley Joint Union High.....	Full-time	1	30	9	\$794 28
Azusa, Citrus Union High.....	Full-time	1	50	21	1,074 76
Brawley Union High.....	Full-time	1	30	20	1,074 76
Campbell Union High.....	Full-time	2	30	24	1,411 82
Caruthers Union High.....	Full-time	1	30	16	941 80
Chico High.....	Full-time	1	30	11	673 84
Chino High.....	Full-time	1	30	76	1,635 44
Chowehilla Union High.....	Full-time	1	30	15	794 38
Colusa High.....	Full-time	2	30	27	1,408 86
Concord, Mount Diablo Union High.....	Full-time	1	30	22	1,074 76
El Centro, Central Union High.....	Full-time	1	30	20	962 02
Esparto Union High.....	Full-time	2	30	28	1,443 92
Easton, Washington Union High.....	Full-time	1	30	20	1,074 76
Fair Oaks, San Juan Union High.....	Full-time	2	30	33	1,318 70
Fortuna Union High.....	Full-time	1	30	17	1,074 76
Fresno City High.....	Full-time	1	30	18	1,074 76
Fullerton Union High.....	Full-time	2	30	28	1,074 76
Geyserville Union High.....	Full-time	2	30	15	988 08
Gilroy High.....	Full-time	2	30	13	1,439 96
Gonzales Union High.....	Full-time	2	30	14	1,046 00
Grass Valley High.....	Full-time	1	30	15	934 58
Hemet Union High.....	Full-time	1	30	23	1,018 70
Holtville Union High.....	Full-time	3	30	35	1,532 70
Kingsburg Joint Union High.....	Full-time	2	30	24	1,261 66
Lakeport, Clear Lake Union High.....	Full-time	2	30	18	1,261 68
Lancaster, Antelope Valley Union High.....	Full-time	2	30	16	1,443 92
Lodi Union High.....	Full-time	3	30	44	1,803 18
Los Angeles—					
Owensmouth High.....	Full-time	1	30	24	906 54
Jefferson High.....	Full-time	1	30	17	966 51
Los Molinos High.....	Full-time	1	30	22	1,015 88
Marysville High.....	Full-time	1	30	20	794 40
McArthur, Fall River Joint Union High.....	Full-time	1	30	14	1,018 76
Modesto High.....	Full-time	3	30	43	1,626 16
Morgan Hill, Live Oak Union High.....	Full-time	2	30	17	1,418 60
Napa Union High.....	Full-time	1	30	17	794 38
Oakland, Fremont High.....	Full-time	2	30	40	1,803 00
Ontario, Chaffey Union High.....	Full-time	4	30	99	1,869 00
Oroville Union High.....	Full-time	1	30	9	841 12
Pasadena High.....	Full-time	3	30	50	1,692 00
Petaluma High.....	Full-time	2	30	36	1,822 60
Princeton Joint Union High.....	Full-time	1	30	6	1,074 76
Riverdale Joint Union High.....	Full-time	1	30	15	991 20
Riverside, Polytechnic High.....	Full-time	1	30	22	1,074 76
Roseville Union High.....	Full-time	2	30	39	1,074 76
Salinas Union High.....	Full-time	2	30	28	1,523 60
Santa Cruz High.....	Full-time	2	30	43	1,175 70
Santa Rosa High.....	Full-time	1	30	34	1,045 70
Sebastopol, Analy Union High.....	Full-time	2	30	30	1,542 00
Upper Lake Union High.....	Full-time	2	30	17	1,261 00
Woodland High.....	Full-time	2	30	20	1,074 76
Totals.....		81		1,281	\$59,713 86

vey, these teachers must make out an annual program of work. They must determine what farm enterprises shall be taught, must analyze the same, establish the different jobs under each, and arrange the instructional units according to the seasonal sequence of the farm enterprises.

The Extension Division of the College of Agriculture of the University, and the farm bureaus of California have given the State Department of Vocational Education full and unqualified support.

Due to the fact that there did not appear to be any provision in the federal act under which part-time courses for adults in agriculture could be promoted, no special effort has been made to develop this type of work to date. However, the legislature of 1921 made available certain extra funds for adult education in small high schools. This extra aid makes it possible to promote short courses of instruction in the rural high schools where available qualified teachers can be obtained for the work. Hereafter the department will promote this type of instruction wherever possible.

While the number of pupils enrolled in vocational courses in agriculture, maintained under the state and federal acts, is not large, it does, upon the whole, represent persons who are pursuing bona fide courses of instruction. With a less restrictive program and a more liberal distribution of our funds, we would be able to report a larger number of schools and a much greater enrollment. However, such a policy would not materially contribute to the solution of the real problem, which is the establishment of satisfactory courses of instruction for secondary schools.

The attitude of the high school authorities, the teaching force, and the pupils, toward the work is splendid. There is a growing and strengthening belief that the type of work attempted is correct for secondary schools. We, therefore, feel very much encouraged with the general condition of vocational agricultural instruction in this state.

Development of Vocational Courses in Trades and Industries.

1. *All-Day Trade and Industrial Classes:*

In 1917-18 there were maintained 42 classes which enrolled.....	756
In 1918-19 there were maintained 77 classes which enrolled.....	1778
In 1919-20 there were maintained 85 classes which enrolled.....	2043
In 1920-21 there were maintained 94 classes which enrolled.....	2227
In 1921-22 there were maintained 122 classes which enrolled.....	2890

The above figures indicate an accelerated growth in the number of departments and of pupils enrolled in the full-time classes in trade and industrial subjects. During the two years immediately following the close of the war, the increase in the number of classes and in the enrollment was relatively slight.

Of the 122 classes maintained during the year just closed, there were 36 in automobile and gas engine repair work; 25 in machine shop; 15 in the electric trades; 11 in printing; 9 in sheet metal; 5 in carpentry; 4 each in mill cabinet, pattern making, and dressmaking; 2 each in cabinet making, trade art, restaurant cooking, and power machine operation; and 1 each in boat building, drafting, laundry work, machine bookkeeping, machine and boiler making, mechanical drafting, oil production, shorthand, typewriting, and millinery.

There has been a distinct increase in the number of vocational classes in printing. This growth has been brought about by promotion on the part of this department and of the printing-trades organizations.

A decided increase in the number of courses preparing for the wood-working industries is also noticeable.

The gas engine and automobile repair courses are growing in favor. Perhaps there is a tendency to overdo in this field. However, the educational interest of the boys who take these courses, as vocational courses, cannot in any way suffer, even if they should find themselves in the wrong occupation, because the course of instruction in this subject is so broad in scope that it contributes greatly to the liberal education of the individual.

There is, at the present time, a shortage of skilled workmen in building trades lines. Without question there will be a continuing increase in the number of homes built during the next few years; consequently, there will be an increasing demand for trained workers along these lines. With this situation in mind, it will be the policy of the Vocational Education Department to stimulate, in every way possible, the maintenance of classes for training in the building trades.

2. Part-Time Trade and Industrial Classes: These classes are maintained during the usual working hours of the persons who attend them.

In 1917-18 there were maintained 3 classes which enrolled.....	46
In 1918-19 there were maintained 12 classes which enrolled.....	638
In 1919-20 there were maintained 19 classes which enrolled.....	1387
In 1920-21 there were maintained 15 classes which enrolled.....	737
In 1921-22 there were maintained 8 classes which enrolled.....	500

Part-Time classes for adults have not developed as expected. During the last year of the war, and during the first year immediately following it, there was considerable interest manifested in this type of instruction. Since then the number of classes maintained has constantly decreased, and the enrollment has either decreased or remained stationary. Of course these classes deal only with vocational extension work.

The school is not well equipped to give vocational extension work in the applied phases of the crafts. In general, vocational extension for adults, engaged in trade and industrial occupations, is confined to instruction in English, drawing, applied mathematics, or applied science. Upon the whole these subjects have an indirect, rather than a direct, bearing on the job, with the result that neither the employer nor the workman is very much impressed with the view that it is necessary to secure this kind of training during the usual working hours, and on the time of the employer.

Vocational educational service for men and women engaged in occupations is provided for through evening schools and adult classes maintained by more than 100 high schools in this state. And, while the type of instruction provided for these workers could be improved, it compares favorably with the same type of instruction provided by schools maintained elsewhere.

Aside from *part-time instruction for employed minors*, which is being developed in every possible way in this state, the Department of Vocational Education is making every effort to stimulate the organization of cooperative part-time classes, especially for the pupils in the upper classes of the vocational departments of the high schools. These

courses require half-time on the job, at a wage, and half-time in the school, studying subjects that supplement the occupation, and provide for a liberal social training.

The institutions that maintain such courses find that the instruction is more satisfactory where the pupils spend two weeks on the job and two weeks in school, during each school month. Since the final test of the value of an education is that of success, the pupil who satisfactorily completes such a course knows that he can make good on the job. Transition from preparation to service, from school to job, ceases to be in any sense a gamble.

Another field for part-time instruction, which this department is interested in promoting, is that of foremanship training. We are especially interested in promoting this line of work because the trained foreman will become a teacher of all apprentices that are placed in his charge. However, before much can be accomplished in this line it will be necessary to train, through teacher-training agencies, teachers capable of giving the necessary instruction to the foremen employed by the various industrial plants of this state.

3. *Special Trade and Industrial Classes*: The purpose of these classes is to provide vocational extension opportunities for men and women during the day, before and after working hours.

During the war, and immediately following it, a number of such classes were maintained, and the enrollment ran into the thousands. Last year but one such class remained. This was a class in Los Angeles for laundry workers.

Conclusion: During the last few years, the type of pupil attending the vocational classes in trade and industrial subjects has improved. The teachers are becoming better and better qualified, and instruction is improving from year to year. The increase in the number of Departments established, and the enrollment therein, would indicate that vocational education in trade and industrial lines is in a healthful growing condition. There are indications that would lead to the conclusion that when we have permanently adjusted ourselves economically, the promotion of vocational education along trade and industrial lines will again assume a prominent place in the public mind.

Development of Federal and State Aided Home Economics.

1. *Full-Time Home Economics Departments*: These departments maintain courses that provide for six hours of instruction daily, and cover a period of from one to two years.

They are open to first year students and are so arranged that should the student desire to complete a full high school course she may do so.

These courses appeal to the interest of the home maker and prepare her for the duties and responsibilities of that occupation. While they include such subjects as hygiene, English, and citizenship, fifty per cent of the time is devoted to home hand craft occupations. The instruction is especially well adapted to meet the needs of girls who leave school, marry, and become mothers at an early age.

For most women home making is, sooner or later, a principal occupation, although for many, wage earning occupations are also important.

The importance of developing the highest type of American home can not be over emphasized, and since home making is an occupation

which requires the broadest culture, the highest grade of education, and unusual skill in many crafts, special education and training for the service is indispensable.

A course of instruction preparing for home making may occupy a small part of the school time of the student for a long period of years, or it may occupy all of her time for a short period of years. Which of these two types may prove most suitable for the secondary school can be determined only by experience. However, it is certain that a short intensive course, which absorbs the entire interest, thought, and time of the pupil, for a short period, offers the best opportunity for working out a balanced program of education for home making. And since the development of a broad, balanced program of instruction in this field is the first step in promoting a better class of home economics instruction in the public schools, it is very important that the establishment of such departments be encouraged in every possible way.

In 1917-18 there was maintained 1 class which enrolled.....	16
In 1918-19 there were maintained 4 classes which enrolled.....	61
In 1919-20 there were maintained 11 classes which enrolled.....	228
In 1920-21 there were maintained 14 classes which enrolled.....	316
In 1921-22 there were maintained 16 classes which enrolled.....	334

At present most of these classes are located in large cities, and though they are well adapted to smaller schools, only one or two rural schools maintain them.

These courses offer a wonderfully fine opportunity for sound instruction in citizenship; consequently the courses are crowded with pupils of foreign parentage who leave the schools at the end of the compulsory education period. They should be popular with girls who contemplate leaving school after completing one or two years of the high school course, with young married women, or women who contemplate early marriage. When their usefulness is fully realized they will rapidly increase in number and importance.

2. *Part-Time Home Economics Classes:* These classes are maintained for adult housewives and prospective housewives. They are usually maintained four to six hours per week. Minors not in full-time school attendance are provided for in the general continuation part-time classes.

In 1917-18 there were maintained 20 classes which enrolled.....	576
In 1918-19 there were maintained 70 classes which enrolled.....	2243
In 1919-20 there were maintained 158 classes which enrolled.....	6043
In 1920-21 there were maintained 171 classes which enrolled.....	6446
In 1921-22 there were maintained 201 classes which enrolled.....	8671

The persons enrolled in the part-time classes, mentioned above, for the year 1921-22 are segregated as follows:

65 dressmaking classes enrolled.....	2549
94 millinery classes enrolled.....	4140
Combined millinery and dressmaking classes enrolled.....	1431
Home nursing classes enrolled.....	301
Business law and home accounting classes enrolled.....	158
Nutrition classes enrolled.....	121
Home decoration classes enrolled.....	107
Household mechanics classes enrolled.....	64

During the year 1920-21 the claim for reimbursement, on account of home economics instruction, far exceeded the available fund, with

the result that only 78 per cent of the claims for that year could be met. Last year but a very slight reduction was necessary. This was due to a large increase in the fund, brought about by the large relative increase in the population of the state during the last decade.

The department is making a special effort to promote instruction in child care, nutrition, motherhood, home art, and home science. Although there is a growing recognition of the need of such instruction, progress is slow because of the difficulty of securing instructors competent to teach these special phases of the work. This situation will be met by providing special courses of instruction in these lines.

PART-TIME GENERAL CONTINUATION CLASSES.

The state department reimburses local school authorities for expenditures on account of part-time instruction for minors, only when the local community provides for the coordination of the youth's home, school, employment, and recreational activities. The statistics for part-time general continuation classes, found in Table XVII, do not, therefore, include the enrollment for all of the schools of the state, since some of them do not provide for coordination service under the provisions of Bulletin No. 23.

The part-time act has been in effect in this state for two years only. During the first of these two years it was in effect only for persons under seventeen years of age. Many schools have found it difficult to swing into the work at once. In very few communities has the work been developed to such an extent as to meet the needs of all of the youth affected by the law. School authorities are constantly discovering more and more persons of this age who are not in attendance upon full-time schools.

One of the indirect effects of the part-time act has been to greatly increase the enrollment in the regular day high schools of the state.

In 1920-21 special State aided part-time classes enrolled.....	6965
In 1921-22 special State aided part-time classes enrolled.....	13275
The total enrollment in compulsory part-time classes was.....	14477

There is a feeling on the part of some high school principals that the main function of the part-time act is to drive the youth into the full-time high school classes, but however satisfactory such a result may be from their viewpoint, it is not the function of the act to do this. The principal purpose of part-time education is to ease the youth from the school into the job. The need for part-time education would remain even though we had every child in the state enrolled in a full-time school until the age of eighteen.

The part-time school is an institution designed to bridge the gap between schooling and employment, and not an institution designed to over-emphasize the value of schooling versus productive employment.

The solution of the problem of part-time education is not to be found in forcing all youngsters, between sixteen and eighteen years of age, out of jobs and into the school, and then in turning them out without guidance to adjust themselves to life by the law of chance. As a matter of fact, many of the youth of this age would be better off if they would give a part of their time to productive employment and a part to school work.

To be sure, it must always be remembered that under present conditions it is more economical to have those who contemplate securing a higher education continue in school for full-time.

The part-time act makes it the duty and responsibility of high school authorities to provide for individual counsel and guidance in social and vocational matters for each pupil enrolled in part-time classes. Apparently it is assumed by the law that this function is already performed for those in full-time attendance upon public schools.

High school principals are required by the part-time act to assume certain responsibilities regarding the employment of minors under eighteen years of age.

The legal responsibilities mentioned above would indicate that the best solution of the part-time education problem would require the establishment of a department of attendance, guidance, and employment, in each high school. It would be necessary to place such departments under the administration of trained coordinators whose duties it would be to familiarize themselves with the home, employment, school, and recreational activities, of all minors in the community, and to see that these factors were so conditional as to insure the proper physical, mental, and moral development of the youth.

The coordinators should find satisfactory employment for all who are in need of it. They should promote organizations among the young, which would provide for healthful social contact and recreation. In short, they should assume joint social guardianship over all of the minors of the community, and where other adequate guardianship does not exist, they should either assume full guardianship, or see that it is otherwise provided for.

The youth of part-time age are passing through that period of development when human character is inevitably and frequently unchangeably cast. In many instances, parental, religious, or other social guidance and control are completely absent. It is from this group that most criminals are recruited. The young are, at this age, an ever ready prey for those who would sow the seeds of social destruction.

It is a grave responsibility which the people of the State of California have placed upon school authorities, but the good to be accomplished is so great that we are sure that the principals of the high schools and the other school authorities made responsible for the promotion of part-time instruction will endeavor, as heretofore, to meet the needs of the situation.

DEVELOPMENT OF VOCATIONAL TEACHER-TRAINING COURSES

Teachers of Agriculture: The State Board of Education has arranged with the University of California for the training of teachers of agriculture under the provisions of the vocational education acts. In general, only three types of persons are admitted to this training:

First, those who are graduates of agricultural colleges and who have had farm experience since the age of eighteen.

Second, those who have had a good fundamental education and several years of experience on a farm conducted along scientific lines.

Third, experienced high school teachers in special fields such as English, mathematics, science, and trades, who desire to prepare as teachers of supplemental subjects.

Vocational courses in agriculture were started in California the year that war was declared.

Having had military training the graduates of agricultural colleges were among the first to respond to the call of their country. Consequently, the supply of qualified teachers was greatly depleted.

During the years of the war and immediately thereafter, we admitted to the classes persons with less technical training than desired. However all such persons did possess equivalents in successful farm experience.

The number of young men completing the courses of agricultural colleges is constantly increasing. As a result, the State Board of Education is, from year to year, advancing its standards. During the year 1921-22, twelve units, or two summer school sessions, of instruction in addition to a bachelor's degree were required for certification. For the year 1922-23, twenty-four units of post-graduate work will be required, and thereafter thirty-two units.

The accompanying statistical tables report 153 men and 40 women enrolled in the classes maintained at Davis during the year 1918-19. It will be noticed that this enrollment exceeds that of the following year. This is due to the fact that the summer school enrollment of 1919 was included in the report for the school year ending June 30, 1919, and also in the school year ending 1920. Since only a few days, never more than five, of the summer school session fall in the year just closing, we have adopted the custom of enrolling the summer school students in the year following, only. This is necessary in order to avoid a duplication of enrollment.

In the beginning when there was a great shortage of teachers, classes were maintained at the University Farm throughout the entire school year. Recently they have been maintained during one semester, and the summer period only. This arrangement has been made in order that the supervisors of teacher-training may find time to give instruction on the job to the men already in service.

Experience seems to indicate that the best teacher-training that we do is that which occurs on the job, where real problems can be taken up and disposed of in their proper settings. It is the policy of the department to extend this service as far as possible.

Teachers of Trades and Industries: In general, there are two types of teachers engaged in giving instruction in trade and industrial courses. They are the teachers of applied subjects and the teachers of supplemental subjects.

The teachers of applied subjects are in every instance skilled workers who have had at least three years of journeyman experience in their respective trades. Most of these persons have also had the teacher-training provided in the classes maintained by the University of California for the State Board of Education. At present, the State Board of Education will not issue a long-term credential authorizing the holder to give instruction in the applied phases of a vocational course unless he has completed the prescribed twelve units of work in teacher-training.

The teachers of supplemental subjects are recruited from several sources. Some are experienced teachers of English, mathematics, science, or drawing. Others are experienced graduate engineers who

have had no previous teaching experience. A few are persons (not graduates of colleges) who have had a large amount of practical experience in the applied phases of the subject, and in addition thereto a considerable amount of schooling in the supplemental subjects in which they qualify to instruct. All of these persons must take twelve units of special teacher-training before they can fully qualify as instructors in trade and industrial classes.

In accordance with its agreement with the State Board of Education, the University of California and the Southern Branch of the University of California maintain evening classes wherein employed persons may qualify as teachers by attending such classes for two evenings a week for a two-year period. They also maintain classes during regular summer sessions.

During the first years that these classes were maintained, it was necessary to admit to the courses for applied subjects persons who in some instances had but elementary schooling. Recently, the standard has been increased so that such persons must show at least some high school training. It is hoped that supply and demand will soon make it possible for us to require that all persons admitted to these classes shall have completed a full four-year high school course.

In these classes no attempt is made to give instruction in the applied phases of the crafts. If a person enrolled in a class is deficient in any phase of his craft, he must remove such deficiency by securing further experience or by attending vocational courses maintained by other institutions.

A large percentage of the skilled craftsmen completing these courses have been employed as teachers of home and community mechanics by local school boards. Such courses of instruction are, naturally, not strictly vocational, and the teachers for the same should be prepared in the various teachers-colleges of the state. It is the aim of the department to promote programs for the training of such teachers in at least two or three of the teachers colleges.

Teachers of Part-Time General Continuation Classes: The compulsory part-time education act went into force July 1, 1920. Just prior to that time, the University of California, in cooperation with this department, set up extension classes wherein preliminary teacher-training was given to more than eleven hundred public school teachers. It was from this group of persons that the administrators and teachers of part-time classes were largely recruited. These extension courses provided a two-unit course.

The University of California and its Southern Branch have, since that time, maintained two other courses of two units each for the benefit of teachers of part-time general continuation classes. The University of California contemplates adding additional courses for the coming summer session.

The State Board of Education requires a minimum of six units of special training before it will grant a credential authorizing the certification of teachers to give instruction in part-time classes. The University of California also maintains a service department which provides instruction on the job for supervisors, coordinators, and teachers of part-time pupils.

Teachers of Home Economics: When the vocational education acts went into effect, a survey of the situation revealed the fact that California was well provided with institutions training teachers for home economics instruction. Also, many trained teachers of home economics were being recruited from Eastern institutions. The courses given by the California institutions were, upon the whole, on a par with those given in the East, but the subject of instruction was comparatively new and in the process of making.

In the beginning, home economics instruction was confined to cooking and sewing, and though it had in some measure expanded, a comparison of the content of the course, with the demands made upon the housewife clearly indicated that it was entirely too narrow in scope to meet the needs of the situation. One of the main ends, then, in the promotion of the subject was to broaden its scope, but before any great progress could be made in this direction, it was necessary to provide for supplementing the training of many of the teachers in service. For this reason, the State Board of Education provided for a supervisor of teacher-training in home economics who divides her time between the instruction of teachers on the job, and the supervision of teacher-training in the various institutions of the state.

The survey mentioned above also revealed the fact that most of the persons in training for teaching service in home economics were young women whose main occupations throughout their lives had been attending school. Consequently, they could not bring to their profession the breadth of experience in their chosen fields, which is desirable on the part of a teacher.

It was felt that the introduction into the force, of women who had had both extended home-experience and special training would greatly strengthen the corps of teachers in the field. The remainder of the fund available in this department for the training of home economics teachers has, therefore, been used in encouraging the teacher-training institutions to seek and, when found, enroll for training in home economics teacher-training courses women who have had both schooling and extended experience as home-makers. While the number of such persons prepared for the service has not been numerically large, their services have been in great demand.

Schooling never fully takes the place of experience and adequate experience in home-making can not be provided for in a school. Like all other occupations, home-making can best be prepared for by a combination of vocational and school experience.

STATISTICAL TABLE VI.

Federal and State Aided Classes in Trades and Industries for the Year 1917-18.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Fresno	Machine shop	Full-time	1	30	10	\$300 00
Fresno	Auto repair	Full-time	1	30	9	150 00
Los Angeles—						
Hollywood	Navigation	Full-time	1	30	16	150 00
Hollywood	Oil operation	Full-time	1	30	21	150 00
Jefferson	Auto repair	Full-time	3	30	60	900 00
Lincoln	Sheet metal	Full-time	1	30	20	300 00
Lincoln	Electrical	Full-time	2	30	45	500 00
Lincoln	Pattern making	Full-time	1	30	20	150 00
Lincoln	Dress making	Full-time	1	30	12	300 00
Lincoln	Printing	Part-time	1	15	9	110 00
Lincoln	Auto mechanics	Part-time	1	6	15	60 00
Lincoln	Auto mechanics	Part-time	1	5	22	50 00
Manual Arts	Machine shop	Full-time	2	30	32	300 00
Manual Arts	Printing	Full-time	1	30	5	150 00
Polytechnic	Electrical	Full-time	1	30	25	225 00
San Pedro	Machine shop	Full-time	1	30	14	225 00
San Pedro	Machine drafting	Full-time	1	30	11	225 00
Boyle Heights	Restaurant cooking	Full-time	1	30	10	150 00
Fourteenth Street	Restaurant cooking	Full-time	2	30	31	600 00
Oakland—						
Vocational	Machine shop	Full-time	4	30	89	1,897 50
Vocational	Auto repair	Full-time	3	30	61	1,225 00
Vocational	Electrical	Full-time	3	30	61	1,472 50
Vocational	Carpentry	Full-time	1	30	33	412 50
Vocational	Printing	Full-time	1	30	14	485 00
Vocational	Dress making	Full-time	3	30	69	1,335 00
Vocational	Millinery	Full-time	1	30	34	390 00
Sausalito—						
Tamalpais	Machine shop	Full-time	1	30	16	338 00
Tamalpais	Carpentry	Full-time	1	30	7	338 00
Tamalpais	Electrical	Full-time	1	30	12	338 00
Stockton	Carpentry	Full-time	1	30	14	283 00
Totals					802	\$13,479 83

STATISTICAL TABLE VII.

Federal and State Aided Classes in Trades and Industries for the Year 1918-19.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Fresno	Automobile	Full-time	2	30	59	\$805 76
Fresno	Machine shop	Full-time	1	30	20	600 00
Long Beach	Chemistry	Part-time	1	4	19	90 00
Los Angeles—						
Boyle Heights Inter.	Carpentry	Full-time	1	30	21	600 00
Central Intermediate	Building trades	Full-time	1	30	15	300 00
Central Intermediate	Citizenship	Special	1	4	254	112 00
14th St. Intermediate	Boys' restaurant cooking	Full-time	2	30	33	1,004 85
Hollywood	Radio buzzer	Full-time	1	30	20	300 00
Hollywood	Sugar chemistry	Full-time	1	30	28	300 00
Hollywood	Oil chemistry	Full-time	1	30	30	300 00

STATISTICAL TABLE VII—Continued.

Federal and State Aided Classes in Trades and Industries for the Year 1918-19.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	40-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Los Angeles—Continued:						
Jefferson	Auto shop	Full-time	4	30	108	1,448 75
Jefferson	Carpentry	Full-time	1	30	16	525 00
Jefferson	Mechanical drafting	Full-time	1	30	9	525 00
Jefferson	Electricity	Full-time	1	30	31	525 00
Labor Temple Eve.	Power sewing machine	Part-time	2	15	153	360 00
Lincoln	Automobile	Full-time	2	30	45	840 05
Lincoln	Electricity	Full-time	2	30	36	908 64
Lincoln	Machine shop	Full-time	2	30	51	805 76
Lincoln	Sheet metal	Full-time	1	30	27	600 00
Lincoln	Trade art	Full-time	1	30	19	300 00
Lincoln	Trade sewing	Full-time	1	30	34	500 00
Lincoln	Power sewing machine	Part-time	1	15	117	100 00
Lincoln	Printing	Part-time	1	6	9	120 00
Lincoln	Salesmanship	Part-time	2	4	154	80 00
Lincoln	Supplemental nursing	Part-time	1	6	58	90 00
Los Angeles High	Radio buzzer	Full-time	1	30	27	300 00
Manual Arts	Auto shop	Full-time	1	30	28	300 00
Manual Arts	Electricity	Full-time	2	30	44	562 50
Manual Arts	Foundry	Full-time	1	30	18	300 00
Manual Arts	Machine shop	Full-time	2	30	47	670 00
Polytechnic	Automobile	Full-time	1	30	12	150 00
Polytechnic	Electric wiring	Full-time	2	30	22	702 88
Polytechnic	Machine shop	Full-time	1	30	33	500 00
San Pedro Evening	Supplemental ship building	Special	4	4	144	315 00
San Pedro High	Boat building	Full-time	1	30	5	300 00
San Pedro High	Industrial drawing	Full-time	1	30	8	300 00
San Pedro High	Machine shop	Full-time	1	30	19	600 00
Torrance	Machine shop	Part-time	1	4	17	600 00
Oakland—						
Technical	Automobile	Full-time	1	30	19	150 00
Technical	Carpentry	Full-time	1	30	22	600 00
Technical	Electricity	Full-time	1	30	31	630 00
Technical	Machine shop	Full-time	4	30	94	1,834 55
Technical	Pattern making	Full-time	2	30	44	1,011 51
Vocational	Automobile	Full-time	3	30	88	1,329 16
Vocational	Carpentry	Full-time	1	30	30	555 00
Vocational	Dressmaking trade	Full-time	2	30	51	833 18
Vocational	Electricity	Full-time	3	30	80	1,241 20
Vocational	Machine shop	Full-time	4	30	113	1,659 68
Vocational	Millinery	Full-time	1	30	17	567 00
Vocational	Pattern making	Full-time	1	30	32	555 00
Vocational	Printing	Full-time	1	30	17	498 00
Vocational	Sheet metal	Full-time	2	30	32	480 00
Vocational	Printing	Part-time	1	30	18	120 00
Vocational	Ship fitting	Special	1	4	33	45 00
Pomona	Automobile	Full-time	1	30	31	300 00
Roseville	Machine boilermaking	Part-time	2	8	27	240 00
Sacramento	Salesmanship	Part-time	1	7½	63	37 50
San Francisco—						
Irving M. Scott	Shipbuilding	Special	15	4-6-10	438	298 82
San Jose	Machine shop	Full-time	2	30	36	805 76
Santa Barbara	Automobile	Full-time	2	30	67	1,011 51
Sausalito—						
Tamalpais	Machine shop	Full-time	2	30	35	805 76
Stockton	Carpentry	Full-time	1	30	12	600 00
Stockton	Machine shop	Full-time	2	30	37	1,611 51
Totals					3,200	\$34,762 42

STATISTICAL TABLE VIII.

Federal and State Aided Classes in Trades and Industries for the Year 1919-20.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Berkeley Evening	Stenography	Part-time	1	4	45	\$80 00
Berkeley Evening	Typewriting	Part-time	1	4	72	80 00
Chino	Auto and tractor	Full-time	1	30	10	600 00
Fresno	Auto repair	Full-time	2	30	40	1,058 91
Fresno	Electric trades	Full-time	1	30	9	600 00
Fresno	Machine shop	Full-time	2	30	29	1,058 51
Long Beach	Chemistry, trade	Part-time	1	5	13	89 45
Los Angeles—						
Central Evening	Citizenship	Part-time	1	5	256	90 00
Central Evening	Salesmanship	Part-time	1	4	170	40 00
14th St. Intermediate	Boys' restaurant cooking	Full-time	2	30	34	1,058 91
Gardena	Auto machine shop	Full-time	1	30	14	600 00
Hollywood	Auto mechanics	Full-time	2	30	47	921 26
Hollywood	Industrial chemistry	Full-time	1	30	20	300 00
Jefferson	Auto repair	Full-time	6	30	114	2,435 65
Jefferson	Electric trades	Full-time	2	30	40	1,058 91
Jefferson	Sheet metal	Full-time	1	30	25	600 00
Jefferson	Salesmanship	Part-time	1	6	14	30 00
Labor Temple Eve.	Power sewing machine	Part-time	2	30	362	600 00
Lincoln	Auto repair	Full-time	2	30	45	544 21
Lincoln	Mechanical drafting	Full-time	1	30	28	500 00
Lincoln	Trade dressmaking	Full-time	2	30	53	829 46
Lincoln	Electric trades	Full-time	2	30	57	867 71
Lincoln	Machine shop	Full-time	1	30	21	550 00
Lincoln	Printing	Full-time	1	30	9	200 00
Lincoln	Sheet metal	Full-time	1	30	22	500 00
Lincoln	Trade art	Full-time	1	30	23	300 00
Lincoln	Power sewing machine	Part-time	1	15	271	300 00
Lincoln	Printing	Part-time	1	30	9	37 50
Manual Arts	Auto repair	Full-time	2	30	50	450 00
Manual Arts	Electric trades	Full-time	1	30	17	300 00
Manual Arts	Machine shop	Full-time	2	30	47	714 74
Manual Arts	Salesmanship	Part-time	1	6	41	30 00
Polytechnic	Machine shop	Full-time	1	30	25	450 00
Polytechnic	Salesmanship	Part-time	3	15	83	90 00
San Pedro Evening	Mechanical drawing	Special	1	6	30	120 00
San Pedro Evening	Navigation	Special	1	10	11	100 00
San Pedro Evening	Oxy-acetylene welding	Special	2	8	49	160 00
San Pedro Evening	Ship fitting	Special	1	4	24	80 00
Monterey	Auto repair	Full-time	1	30	16	600 00
Oakland—						
Garfield	Sheet metal	Full-time	1	30	21	339 00
Prescott	Sheet metal	Full-time	1	30	20	600 00
Technical	Auto repair	Full-time	2	30	66	1,058 91
Technical	Carpentry	Full-time	1	30	33	600 00
Technical	Electric trades	Full-time	2	30	47	829 46
Technical	Machine shop	Full-time	4	30	121	1,747 29
Technical	Pattern making	Full-time	2	30	59	1,058 91
Vocational	Auto repair	Full-time	4	30	106	1,616 51
Vocational	Carpentry	Full-time	1	30	32	542 50
Vocational	Dressmaking, trade	Full-time	2	30	58	945 10
Vocational	Electric trades	Full-time	4	30	134	1,769 68
Vocational	Machine shop	Full-time	4	30	119	1,478 62
Vocational	Millinery, trade	Full-time	1	30	30	525 00
Vocational	Pattern making	Full-time	1	30	30	555 00
Vocational	Printing	Full-time	1	30	20	520 00
Vocational	Sheet metal	Full-time	1	30	23	600 00
Vocational	Printing	Part-time	1	12	33	255 00
Redlands	Auto repair	Full-time	1	30	20	600 00
Roseville	Machine boilermaking	Part-time	4	16	24	406 00

STATISTICAL TABLE VIII--Continued.

Federal and State Aided Classes in Trades and Industries for the Year 1919-20.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
San Francisco--						
Irving M. Scott	Machine design	Special	2	6-10	74	\$45 00
Irving M. Scott	Electric trades	Special	2	10	77	55 00
Irving M. Scott	Industrial English	Special	1	10	25	55 00
Irving M. Scott	Marine engineering	Special	2	6	35	28 00
Irving M. Scott	Industrial history and citizenship	Special	1	10	4	19 00
Irving M. Scott	Hull drafting	Special	5	4-6-10	93	76 00
Irving M. Scott	Mold loft work	Special	1	8	22	12 00
Irving M. Scott	Ship calking, riveting	Special	2	10	34	33 00
Irving M. Scott	Electric welding	Special	2	6	56	50 00
Irving M. Scott	Oxy-acetylene welding	Special	2	12	85	35 00
San Jose	Auto repair	Full-time	2	30	49	829 46
San Jose	Machine shop	Full-time	2	30	30	1,058 91
Santa Barbara	Auto repair	Full-time	2	30	53	1,058 91
Sausalito--						
Tamalpais	Carpentry	Full-time	1	30	15	690 00
Tamalpais	Electric trades	Full-time	1	30	22	690 00
Tamalpais	Machine shop	Full-time	2	30	46	1,058 91
Stockton	Auto repair	Full-time	1	30	21	600 00
Stockton	Carpentry	Full-time	1	30	23	600 00
Stockton	Machine shop	Full-time	2	30	47	1,058 91
Stockton	Dietetics, nurses, trade	Part-time	2	4	28	109 50
Totals					4,083	\$43,562 60

STATISTICAL TABLE IX.

Federal and State Aided Classes in Trades and Industries for the Year 1920-21.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Berkeley High	Applied electricity	Full-time	1	30	25	\$790 00
Berkeley High	Auto repair	Full-time	1	30	26	600 00
Berkeley High	Machine shop	Full-time	2	30	35	868 26
Berkeley High	Printing	Full-time	1	30	11	600 00
Berkeley High	Shorthand	Part-time	1	8 ^{1/2}	28	105 46
Berkeley High	Typewriting	Part-time	1	5	53	98 80
Chino--						
George Jr. Republic	Auto mechanics	Full-time	1	30	11	600 00
George Jr. Republic	Carpentry	Full-time	1	30	7	690 00
George Jr. Republic	Printing	Full-time	1	30	11	690 00
Fresno High	Auto repair	Full-time	2	30	44	1,136 50
Fresno High	Applied electricity	Full-time	1	30	8	300 00
Fresno High	Machine shop	Full-time	2	30	36	1,136 50
Long Beach High	Chemistry	Part-time	1	4 ^{1/2}	14	79 92
Los Angeles--						
Central Intermediate	Power sewing machine	Part-time	2	15	410	600 00
Gardena High	Auto mechanics	Full-time	1	30	18	416 26
Hollywood High	Auto mechanics	Full-time	2	30	51	798 50
Jefferson High	Auto repair and construction	Full-time	4	30	73	1,941 24
Jefferson High	Electrical repair and construction	Full-time	2	30	46	1,136 50
Jefferson High	Machine shop	Full-time	2	30	24	868 26
Jefferson High	Sheet metal	Full-time	1	30	13	690 00
Lafayette Jr. High	Boys' restaurant cooking and management	Full-time	2	30	37	1,136 50
Lincoln High	Applied electricity	Full-time	1	30	18	500 00
Lincoln High	Auto work	Full-time	2	30	56	1,136 50
Lincoln High	Dressmaking (trade)	Full-time	2	30	52	1,046 30

STATISTICAL TABLE IX—Continued.

Federal and State Aided Classes in Trades and Industries for the Year 1920-21.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Lincoln High	Machine shop	Full-time	1	30	30	600 00
Lincoln High	Mechanical drawing	Full-time	1	30	25	600 00
Lincoln High	Printing	Full-time	1	30	13	450 00
Lincoln High	Sheet metal	Full-time	1	30	18	600 00
Lincoln High	Trade art	Full-time	1	30	27	600 00
Lincoln High	Chemistry for capped nurses	Part-time	1	6	61	69 94
Lincoln High	Cooking for capped nurses	Part-time	2	4	73	111 00
Lincoln High	Printing	Part-time	1	4	8	150 00
San Pedro Evening	Auto repair	Full-time	1	30	22	630 00
San Pedro Evening	Electric construe. and operation	Full-time	1	30	9	600 00
Monterey Union High.	Auto and marine engines	Full-time	2	30	31	1,136 50
Oakland—						
Garfield Jr. High	Sheet metal	Full-time	1	30	23	600 00
Lazear Jr. High	Sheet metal	Full-time	1	30	27	630 00
Prescott Jr. High	Sheet metal	Full-time	1	30	24	600 00
Technical High	Auto repair	Full-time	2	30	70	1,136 50
Technical High	Carpentry and mill cabinet	Full-time	1	30	41	600 00
Technical High	Electricity	Full-time	2	30	56	1,136 50
Technical High	Machine shop	Full-time	4	30	140	2,209 50
Technical High	Pattern making	Full-time	2	30	53	1,136 50
Tompkins Jr. High	Sheet metal	Full-time	1	30	23	600 00
Vocational High	Auto repair	Full-time	4	30	129	2,209 50
Vocational High	Cabinet making	Full-time	1	30	35	600 00
Vocational High	Dressmaking (trade)	Full-time	2	30	49	1,136 50
Vocational High	Electricity	Full-time	4	30	129	2,209 50
Vocational High	Machine drafting	Full-time	1	30	18	482 50
Vocational High	Machine shop	Full-time	4	30	129	2,209 50
Vocational High	Millinery (trade)	Full-time	1	30	26	600 00
Vocational High	Pattern making	Full-time	1	30	31	600 00
Vocational High	Printing	Full-time	1	30	24	600 00
Vocational High	Printing	Part-time	1	18	46	333 00
Redlands High	Auto repair	Full-time	1	30	29	600 00
Roseville Union High	Boilermaking	Part-time	1	8	10	99 90
Roseville Union High	General blacksmithing	Part-time	1	4	10	99 90
Roseville Union High	Machinist and boilermaking	Part-time	2	8	6	199 80
Roseville Union High	Machinist	Part-time	1	8	8	99 90
Sacramento High	Auto construction and repair	Full-time	1	30	23	600 00
Salinas Union High	Auto mechanics	Full-time	1	30	10	600 00
San Jose High	Auto repair and garage mngr.	Full-time	2	30	63	1,136 50
San Jose High	Carpentry and mill cabinet	Full-time	1	30	15	600 00
San Jose High	Machine shop	Full-time	2	30	45	1,064 98
San Jose High	Sheet metal	Full-time	1	30	18	300 00
Santa Barbara High	Auto repair	Full-time	2	30	66	1,136 50
Sausalito—						
Tamalpais Un. High	Electric shop practice	Full-time	1	30	23	600 00
Tamalpais Un. High	Machine shop practice	Full-time	2	30	51	1,136 50
Stockton High	Auto repair	Full-time	1	30	18	600 00
Stockton High	Machinist	Full-time	2	30	38	1,136 50
Stockton High	Mill cabinet	Full-time	1	30	12	600 00
Stockton High	Printing	Full-time	1	30	9	600 00
Totals			109		2,961	\$53,861 92

STATISTICAL TABLE X.

Federal and State Aided Classes in Trades and Industries for the Year 1921-22.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Berkeley High	Applied electricity	Full-time	1	30	23	\$717 42
Berkeley High	Auto repair	Full-time	2	30	45	1,410 00
Berkeley High	Machine shop	Full-time	1	30	36	690 66
Berkeley High	Printing	Full-time	1	30	16	600 00
Berkeley High	Shorthand	Part-time				
Berkeley High	Typewriting	Part-time	1	5	45	124 00
Chino—						
George Jr. Republic	Auto repair	Full-time	1	30	36	540 00
George Jr. Republic	Carpentry	Full-time	1	30	25	540 65
George Jr. Republic	Printing	Full-time	1	30	38	540 00
Fresno Technical High	Applied electricity	Full-time	2	30	34	1,200 00
Fresno Technical High	Auto and gas engine	Full-time	3	30	44	1,800 00
Fresno Technical High	Machine shop	Full-time	3	30	46	1,800 00
Fullerton Union High	Oil production	Full-time	1	30	22	720 00
Inglewood Union High	Auto repair	Full-time	1	30	27	630 00
Los Angeles—						
Central Jr. High	Printing	Full-time	1	30	8	270 00
Central Jr. High	Power sewing machine operation	Part-time	2	15	527	720 00
Gardena High	Auto and machine shop	Full-time	1	30	20	540 00
Hollywood High	Auto mechanics	Full-time	1	30	23	561 60
Jefferson High	Applied electricity	Full-time	2	30	33	1,323 00
Jefferson High	Auto repair	Full-time	3	30	43	1,992 00
Jefferson High	Machine shop	Full-time	1	30	19	630 00
Jefferson High	Sheet metal	Full-time	1	30	14	630 00
Lafayette Jr. High	Printing	Full-time	1	30	9	315 00
Lafayette Jr. High	Restaurant cooking	Full-time	2	30	42	1,200 00
Lincoln High	Auto repair	Full-time	2	30	37	1,224 00
Lincoln High	Carpentry	Full-time	1	30	11	360 00
Lincoln High	Dressmaking (trade)	Full-time	2	30	54	1,289 96
Lincoln High	Machine shop	Full-time	1	30	29	630 00
Lincoln High	Mechanical drafting	Full-time	1	30	10	600 00
Lincoln High	Printing	Full-time	1	30	7	503 96
Lincoln High	Sheet metal	Full-time	1	30	20	638 96
Lincoln High	Trade art	Full-time	2	30	58	1,068 00
Manual Arts High	Machine bookkeeping	Part-time	1	15	41	360 00
Polytechnic Evening	Laundry work	Special	1	6	55	108 00
San Pedro High	Applied electricity	Full-time	2	30	20	1,170 00
San Pedro High	Auto mechanics	Full-time	2	30	36	1,278 00
San Pedro High	Boat building	Full-time	1	30	14	603 00
Monterey Union High	Engine and auto repair	Full-time	2	30	27	1,232 20
Oakland—						
Elmhurst Jr. High	Sheet metal	Full-time	1	30	21	720 00
Garfield Jr. High	Mill cabinet	Full-time	1	30	38	720 00
Garfield Jr. High	Sheet metal	Full-time	1	30	34	720 00
Lazear Jr. High	Sheet metal	Full-time	1	30	16	720 00
Prescott Jr. High	Cabinet making	Full-time	1	30	20	652 50
Prescott Jr. High	Sheet metal	Full-time	1	30	26	630 00
Technical High	Applied electricity	Full-time	2	30	55	1,395 00
Technical High	Auto repair	Full-time	3	30	94	1,845 00
Technical High	Carpentry and mill cabinet	Full-time	2	30	71	1,327 50
Technical High	Machine shop	Full-time	4	30	145	2,677 50
Technical High	Pattern making	Full-time	2	30	52	1,395 00
Thompkins Jr. High	Sheet metal	Full-time	1	30	21	720 00
Vocational High	Applied electricity	Full-time	4	30	136	2,468 72
Vocational High	Auto repair	Full-time	4	30	127	2,113 24
Vocational High	Cabinet making	Full-time	1	30	39	503 56
Vocational High	Dressmaking (trade)	Full-time	2	30	58	1,119 70
Vocational High	Machine drafting	Full-time	1	30	21	443 54
Vocational High	Machine shop	Full-time	6	30	191	2,638 88
Vocational High	Millinery (trade)	Full-time	1	30	30	607 06
Vocational High	Pattern making	Full-time	1	30	35	533 80
Vocational High	Printing	Full-time	2	30	42	1,031 86
Vocational High	Printing	Part-time	1	15	46	360 00
Oroville Union High	Printing	Full-time	1	30	22	522 00
Redlands High	Machine shop and auto repair	Full-time	1	30	24	660 00
Riverside Polytechnic	Carpentry	Full-time	1	30	20	585 00
Riverside Polytechnic	Machine shop	Full-time	1	30	19	495 00
Riverside Polytechnic	Printing	Full-time	1	30	11	405 00
Roseville Union High	Apprenticeship electricity	Part-time	1	8	13	106 66
Roseville Union High	Machine and boiler making	Part-time	1	8	13	106 66

STATISTICAL TABLE X—Continued.

Federal and State Aided Classes in Trades and Industries for the Year 1921-22.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Sacramento High	Auto repair	Full-time	2	30	48	1,271 88
Salinas Union High	Auto repair	Full-time	1	30	17	612 00
San Diego High	Machine shop	Full-time	1	30	25	247 50
San Jose High	Auto repair	Full-time	4	30	91	2,640 00
San Jose High	Machine shop	Full-time	2	30	71	1,320 00
San Jose High	Mill and cabinet work	Full-time	1	30	19	663 60
San Jose High	Pattern making	Full-time	1	30	35	676 00
San Jose High	Sheet metal	Full-time	2	30	48	1,320 00
San Rafael High	Auto repair	Full-time	1	30	20	612 18
Santa Barbara High	Auto repair	Full-time	2	30	52	1,080 00
Sausalito						
Tamalpais Un. High	Applied electricity	Full-time	1	30	22	679 88
Tamalpais Un. High	Machine shop	Full-time	2	30	49	1,319 76
Stockton High	Auto repair	Full-time	1	30	20	598 50
Stockton High	Machine shop	Full-time	2	30	39	1,377 00
Stockton High	Mill cabinet making	Full-time	2	30	28	931 50
Stockton High	Printing	Full-time	1	30	13	612 60
Totals			131		3,690	\$74,709 14

STATISTICAL TABLE XI.

Trade and Industrial Courses by Occupations.

ART (Trade), 2 Classes:		
Los Angeles	Lincoln High School	2—Trade art Full-time
AUTOMOBILE, 33 Classes:		
Berkeley	Berkeley High School	2—Auto repair Full-time
Chino	George Jr. Republic H. S.	1—Auto repair Full-time
Fresno	Fresno Technical High School	3—Auto repair Full-time
Inglewood	Inglewood Union High School	1—Auto repair Full-time
Los Angeles	Gardena High School	1—Auto repair Full-time
	Hollywood High School	1—Auto repair Full-time
	Jefferson High School	3—Auto repair Full-time
	Lincoln High School	2—Auto repair Full-time
	San Pedro High School	2—Auto repair Full-time
Monterey	Monterey Union High School	2—Auto repair Full-time
Oakland	Technical High School	3—Auto repair Full-time
	Vocational High School	4—Auto repair Full-time
Sacramento	Sacramento High School	2—Auto repair Full-time
Salinas	Salinas Union High School	1—Auto repair Full-time
San Jose	San Jose High School	4—Auto repair Full-time
San Rafael	San Rafael High School	1—Auto repair Full-time
Santa Barbara	Santa Barbara High School	2—Auto repair Full-time
Stockton	Stockton High School	1—Auto repair Full-time
BOAT BUILDING, 1 Class:		
Los Angeles	San Pedro High School	1—Boat building Full-time
CABINET MAKING, 2 Classes:		
Oakland	Prescott Jr. High School	1—Cabinet making Full-time
	Vocational High School	1—Cabinet making Full-time
CARPENTRY, 5 Classes:		
Chino	George Jr. Republic H. S.	1—Carpentry Full-time
Los Angeles	Lincoln High School	1—Carpentry Full-time
Oakland	Technical High School	2—Carpentry Full-time
Riverside	Riverside Polytech. High School	1—Carpentry Full-time
DRAFTING, 1 Class:		
Oakland	Vocational High School	1—Machine drafting Full-time
DRESSMAKING, 4 Classes:		
Los Angeles	Lincoln High School	2—Dressmaking Full-time
Oakland	Vocational High School	2—Dressmaking Full-time

STATISTICAL TABLE XI—Continued.

Trade and Industrial Courses by Occupations.

ELECTRIC TRADES, 15 Classes:			
Berkeley	Berkeley High School	1—Applied electricity	Full-time
Fresno	Fresno Technical High School	2—Applied electricity	Full-time
Los Angeles	Jefferson High School	2—Applied electricity	Full-time
	San Pedro High School	2—Applied electricity	Full-time
	Technical High School	2—Applied electricity	Full-time
	Vocational High School	4—Applied electricity	Full-time
Roseville	Roseville Union High School	1—Applied electricity	Part-time
Sausalito	Tamalpais Union High School	1—Applied electricity	Full-time
LAUNDRY WORK, 1 Class:			
Los Angeles	Polytechnic Evening High School	1—Laundry work	Special
MACHINE BOOKKEEPING, 1 Class:			
Los Angeles	Manual Arts High School	1—Machine bookkeeping	Part-time
MACHINE AND BOILER MAKING, 1 Class:			
Roseville	Roseville Union High School	1—Machine and boiler making	Part-time
MACHINE SHOP, 25 Classes:			
Berkeley	Berkeley High School	1—Machine shop	Full-time
Fresno	Fresno Technical High School	3—Machine shop	Full-time
Los Angeles	Jefferson High School	1—Machine shop	Full-time
	Lincoln High School	1—Machine shop	Full-time
Oakland	Technical High School	4—Machine shop	Full-time
	Vocational High School	6—Machine shop	Full-time
Redlands	Redlands High School	1—Machine shop	Full-time
Riverside	Riverside Polytech. High School	1—Machine shop	Full-time
San Diego	San Diego High School	1—Machine shop	Full-time
San Jose	San Jose High School	2—Machine shop	Full-time
Sausalito	Tamalpais Union High School	2—Machine shop	Full-time
Stockton	Stockton High School	2—Machine shop	Full-time
MECHANICAL DRAFTING, 1 Class:			
Los Angeles	Lincoln High School	1—Mechanical drafting	Full-time
MILL CABINET, 4 Classes:			
Oakland	Garfield Junior High School	1—Mill cabinet	Full-time
San Jose	San Jose High School	1—Mill cabinet	Full-time
Stockton	Stockton High School	2—Mill cabinet	Full-time
MILLINERY, 1 Class:			
Oakland	Vocational High School	1—Trade millinery	Full-time
OIL PRODUCTION, 1 Class:			
Fullerton	Fullerton Union High School	1—Oil production	Full-time
PATTERN MAKING, 4 Classes:			
Oakland	Technical High School	2—Pattern making	Full-time
	Vocational High School	1—Pattern making	Full-time
San Jose	San Jose High School	1—Pattern making	Full-time
POWER SEWING MACHINE, 2 Classes:			
Los Angeles	Central Junior High School	2—Power sewing machine	Part-time
PRINTING, 11 Classes:			
Berkeley	Berkeley High School	1—Printing	Full-time
Chino	George Jr. Republic H. S.	1—Printing	Full-time
Los Angeles	Central Junior High School	1—Printing	Full-time
	Lafayette Junior High School	1—Printing	Full-time
	Lincoln High School	1—Printing	Full-time
Oakland	Vocational High School	2—Printing	Full-time
	Vocational High School	1—Printing	Part-time
Oroville	Oroville Union High School	1—Printing	Full-time
Riverside	Riverside Polytech. High School	1—Printing	Full-time
Stockton	Stockton High School	1—Printing	Full-time
RESTAURANT COOKING, 2 Classes:			
Los Angeles	Lafayette Junior High School	2—Restaurant cooking	Full-time
SHEET METAL, 9 Classes:			
Los Angeles	Jefferson High School	1—Sheet metal	Full-time
	Lincoln High School	1—Sheet metal	Full-time
	Elmhurst Junior High School	1—Sheet metal	Full-time
Oakland	Garfield Junior High School	1—Sheet metal	Full-time
	Lazar Junior High School	1—Sheet metal	Full-time
	Prescott Junior High School	1—Sheet metal	Full-time
	Tompkins Junior High School	1—Sheet metal	Full-time
San Jose	San Jose High School	2—Sheet metal	Full-time
SHORTHAND, 1 Class:			
Berkeley	Berkeley High School	1—Shorthand	Part-time
TYPEWRITING, 1 Class:			
Berkeley	Berkeley High School	1—Typewriting	Part-time

STATISTICAL TABLE XII.

Federal and State Aided Classes in Home Economics for the Year 1917-18.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Los Angeles—						
Jefferson	Home economics	Full-time	1	30	16	\$300 00
Lincoln	Home economics	Part-time	1	6	30	60 00
Lincoln	Home economics	Part-time	1	4	15	40 00
Manual Arts	Home economics	Part-time	1	6	28	60 00
Manual Arts	Home economics	Part-time	1	4	24	40 00
Vocational	Home economics	Part-time	6	4-6	118	600 00
Vocational	Home economics	Part-time	6	4-6	150	300 00
Sacramento	Home economics	Part-time	1	6	27	90 72
Sacramento	Home economics	Part-time	1	4	21	60 48
San Jose	Home economics	Part-time	8	6	193	381 85
Totals					622	\$1,933 05

STATISTICAL TABLE XIII.

Federal and State Aided Classes in Home Economics for the Year 1918-19.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Berkeley, Garfield Int.	Dressmaking and millinery	Part-time	1	4	14	\$40 00
Long Beach High	Millinery	Part-time	2	4½	63	125 35
Los Angeles—						
Boyle Heights Int.	Home economics	Full-time	1	30	13	300 00
Boyle Heights Int.	Home economics	Part-time	2	4	38	80 00
Gardena High	Dressmaking	Part-time	1	4	23	26 00
Gardena High	Millinery	Part-time	1	4	25	26 00
Jefferson High	Dressmaking and millinery	Part-time	1	15	11	150 00
Manual Arts High	Millinery	Part-time	1	4	42	24 00
Polytechnic Evening	Dressmaking	Part-time	2	4	54	48 00
Polytechnic Evening	Millinery	Part-time	2	4-6	110	52 50
Oakland—						
Fremont High	Millinery	Part-time	2	4½	48	86 66
Fremont High	Dressmaking	Part-time	1	4½	25	43 33
Technical High	Dressmaking	Part-time	4	4½	146	346 64
Technical High	Millinery	Part-time	6	4½	202	511 30
Technical High	Dressmaking and millinery	Part-time	1	4½	44	86 66
Vocational High	Home economics	Full-time	1	30	21	567 00
Vocational High	Dressmaking	Part-time	5	6	124	600 00
Vocational High	Millinery	Part-time	5	6	155	600 00
Ontario, Chafley Co.	Dressmaking and millinery	Part-time	1	4	11	17 77
Pomona, S. Jr. High	Home economics	Full-time	1	30	12	300 00
Sacramento High	Dressmaking and millinery	Part-time	2	5	49	200 00
San Diego Evening	Dressmaking	Part-time	2	4	157	169 00
San Diego Evening	Millinery	Part-time	3	4	92	215 99
San Diego Evening	Nutrition, cook	Part-time	1	4	18	48 00
San Jose High	Dressmaking	Part-time	5	4-6	193	560 00
San Jose High	Millinery	Part-time	2	4-6	144	200 00
San Jose High	Cooking	Part-time	1	4	33	80 00
Santa Barbara High	Home economics	Full-time	1	30	15	600 00
Santa Monica High	Dressmaking	Part-time	1	4	32	80 00
Santa Monica High	Millinery	Part-time	2	4	77	120 00
Santa Monica High	Cooking	Part-time	1	4	31	80 00
Santa Rosa High	Dressmaking	Part-time	1	6	16	20 00
Santa Rosa High	Millinery	Part-time	1	8	54	88 88
Santa Rosa High	Dietetics	Part-time	1	4	11	17 77
Stockton Evening	Millinery	Part-time	2	4	48	160 00
Stockton Evening	Dietetics	Part-time	2	4	40	160 00
Stockton Evening	Home making	Part-time	3	4	58	240 00
Stockton Evening	Americanization	Part-time	3	4	52	240 00
Totals			75		2,304	\$7,301 85

STATISTICAL TABLE XIV.

Federal and State Aided Classes in Home Economics for the Year 1919-20.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	30-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Adin, Big Valley Joint Union	Combination home economics	Part-time	1	10	9	\$126 95
Bakersfield, Lincoln Elementary	Home economics	Full-time	2	30	44	913 85
Berkeley—						
Berkeley High	Cooking	Part-time	1	4	46	60 91
Berkeley High	Millinery and dressmaking	Part-time	2	4	97	121 85
Berkeley High	Millinery	Part-time	1	4	29	32 95
Edison Intermediate	Millinery, dressmaking, home furnishing	Part-time	1	4	30	60 91
Edison Intermediate	Millinery and home furnishing	Part-time	1	4	33	11 15
Garfield Intermed.	Millinery and dressmaking	Part-time	1	4	53	60 91
Willard Intermed.	Millinery and dressmaking	Part-time	1	4	32	60 91
Inglewood High	Dressmaking	Part-time	3	4-6	89	169 65
Inglewood High	Millinery	Part-time	3	6	99	97 50
Long Beach High	Dressmaking	Part-time	1	4	34	61 11
Long Beach High	Foods, dietetics	Part-time	1	4	14	30 45
Long Beach High	Millinery	Part-time	5	4	252	250 05
Los Angeles—						
Boyle Heights Inter.	Home economics	Full-time	1	30	25	456 55
Central Evening	Cooking	Part-time	1	6	28	79 95
Central Evening	Dressmaking	Part-time	1	6	101	91 30
Central Evening	Millinery	Part-time	1	6	52	61 25
Gardena High	Short unit home economics	Part-time	1	4	25	39 60
Gardena High	Dressmaking	Part-time	1	4	27	54 85
Gardena High	Millinery	Part-time	1	4	50	54 85
Jefferson High	Home economics	Full-time	2	30	47	913 85
Polytechnic Evening	Cooking	Part-time	3	6-8	88	77 70
Polytechnic Evening	Dressmaking	Part-time	5	4-6-9	112	141 65
Polytechnic Evening	Household mechanics	Part-time	1	4	29	56 75
Polytechnic Evening	Millinery	Part-time	15	4-6-9	377	650 70
Oakland—						
Fremont High	Dressmaking	Part-time	4	4½	108	145 65
Fremont High	Millinery	Part-time	4	4½	127	242 75
Garfield Intermed.	Home economics	Full-time	1	30	23	455 95
Garfield Intermed.	Dressmaking	Part-time	1	4½	18	35 25
Oakland High	Dressmaking	Part-time	1	4½	45	39 30
Oakland High	Millinery	Part-time	2	4½	71	118 55
Technical High	Dressmaking	Part-time	3	4½	123	197 95
Technical High	Millinery	Part-time	8	4½	256	483 90
Vocational High	Home economics	Full-time	2	30	30	892 90
Vocational High	Dressmaking	Part-time	8	4-4½-6	182	613 65
Vocational High	Interior decoration	Part-time	1	4	28	42 65
Vocational High	Millinery	Part-time	5	6	160	456 95
Prescott Intermed.	Home economics	Full-time	1	30	21	456 95
Ontario—						
Chaffey Union High	Cooking and dressmaking	Part-time	1	4	77	16 10
Chaffey Union High	Home nursing	Part-time	1	4	56	24 15
Chaffey Union High	Millinery and dressmaking	Part-time	1	4	48	27 30
Paso Robles High	Dressmaking, nursing, home mgt.	Part-time	1	4	54	61 75
Rossville Union High	Foods and health	Part-time	1	4	39	59 75
Rossville Union High	Millinery, dressmaking, home furnishing	Part-time	1	4	38	50 75
Sacramento High	Dressmaking	Part-time	2	4	115	91 30
Sacramento High	Home nursing	Part-time	2	4	136	121 85
Sacramento High	Millinery	Part-time	2	6	144	137 10
San Diego—						
Afternoon and Ev'g.	Business law and home account'g	Part-time	1	4	36	60 11
Afternoon and Ev'g.	Cooking	Part-time	2	4	95	115 75
Afternoon and Ev'g.	Dressmaking	Part-time	16	4	617	815 60
Afternoon and Ev'g.	Millinery	Part-time	13	4	446	696 65

STATISTICAL TABLE XIV—Continued.

Federal and State Aided Classes in Home Economics for the Year 1919-20.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
San Jose High	Cooking	Part-time	2	4	91	\$65 50
San Jose High	Dressmaking	Part-time	5	6	192	440 50
San Jose High	Millinery	Part-time	6	4	323	320 20
Santa Barbara High	Home economics	Full-time	1	30	25	456 45
Santa Monica High	Cookery	Part-time	1	4	14	38 49
Santa Monica High	Dressmaking	Part-time	1	4	29	60 01
Santa Monica High	Millinery	Part-time	4	4	124	205 50
Santa Rosa High	Millinery and dressmaking	Part-time	2	4	126	121 85
Stockton High	Home economics	Full-time	1	30	13	456 95
Stockton High	Millinery	Part-time	4	4	188	205 75
Whittier High	Dressmaking	Part-time	1	4	21	60 91
Whittier High	Millinery	Part-time	4	4	107	243 65
Totals			174		6,178	\$43,900 77

STATISTICAL TABLE XV.

Federal and State Aided Classes in Home Economics for the Year 1920-21.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Bakersfield—						
Lincoln Elementary	Home economics	Full-time	2	30	60	\$936 24
Berkeley—						
Berkeley High	Millinery	Part-time	2	4	54	122 12
Berkeley High	Millinery and dressmaking	Part-time	3	4	68	161 96
Edison Intermediate	Millinery and dressmaking	Part-time	1	4	23	59 78
Garfield Intermediate	Millinery and dressmaking	Part-time	1	4	43	63 22
Willard Intermediate	Millinery and dressmaking	Part-time	3	4	80	96 10
East San Diego Elem.	Millinery and dressmaking	Part-time	1	4	24	22 54
Inglewood Union High	Dressmaking	Part-time	5	6	167	468 18
Inglewood Union High	Millinery	Part-time	3	6	98	296 22
Long Beach High	Dressmaking	Part-time	1	4	23	65 84
Long Beach High	Millinery	Part-time	7	4	190	391 46
Los Angeles—						
Boyle Hts. Inter.	Home economics	Full-time	1	30	25	468 12
Central Evening	Dressmaking	Part-time	2	5-6	121	144 64
Central Evening	Millinery	Part-time	1	6	87	98 74
Gardena High	Dressmaking	Part-time	1	4	27	62 36
Gardena High	Millinery	Part-time	1	4	67	62 56
Jefferson High	Home economics	Full-time	1	30	28	468 12
Jefferson High	Home nursing and child care	Part-time	1	4	61	53 70
Jefferson High	Millinery and dressmaking	Part-time	2	4-6	112	134 26
Lafayette Jr. High	Home economics	Full-time	2	30	40	702 48
Polytechnic Evening	Dressmaking	Part-time	4	4-6-10	79	261 56
Polytechnic Evening	Household mechanics	Part-time	1	4	26	27 72
Polytechnic Evening	Millinery	Part-time	13	4-6-9-10	580	767 36
San Pedro High	Millinery and dressmaking	Part-time	1	4	63	67 56
30th St. Jr. High	Home economics	Full-time	1	30	20	234 66
National City—						
Sweetwater Un. High	Millinery	Part-time	1	4	20	62 26
Sweetwater Un. High	Millinery and dressmaking	Part-time	1	4	17	62 26

STATISTICAL TABLE XV—Continued.

Federal and State Aided Classes in Home Economics for the Year 1920-21.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Oakland—						
Clawson Jr. High	Dressmaking	Part-time	1	6	33	93 74
Fremont High	Dressmaking	Part-time	2	4- $\frac{1}{2}$	74	135 98
Fremont High	Millinery	Part-time	3	4 $\frac{1}{2}$ -5	136	187 06
Garfield Jr. High	Dressmaking	Part-time	1	6	25	88 34
Garfield Jr. High	Home economics	Full-time	1	30	22	468 12
Garfield Jr. High	Millinery	Part-time	1	4	26	65 84
Lazear Jr. High	Home economics	Full-time	1	30	19	468 12
Lockwood Jr. High	Dressmaking	Part-time	3	4	98	192 28
Lockwood Jr. High	Millinery	Part-time	2	4	60	131 66
Oakland High	Dressmaking	Part-time	1	4	40	62 36
Oakland High	Millinery	Part-time	2	4-5	65	144 64
Prescott Jr. High	Home economics	Full-time	1	30	22	468 12
Technical High	Dressmaking	Part-time	4	4 $\frac{1}{2}$ -5	153	301 38
Technical High	Millinery	Part-time	6	4-5	190	460 00
Tompkins Jr. High	Dressmaking	Part-time	1	4 $\frac{1}{2}$	20	74 06
Tompkins Jr. High	Millinery and dressmaking	Part-time	1	4 $\frac{1}{2}$	18	74 06
Tompkins Jr. High	Home economics	Full-time	1	30	20	468 12
Vocational High	Dressmaking	Part-time	5	6	121	468 18
Vocational High	Millinery	Part-time	5	6	168	468 18
Vocational High	Home economics	Full-time	1	30	20	468 12
Ontario—						
Chaffey Union High	Cooking	Part-time	1	4	46	25 98
Chaffey Union High	Dressmaking	Part-time	2	4	88	145 50
Chaffey Union High	Home nursing	Part-time	1	4	30	19 06
Chaffey Union High	Millinery	Part-time	2	4	52	41 56
Roseville Union High	Short unit	Part-time	1	4	22	46 78
Sacramento High	Dressmaking	Part-time	2	4	128	138 58
Sacramento High	Millinery	Part-time	6	4-6	436	396 70
Sacramento High	Millinery and dressmaking	Part-time	4	5	321	297 94
Sacramento High	Tailoring	Part-time	1	4	36	69 30
San Diego High	Dressmaking	Part-time	16	4	468	845 34
San Diego High	Millinery	Part-time	12	4	404	761 32
San Jose High	Dressmaking	Part-time	5	4	218	454 72
San Jose High	Foods and nutrition	Part-time	1	4	45	65 84
San Jose High	Millinery	Part-time	6	4	410	394 96
Santa Barbara High	Home economics	Full-time	2	30	40	936 24
Santa Monica High	Millinery	Part-time	3	4 $\frac{1}{2}$	83	186 50
Stockton High	Dressmaking	Part-time	2	4-6	52	144 64
Stockton High	Dietetics (nursing)	Part-time	1	4	19	53 70
Stockton High	Millinery	Part-time	6	4	213	355 10
Whittier High	Dressmaking	Part-time	1	4	24	69 30
Whittier High	Millinery	Part-time	4	4	91	277 14
Totals			185		6,762	\$17,375 96

STATISTICAL TABLE XVI.

Federal and State Aided Classes in Home Economics for the Year 1921-22.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Alameda High-----	Dressmaking and millinery----	Part-time	2	5-6	151	\$124 50
Bakersfield-- Lincoln Elementary	Home economics -----	Full-time	2	30	40	1,063 50
Berkeley-- Berkeley Part-time--	Dressmaking and millinery----	Part-time	2	4	85	201 34
Edison Junior-----	Dressmaking and millinery----	Part-time	1	4	41	96 00
Garfield Junior-----	Dressmaking and millinery----	Part-time	1	4	31	96 00
Washington Junior--	Dressmaking and millinery----	Part-time	1	4	34	96 00
Willard Intermed-----	Dressmaking -----	Part-time	1	4	37	104 00
Willard Intermed-----	Dressmaking and millinery----	Part-time	1	4	35	101 34
Willard Intermed-----	Millinery -----	Part-time	1	4	34	104 00
East San Diego-- Edison Elementary	Millinery -----	Part-time	1	-----	41	93 34
Powder Union High-----	Dressmaking -----	Part-time	1	4	53	56 00
Fresno Technical High	Millinery -----	Part-time	2	4	164	152 60
Fullerton Union High	Millinery -----	Part-time	1	4	52	63 00
Fullerton Union High	Short unit -----	Part-time	1	4	41	68 00
Inglewood Union High	Dressmaking -----	Part-time	5	5½	165	534 00
Inglewood Union High	Millinery -----	Part-time	4	6	115	435 00
Long Beach Polytech.	Dressmaking -----	Part-time	3	4	119	304 02
Long Beach Polytech.	Millinery -----	Part-time	11	4	303	1,109 40
Los Angeles-- Boyle Heights Jr.	Home economics -----	Full-time	1	30	23	455 80
Franklin High-----	Dressmaking -----	Part-time	1	9	65	228 00
Franklin High-----	Dressmaking and millinery----	Part-time	2	12	81	294 60
Franklin High-----	Millinery -----	Part-time	2	8	93	208 00
Gardena High-----	Dressmaking -----	Part-time	1	4	38	101 34
Gardena High-----	Millinery -----	Part-time	1	4	51	101 34
Jefferson High-----	Dressmaking and millinery----	Part-time	2	4-6	135	261 66
Jefferson High-----	Home nursing -----	Part-time	2	4	85	160 00
Jefferson High-----	Home economics -----	Full-time	1	30	30	455 80
Lafayette Jr.-----	Home economics -----	Full-time	2	30	46	911 60
Manual Arts High-----	Millinery -----	Part-time	2	4-6	122	200 60
Polytechnic Evening	Dressmaking -----	Part-time	13	4-6-10	589	861 34
Polytechnic Evening	Home nursing -----	Part-time	1	4	36	14 00
Polytechnic Evening	Millinery -----	Part-time	15	4-6-9-10	938	1,220 34
Polytechnic Evening	Woodfinishing -----	Part-time	1	6	64	96 00
San Pedro High-----	Dressmaking and millinery----	Part-time	1	8	40	160 00
30th St. Jr. High-----	Home economics -----	Full-time	1	30	13	227 90
Modesto High-----	Dressmaking and millinery----	Part-time	1	10	22	240 00
Mountain View Un. Hi.	Dressmaking -----	Part-time	1	4	26	64 00
Mountain View Un. Hi.	Millinery -----	Part-time	2	4	34	128 00
National City-- Sweetwater Un. High	Dressmaking -----	Part-time	2	4	46	122 00
Sweetwater Un. High	House decoration -----	Part-time	1	4	18	38 00
Sweetwater Un. High	Millinery -----	Part-time	2	4	45	104 00
Oakland-- Fremont High-----	Dressmaking -----	Part-time	1	5	45	133 24
Fremont High-----	Millinery -----	Part-time	1	5	54	133 54
Garfield Junior-----	Home economics -----	Full-time	1	30	20	607 70
Lazear Junior-----	Home economics -----	Full-time	1	30	21	607 70
Oakland High-----	Millinery -----	Part-time	2	5	60	265 68
Prescott Junior-----	Home economics -----	Full-time	1	30	19	455 80
Technical High-----	Business law and accounting	Part-time	1	6	86	108 00
Technical High-----	Dressmaking -----	Part-time	1	7½	40	200 00
Technical High-----	Millinery -----	Part-time	1	7½	48	200 00
Technical High-----	Dressmaking -----	Part-time	1	4½	33	120 00
Tompkins Junior-----	Dressmaking -----	Part-time	1	4½	15	120 00
Tompkins Junior-----	Dressmaking and millinery----	Part-time	1	30	25	607 70
Tompkins Junior-----	Home economics -----	Full-time	1	30	25	607 70
Vocational High-----	Dressmaking -----	Part-time	5	6	102	400 00
Vocational High-----	Millinery -----	Part-time	5	6	235	540 00

STATISTICAL TABLE XVI—Continued.

Federal and State Aided Classes in Home Economics for the Year 1921-22.

Place and school	Name of vocation	Full-time, part-time or special class	Number of classes	60-minute hrs. of instruction per week	Enrollment	Amount of federal and state aid
Oakland—Continued.						
Vocational High.....	Home economics	Full-time	1	30	29	455 80
Palo Alto Union High.....	Dressmaking	Part-time	1	12	24	128 60
Palo Alto Union High.....	Food and home management.....	Part-time	1	12	27	128 60
Princeton Jt. Un. High.....	Home economics	Full-time	1	30	11	677 70
Riverside Girls High.....	Short unit	Part-time	1	8	48	41 34
Riverside Girls High.....	Home economics	Full-time	1	30	19	697 70
Roseville Union High.....	Dressmaking and millinery.....	Part-time	2	4	87	122 66
Sacramento High.....	Dressmaking	Part-time	3	4	124	285 34
Sacramento High.....	Dressmaking and millinery.....	Part-time	6	4	329	449 96
Sacramento High.....	Millinery	Part-time	3	4	244	253 34
San Diego High.....	Business law and accounting.....	Part-time	1	4	72	93 34
San Diego High.....	Cooking	Part-time	1	4	34	76 00
San Diego High.....	Dressmaking and millinery.....	Part-time	2	4	70	154 68
San Diego High.....	Dressmaking	Part-time	14	4	467	1,190 68
San Diego High.....	Millinery	Part-time	16	4	572	1,362 68
San Jose High.....	Cooking	Part-time	1	4	40	76 00
San Jose High.....	Dressmaking	Part-time	4	4	147	288 00
San Jose High.....	Home nursing	Part-time	2	4	180	117 00
San Jose High.....	Millinery	Part-time	6	4	243	438 00
Santa Barbara High.....	Home economics	Full-time	2	30	35	1,215 44
Santa Monica High.....	Dressmaking	Part-time	2	4	46	152 00
Santa Monica High.....	Millinery	Part-time	2	4	91	152 00
Santa Paula Un. High.....	Dressmaking and millinery.....	Part-time	1	4	34	44 00
Sebastopol—						
Analy Union High.....	Millinery	Part-time	1	6	37	124 00
Stockton High.....	Dressmaking	Part-time	4	4	135	256 00
Stockton High.....	Dietetics	Part-time	1	4	20	64 00
Stockton High.....	Millinery	Part-time	10	4	418	640 00
Sutter Creek Un. High.....	Dressmaking and millinery.....	Part-time	1	5	41	133 34
Whittier Union High.....	Dressmaking	Part-time	1	4	48	80 00
Whittier Union High.....	Millinery	Part-time	3	4	146	240 00
Totals.....			217		9,005	\$25,970 82

STATISTICAL TABLE XVII.

Federal and State Aided Part-Time General Continuation Classes for the Year 1920-21.

High school district	Hours of instruction per year	Enrollment		Total allowance
		Male	Female	
Alameda	144	125	62	\$120 00
Azusa, Citrus Union High.	144	37	27	34 00
Berkeley	144	187	355	500 00
Chico	144	30	35	33 00
Chino	144	35	35	40 00
Crockett, John Swett Union High.	144	21	19	31 00
Eureka	144	41	27	40 00
Fresno	144	197	133	750 00
Huntington Park	144	23	12	16 00
La Verne, Bonita Union High.	144	10	17	13 00
Long Beach	144	76	55	750 00
Los Angeles	144	743	634	3,000 00
Martinez, Alhambra Union High.	144	30	18	15 00
Modesto	144	33	21	28 00
Monterey	144	24	37	23 00
Oakland	144	581	425	1,500 00
Ontario, Chaffey Union High.	144	42	27	17 00
Palo Alto	144	28	43	46 00
Pasadena	144	34	28	182 00
Petaluma	144	35	37	25 00
Pomona	144	13	30	35 00
Richmond	144	82	62	141 00
Sacramento	144	309	214	750 00
San Diego	144	73	57	356 70
San Francisco	144	566	406	3,000 00
Santa Ana	144	19	28	8 00
Santa Monica	144	30	13	9 00
Santa Rosa	144	68	48	66 00
South San Francisco	144	22	16	32 00
Stockton	144	169	88	500 00
Vallejo	144	102	36	76 00
Visalia	144	9	14	16 00
Watsonville	144	13	6	8 00
Totals		3,808	3,157	\$12,170 70
Total both sexes		6,965		

STATISTICAL TABLE XVIII.

Federal and State Aided Part-Time General Continuation Classes for the Year
1921-22.

High school district	Hours of instruction per year	Enrollment		Total allowance
		Male	Female	
Alameda	144	144	120	\$458 56
Azusa, Citrus Union High.....	144	34	37	96 96
Bakersfield, Kern County Union High.....	144	11	5	16 60
Berkeley	144	295	255	1,495 50
Chino	144	26	22	79 20
El Monte, El Monte Union High.....	144	17	28	112 50
Fort Bragg, Fort Bragg Union High.....	144	12	4	32 96
Fowler	144	8	8	27 74
Fresno	144	341	306	1,454 06
Fullerton	144	10	4	72 44
Huntington Park	144	65	48	192 50
La Verne, Bonita High School.....	144	25	29	79 96
Long Beach.....	144	150	79	1,217 90
Los Angeles	144	1,765	1,285	6,601 80
Martinez, Alhambra Union High.....	144	11	12	60 70
Modesto	144	57	19	145 20
Monterey	144	40	26	151 60
Napa	144	22	34	107 92
Oakland	144	1,119	846	2,685 70
Ontario, Chaffey Union High.....	144	39	45	174 80
Palo Alto.....	144	22	42	158 72
Pasadena	144	142	63	593 60
Petaluma	144	55	55	295 42
Pomona	144	78	60	258 60
Redondo Beach.....	144	6	7	28 64
Reedley	144	37	16	88 80
Richmond, Richmond Union High.....	144	126	90	304 20
Riverside	144	85	62	306 50
Sacramento	144	596	349	2,216 62
San Bernardino.....	144	31	19	109 64
San Diego.....	144	192	130	947 70
San Francisco	144	1,378	967	5,699 80
San Jose.....	144	246	184	957 50
San Rafael	144	10	9	59 76
Santa Cruz	144	41	17	80 10
Santa Monica	144	47	31	129 52
Santa Rosa.....	144	73	57	297 90
Sebastopol, Anay Union High.....	144	6	2	15 84
Stockton	144	245	197	1,044 82
South San Francisco.....	144	40	19	133 00
Vallejo	144	77	21	240 64
Visalia	144	9	23	52 80
Totals.....		7,643	5,632	\$29,174 22
Total both sexes.....		13,275		

STATISTICAL TABLE XIX.

Federal and State Aided Vocational Teacher-Training Classes for the Year 1917-18.

Name of school	Location of class	Kinds of teachers prepared	Enrollment	
			M.	F.
University of California	Davis	Agricultural	47	
University of California	Oakland	Trade and industrial	44	
State Normal School	Los Angeles	Trade and industrial	61	
State Normal School	Los Angeles	Home economics	3	
State Normal School	Chico	Home economics	1	
State Normal School	Fresno	Home economics	6	
State Normal School	Santa Barbara	Home economics	7	
State Normal School	San Diego	Home economics	1	
Total			170	

STATISTICAL TABLE XX.

Federal and State Aided Vocational Teacher-Training Classes for the Year 1918-19.

Name of school	Location of class	Kinds of teachers prepared	Enrollment	
			M.	F.
University of California	Davis, Riverside	Agricultural	153	40
University of California	Berkeley	Trade and industrial	52	26
State Normal School	Los Angeles	Trade and industrial	28	21
State Normal School	Los Angeles	Home economics		8
State Normal School	Fresno	Home economics		6
State Normal School	San Jose	Home economics		6
State Normal School	San Diego	Home economics		7
State Normal School	Santa Barbara	Home economics		12
State Normal School	Chico	Home economics		
Totals			233	126

STATISTICAL TABLE XXI.

Federal and State Aided Vocational Teacher-Training Classes for the Year 1919-20.

Name of school	Location of class	Kinds of teachers prepared	Enrollment	
			M.	F.
University of California	Davis	Agricultural	91	21
University of California	Riverside	Agricultural	12	1
State Normal School	Chico	Home economics		4
State Normal School	Fresno	Home economics		4
State Normal School	San Diego	Home economics		11
State Normal School	San Jose	Home economics		7
State Normal School	Santa Barbara	Home economics		10
University of California (Southern Branch)	Los Angeles	Home economics		26
University of California	Berkeley	Trade and industrial	87	80
Extension	19 localities	General part-time	222	439
University of California (Southern Branch)	Los Angeles	Trade and industrial	52	28
Extension (Southern Branch)	11 localities	General part-time	159	366
Totals			623	597

STATISTICAL TABLE XXII.

Federal and State Aided Vocational Teacher-Training Classes for the Year 1920-21.

Name of school	Location of class	Kinds of teachers prepared	Enrollment	
			M.	F.
University of California	Davis	Agricultural	112	17
University of California	Ontario	Agricultural	5	
University of California	Oakland Extension	Trade and industrial	72	81
Extension	San Jose	Trade and industrial	17	
Extension	Berkeley	General part-time	40	37
University of California (Southern Branch)	Los Angeles	Trade and industrial	63	31
University of California (Southern Branch)	Los Angeles	General part-time	20	40
University of California (Southern Branch)	Los Angeles	Home economics		21
State Normal School	Chico	Home economics		11
State Normal School	Fresno	Home economics		3
State Normal School	San Diego	Home economics		15
State Normal School	San Jose	Home economics		6
State Normal School	Santa Barbara	Home economics		21
Totals			229	284

STATISTICAL TABLE XXIII.

Federal and State Aided Vocational Teacher-Training Classes for the Year 1921-22.

Name of school	Location of class	Kinds of teachers prepared	Enrollment	
			M.	F.
State Teachers College	Fresno	Home economics		3
State Teachers College	San Diego	Home economics		8
State Teachers College	Chico	Home economics		15
State Teachers College	Santa Barbara	Home economics		3
State Teachers College	San Jose	Home economics		7
University of California (Southern Branch)	Los Angeles	Home economics		20
University of California	Ontario, S.S. '21	Agricultural	101	19
University of California	Berkeley	Agricultural	52	6
University of California	Concord	Agricultural	3	
University of California	Ontario	Agricultural	2	1
University of California	Davis	Agricultural	9	4
University of California	Berkeley, S.S. '21	Part-time Gen. Con.	9	26
University of California (Southern Branch)	Los Angeles, S.S. '21	Part-time Gen. Con.	20	40
University of California (Southern Branch)	Los Angeles	Part-time Gen. Con.	10	66
University of California	Berkeley, S.S. '21	Trade and industrial	70	29
University of California	Berkeley	Trade and industrial	2	3
University of California (Southern Branch)	Los Angeles, S.S. '21	Trade and industrial	44	16
University of California	Oakland	Trade and industrial	67	16
University of California	San Jose	Trade and industrial	16	
University of California	Stockton	Trade and industrial	22	
University of California (Southern Branch)	Los Angeles	Trade and industrial	100	8
University of California	San Diego	Trade and industrial	17	
Totals			544	290

DIVISION IV. ADULT EDUCATION.

Back in the early days when children were permitted but not compelled by the state to attend school, in the days when child labor was considered an essential personal and social asset, provision was made in the constitution of the state for the maintenance of evening elementary schools, wherein children of tender age, who had already worked ten or more hours during the day, could secure that knowledge of the elementary school subjects considered by all as essential for effective living.

Of course in those days it was considered necessary that these children should labor in order to live; and a remnant of that belief, and the practice growing out of it, still persists in the issuance of work permits only to such children as are not economically provided for by parents, relatives, or others. Even up to two years ago the law required that where children were given such permits they should be required to attend school for two hours each night.

As the years went by, as the people of the state became more prosperous, and as the compulsory education age was advanced, the enrollment of children and minors in evening elementary and evening secondary schools decreased.

Then came the movements for vocational education, the eradication of illiteracy, and the training of immigrants for citizenship, and the evening schools of the state began to rapidly develop into institutions for the education and training of employed adults.

Prior to ten years ago most of the evening schools of the state were of elementary grade, and of those that were of secondary grade two only stood out prominently as schools for the training of adults. Since that time a rapid increase of such schools has occurred.

Up to 1917 it was necessary for an evening elementary, or an evening high school, to maintain instruction on the evening of every school day of the week and during the entire annual school term. No legal provision was made for the maintenance of evening schools or classes that maintained instruction for less time. Since very few adults desire to give up all of the evenings of the week to further schooling, it was very difficult, and frequently impossible, to legally maintain adult schools in districts other than the large cities.

In 1917 the law was changed in such manner as to permit elementary and high school districts to maintain special classes in which they could give instruction in any subject, at any place in the district, during any hour of the day, on any day of the week, and for any period of the year. This resulted in the immediate development of special day and evening classes in a large number of the smaller high schools of the state.

Interpretation of Statistical Table XXIV.

The story of the development of adult education is shown in Statistical Table XXIV; however, certain irregularities, which need explanation, appear in this table.

The number of evening high schools and the number of high schools maintaining special classes appear to fluctuate from year to year. How-

ever, this is not the case. These schools have constantly operated, but have been reported some years as evening high schools, and other years as special classes.

STATISTICAL TABLE XXIV.

High School Statistics for Last Six Years.

	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22
Number of day high schools.....	258	266	281	282	284	287	293	295
Number of evening high schools...	9	24	28	32	36	32	24	44
Number that maintained special classes.....				44	72	108	116	95
Enrollment, day high schools.....	60,203	66,985	74,117	72,206	75,882	87,361	104,419	121,469
Enrollment, evening high schools...	16,223	28,420	38,567	45,624	50,459	57,718	56,119	65,511
Enrollment in special classes.....				7,929	10,745	16,691	27,005	25,209
Enrollment in evening high schools and special classes.....	16,223	28,420	38,567	53,553	61,195	74,409	83,124	89,720
Enrollment in part-time general continuation classes.....							6,965	14,157
Grand total of persons enrolled in high schools.....	76,429	95,405	112,684	125,759	137,077	161,770	194,508	225,646

During the years 1919-20 and 1920-21, a number of evening high schools were disqualified as such because they were not fully conforming with the provisions of the law, which required them to maintain regular courses preparing for the University of California. Where this happened such schools were reported as maintaining special classes instead of evening schools.

The legislature of 1921 eliminated this technical requirement, and also placed the special adult classes on a financial basis similar to the evening schools, with the result that the report of 1921-22 shows a great increase in the number of evening high schools and a relative decrease in the number of schools maintaining special classes.

In considering the progress of adult education, it is, then, necessary to study together the development of both evening schools and the special classes of day high schools.

It will be noted that there was a very rapid development in enrollment in these schools up to 1920; and that since that time the enrollment has not increased as rapidly as previously. There are two factors which probably account for this:

First, there was an accumulation of adult illiterates, immigrants, and workers, who needed further education. The promotion of citizenship and vocational education, and the increase in schools and classes caused a piling up of enrollment during certain years, especially during the period of the war and immediately thereafter.

Second, during the last two years, the regular day high schools have increased their enrollment from 83,000 to 121,000. This was an unprecedented increase, which created a difficult financial situation for high school departments, with the result that many of them had to reduce their service in order to keep within their budgets; and adult education being perhaps less imperative—though this may be questioned where illiteracy is concerned—was the project curtailed.

When the regular day high school has passed through the pioneering stage of its development; when it enrolls all of the youths that can profit by, or desire a secondary education, it can then give more attention to the extension of the service; and adult education will come into its own.

Economy of Adult Education.

In the meantime there are three classes of adults that should be promptly provided for even though it may mean curtailment in other public expenditures. They are:

First, the native illiterates.

Second, the immigrants.

Third, the employed who need instruction supplementing their occupations.

There is no question but that the investment of a reasonable amount of public funds in further education for the above classes of persons will pay greater dividends in citizenship efficiency than the expenditure of an equal amount for any other class—children and youths not excepted.

Figures based upon the cost of instruction of 8671 adults in home-making subjects, under the provisions of the Federal and State Vocational Education Acts, show that the total average cost to federal, state, county and local districts, is \$7.04 per capita. These figures will probably hold for other lines of instruction.

Of course it must be remembered that many of these persons do not attend the classes for any great length of time, but having secured the instruction they desire, why should they not give up their places to others.

The average daily attendance on evening schools and the special adult classes, is usually about ten per cent of the enrollment. This means that the average time spent on attendance, by each person, is 36 sessions or 72 clock hours per annum.

Adult Schools and Classes Offer the Only Opportunity to Many.

The evening schools and the special classes offer many adults their only chance to further prepare themselves for the performance of some of the most important duties and responsibilities of citizenship.

For the immigrant who knows little or no English, and for the illiterate native American, these schools and classes offer instruction in our language. They also offer such persons an opportunity to learn something of our local, state and national governments; our social institutions, our homes, and our community life.

For the commercial worker, the craftsman, and the homemaker, they offer applied work in the special fields and work in English, science, mathematics, drawing, and art, supplementing the occupations.

For the business man they offer instruction in accounting and auditing, business organizations, commercial law, advertising, commercial art, modern languages, and economics.

For the citizen who has not had his full share of schooling, they offer instruction in languages, history, literature, and the other arts.

In short, these schools and classes are adjusted to the present needs of the people of the respective communities that support them. They offer instruction necessary to enable these people to remove the deficiencies in their education which handicap them for full participation as citizens.

In order that the reader may secure a clearer notion of the character and extent of the courses of instruction provided for adult schools and classes, there are herewith appended a program of studies provided by

a district with a population of approximately 40,000, and a program of studies provided by a district with a population of more than 200,000.

These are typical city courses of instruction and are maintained with little change from year to year. Of course, the smaller the high school district, the narrower becomes the range of subjects maintained. However, the choice of subjects in these small high schools usually rests with the patrons, and they vary from year to year. For instance, a rural high school may maintain a course in farm accounting for a period of two or three months. This may fairly well meet the needs of the community for several years. Following this, a short course may be maintained in pruning, cover crops, or any of a large number of subjects designed to better prepare the farmer for his work. The rural high schools usually maintain courses for home-makers, and when necessary, courses in English, naturalization, and Americanization for immigrants.

Program of Evening High School in a California City with a Population of About 40,000.

Americanization (for foreigners)	Machine shop practice
Anatomy, physiology (nurses)	Machine design
Architectural drawing	Mechanical drawing
Arithmetic, business	Millinery (beginning)
Auto practice (for drivers)	Millinery (advanced)
Auto repairs (for garage workers)	Naturalization (for declarants)
Basketry	Office appliances (comptometer, dictaphone, etc.)
Blue print reading	Orchestra
Bookkeeping III, IV	Pattera making
Bookkeeping I	Penmanship
Bookkeeping II	Public speaking, parliamentary law
Business Efficiency (salesmen, teachers, foremen)	Physical training (men)
Business English III, IV	Physical training (women)
Business English II	Shop mathematics
Business English 1b	Shop mathematics
Cabinet making	Shorthand I
Carpentry	Shorthand 1b
Chemistry (industrial)	Shorthand 1a
Chemistry (nurses)	Shorthand II
Community singing	Shorthand III, IV
Commercial art (lettering, posters, etc.)	Spanish (beginning)
Cooking	Spanish (conversational)
Dietetics (nurses)	Spanish (advanced)
Dressmaking	Typing 1a (practice class)
Electricity (industrial)	Typing 1b (practice class)
Freehand drawing	Typing II
French (beginning)	Typing III, IV
French (conversational)	Swimming (men)
French (advanced)	Swimming (women)
Literature (selected)	Wood turning

List of Subjects Taught in the Evening High Schools of a California City with a Population Exceeding 200,000.

Accounting and auditing	Geometry I
Acetylene welding and cutting	Geometry II
Advertising	History, U. S.
Algebra	Home care of the sick (Red Cross)
Americanization (English for new Americans)	Home gardening—plant propagation, soil preparation, etc.
Americanization (Teachers' training course)	Interior decorating
Anatomy and physiology (nurses)	Italian
Arithmetic (academic)	Journalism
Architectural drafting	Library
Arts and crafts	Literature, English and American
Auto electricity (ignition, etc.)	Machine design (adv. mech. drawing)
Auto practice (lecture and demonstration)	Machine shop practice
Auto repairs	Mechanics and strength of materials
Biology and bacteriology (nurses)	Mechanical drawing
Bookkeeping I	Mechanical engineering
Bookkeeping II	Millinery I
Business arithmetic	Millinery, advanced II
Business correspondence	Naturalization, (for declarants) I
Business English I	Naturalization, (for declarants) II
Business English II	Office appliances (comptometer, dictaphone, etc.)
Business law	Office practice
Cabinet making	Orchestra, community
Carpentry	Orchestra, ensemble
Chemistry I, industrial and college prep.	Orchestra, individual
Chemistry II, industrial and college prep.	Pattern making and wood turning
Chemistry and physics (nurses)	Parliamentary law
Choral, sight singing and harmony	Penmanship (practice)
Civics	Penmanship (teachers' course)
Civil service preparation for clerks and stenographers	Photography
Commercial arithmetic	Physics
Commercial art—lettering, posters, etc.	Physical training (men)
Commercial law	Physical training (women)
Commercial, general bookkeeping, penmanship, arithmetic, etc.	Physical training (teachers' training course)
Comptometer operation	Public speaking, including parliamentary law
Cooking	Radio telegraphy
Desserts for the family, hot breads, etc.	Salesmanship (general and special)
Dictation	Scientific motherhood
Dietetics (nurses P. M.—Red Cross Evenings)	Shorthand I
Dramatics	Shorthand II
Drawing, freehand	Shorthand III
Drawing, commercial	Short story writing
Dressmaking I	Shop mathematics (courses applied to various trades)
Dressmaking II	Singing
Economics, applied	Spanish I
Electric shop practice	Spanish II
Electrical engineering—theory and laboratory	Spanish III
English, commercial I	Spoken English
English, commercial II	Stenotypy
English composition	Trigonometry
English literature	Typing I
First aid (Red Cross)	Typing II
Forging and blacksmithing	Typing III
French	Typing, for blind
	Word study

STATISTICAL TABLE XXV.

Enrollment of Part-Time, Adult, and Full-Time Students in the Secondary Schools of the State.

High school, by place and name	Compulsory part-time classes		Special adult classes		Evening schools		Full-time day classes		Grand total
	Male	Female	Male	Female	Male	Female	Male	Female	
Adin, Big Valley Joint Union							24	32	56
Alameda	128	110	180		650	416	610	665	2,759
Alhambra Union	12	6			151	180	413	480	1,272
Alpaugh							10	12	22
Alturas, Modoc Union							60	74	134
Anaheim Union							207	279	486
Anderson Union							47	62	109
Angels Camp, Bret Harte Union							45	47	92
Antioch, Riverview Union			107	2			72	107	288
Arcaata Union	17	1	33	10			101	121	286
Arroyo Grande Union							53	83	136
Atascadero, Marg. Black Union							70	78	148
Auburn, Placer Union							122	138	260
Azusa, Citrus Union	34	37			114	84	122	133	324
Bakersfield, Kern County Un.	10	4	334	323			670	678	2,010
Banning Union							47	32	79
Barstow Union							32	32	64
Beaumont							28	43	71
Benicia			61	11			29	29	133
Berkeley	207	195	48	353	955	1,116	1,197	1,244	5,518
Biggs Union							50	39	89
Big Pine Union							17	21	38
Bishop Union			35	78			93	100	206
Blythe, Palo Verde Valley Un.							65	73	138
Boonville, Anderson Valley Un.							24	20	44
Boulder Creek Union							18	16	34
Brawley Union			100	135			87	126	448
Brentwood							40	56	96
Burbank							109	103	212
Calexico Union			180	112			84	79	455
Calipatria Union							37	33	70
Calistoga Joint Union			5	6			50	51	116
Cambria, Coast Union							16	10	26
Campbell Union							106	84	190
Carpinteria Union							33	36	69
Caruthers, Alvine Evening			10	2			52	41	105
Cedarville, Surprise Valley Un.							34	39	73
Centerville, Washington Union	1						73	98	172
Ceres Union							85	95	180
Chico	33	18	6	111			289	347	804
Chino	20	15	162	36			69	75	377
Chino, Geo. Jr. Republic							53		53
Chowchilla Union							62	69	131
Claremont							77	65	142
Cloverdale Union							24	37	61
Clovis							99	123	222
Coachella Valley Union							53	42	95
Coalinga Union	11	6	341	232			83	114	787
College City, Pierce Joint Un.							47	47	94
Colton Union			87	79			130	154	450
Colusa Union		5	25	41			80	66	217
Compton Union		2					260	317	579
Concord, Mount Diablo Union							113	142	255
Corcoran Union			44	14			35	23	116
Corning Union							83	105	188
Corona	12	16					86	112	226
Coronado					190	140	78	67	475
Courtland Union							28	26	54
Covelo, Round Valley Union							29	32	61
Covina Union			125	187			169	149	621
Crescent City, Del Norte Co.							30	58	88
Crockett, John Swett Union	13	20	216	60			65	61	435
Danville, San Ramon Val. Un.							19	26	45

STATISTICAL TABLE XXV—Continued.

Enrollment of Part-Time, Adult, and Full-Time Students in the Secondary Schools of the State.

High school, by place and name	Compulsory part-time classes		Special adult classes		Evening schools		Full-time day classes		Grand total
	Male	Female	Male	Female	Male	Female	Male	Female	
Delano Joint Union.....							107	147	254
Denair.....							23	41	64
Dinuba Union.....							158	180	338
Dixon Union.....							46	52	113
Dos Palos Joint Union.....			1	14			47	57	104
Downey Union.....							60	64	124
Dunsmuir.....							38	34	72
Durham.....							26	22	48
Easton, Washington Union.....			50	15			114	121	300
El Centro, Central Union.....			41	107			173	183	504
Elk Grove Union.....							80	72	152
El Monte Union.....	17	28	3	3	80		95	99	325
Elsinore Union.....							31	31	62
Escalon Union.....							38	52	90
Escondido Union.....							112	114	226
Esparto Union.....							45	45	90
Etna Mills Union.....							39	71	110
Eureka City.....	57	45			207	155	212	305	681
Exeter Union.....			13	2			107	125	257
Fairfield, Armijo Union.....			32	52			81	82	247
Fair Oaks, San Juan Union.....							124	115	239
Fallbrook Union.....							26	29	55
Ferndale Union.....							66	58	124
Fillmore Union.....			40	40			70	93	243
Fort Bragg Union.....	10	4	69	35			74	101	293
Fort Jones, Siskiyou Union.....							35	22	57
Fortuna Union.....							108	146	254
Fowler Union.....	2	3	119	155			109	108	496
Fresno City.....	288	271	2,917	1,916			1,345	1,330	8,067
Fullerton Union.....	10	4					426	441	881
Galt Joint Union.....							48	55	103
Garden Grove Union.....			66	21			34	35	136
Geyserville Union.....							35	33	68
Gilroy.....			89	46			50	83	277
Glendale Union.....					348	319	596	737	2,000
Gonzales Union.....			56	58			28	32	174
Grass Valley.....							93	130	223
Gridley Union.....	1						100	84	185
Gustine Union.....							42	35	77
Half Moon Bay Union.....							26	32	58
Hamilton Union.....				3			25	30	58
Hanford Union.....	12	13	213	68			195	240	741
Hayward Union.....							113	150	263
Healdsburg.....			50	20			115	159	314
Hemet Union.....							122	117	239
Hollister, San Benito County.....			113	64			129	171	468
Holtville Union.....			755	721			112	96	1,684
Hopland Union.....							16	14	30
Hughson Union.....			61	41			49	48	199
Huntington Beach Union.....							111	127	238
Huntington Park.....	33	34					352	412	831
Imperial Valley Union.....					429	406	58	62	955
Independence, Owens Valley Un.....							8	22	30
Inglewood Union.....	12	3		283			286	343	627
Ione Union.....							19	20	39
Irwin, Hilmar Union.....							65	59	124
Jackson Joint Union.....							45	62	107
Julian Union.....							10	19	29
Kelseyville Union.....							12	21	53
Kerman Union.....			24	1			68	64	157
King City Union.....							72	76	148
Kingsburg Joint Union.....	10	5	37	6			120	136	314
Lakeport, Clear Lake Union.....	1	7	8	2			39	51	108

STATISTICAL TABLE XXV—Continued.

Enrollment of Part-Time, Adult, and Full-Time Students in the Secondary Schools of the State.

High school, by place and name	Compulsory part-time classes		Special adult classes		Evening schools		Full-time day classes		Grand total
	Male	Female	Male	Female	Male	Female	Male	Female	
Lakeside, Grossmont Union.....							160	138	298
Lancaster, Antelope Valley Un.....							67	83	150
Laton Joint Union.....			54	15			38	36	143
LaVerne, Bonita Union.....	22	26	24	8			72	104	256
LeGrand.....							42	54	96
Lemoore Union.....	5	3	190	67			77	97	439
Lincoln Union.....							54	63	117
Linden Union.....							16	10	26
Lindsay.....			2	1			96	105	204
Live Oak Union.....							32	32	64
Livermore Union.....							65	98	163
Lodi Union.....	33	39	95	101			217	230	715
Lompoc Union.....							67	67	134
Lone Pine Union.....							18	23	41
Long Beach.....	138	64		393	991	1,841	1,689	1,794	6,910
Los Angeles:									
Los Angeles City.....					752	861	2,523	3,381	7,517
Franklin.....			96	194	817	280	422	618	2,377
Gardena.....				75			127	139	341
Hollywood.....					1,692	857	1,208	1,358	5,115
Jefferson.....					784	615	843	1,043	3,285
Lincoln.....			6	44	1,487	1,045	1,060	944	4,586
Lomita.....			19	14			23	44	100
Manual Arts.....					2,228	2,179	1,494	1,672	7,373
Owensmouth.....							62	54	116
Polytechnic.....	3,456	1,487			5,279	5,656	1,750	1,552	19,189
San Fernando.....							124	221	345
San Pedro.....					367	97	268	254	486
Torrance.....							26	33	59
Van Nuys.....							123	148	274
Wilmington.....							100	82	182
Los Banos, West Side Union.....	1	7			51	7	37	33	136
Los Gatos.....							102	93	195
Los Molinos.....							45	39	84
Loyalton, Sierra Valley Jt. Un.....							22	31	53
McArthur, Fall River Joint Un.....							19	31	50
McCloud, Siskiyou Union.....			89	17			15	22	143
Madera Union.....	26		3	4			158	197	288
Manteca Union.....							58	40	98
Maricopa.....							32	56	88
Martinez, Alhambra Union.....	11	12		27			67	85	202
Marysville.....	9	5	88	124			85	46	357
Maxwell Union.....							18	40	58
Mendocino Union.....							40	53	43
Merced Union.....						38	63	228	534
Middletown Union.....							11	19	30
Modesto.....	48	14	136	221			415	443	1,277
Monrovia City.....	16	7	2				219	231	475
Montebello.....							69	68	137
Monterey Union.....			23	33	118	35	89	100	408
Moorpark Memorial Union.....							22	39	61
Morgan Hill, Live Oak Union.....							63	68	134
Mountain View Union.....		48	15				104	95	262
Napa Union.....	22	34	83	194			203	241	777
National City, Sweetwater Un.....				89			152	151	392
Needles.....			211	226			36	31	594
Nevada City.....	6	2	1				51	83	143
Newman, Orestimba Union.....			130	17			36	40	223
Norwalk, Excelsior Union.....							84	105	191
Oakdale Union.....							100	136	236

STATISTICAL TABLE XXV—Continued.

Enrollment of Part-Time, Adult, and Full-Time Students in the Secondary Schools of the State.

High school, by place and name	Compulsory part-time classes		Special adult classes		Evening schools		Full-time day classes		Grand total
	Male	Female	Male	Female	Male	Female	Male	Female	
San Jose	243	182	2	3	2,508	2,477	1,154	1,198	7,767
San Juan Capistrano Union							20	10	30
San Luis Obispo	17	7	26	10			174	189	363
San Mateo Union					638	315	259	301	1,513
San Rafael	8	9	121	52			143	144	477
Santa Ana							638	603	1,241
Santa Barbara	86	45	96	78	298	193	314	316	1,426
Santa Clara	42	39					150	171	402
Santa Cruz	39	17	12	8			305	353	761
Santa Maria Union	12	6	122	124			168	202	635
Santa Monica City	47	31		85	274	352	540	565	1,894
Santa Paula Union				51			74	99	276
Santa Rosa	38	45	1	6	197	261	274	274	1,116
Santa Ynez Valley Union							10	17	27
Sausalito, Tamalpais Union							281	313	594
Sebastopol, Anady Union	6	2		37	156	192	157	186	736
Selma Union	21	9	106	116			227	245	724
Sisson, Siskiyou Union			19	2			16	25	62
Sonoma Valley Union	10	7					78	55	150
Sonora Union							97	110	207
South Pasadena City							222	275	497
South San Francisco	35	20	83	6			62	78	284
St. Helena Union							43	41	84
Stockton	228	178	796	1,746			639	830	4,417
Strathmore Union							62	58	120
Susanville, Lassen Union			16				57	117	190
Sutter							82	92	174
Sutter Creek Union				41			48	45	134
Taft Union			336	194			205	208	963
Templeton Union							32	31	63
Tomales Joint Union							41	43	84
Tracy, West Side Union			9	13			38	69	129
Tranquillity Union			39	26			25	26	116
Truckee, Meadow Lake Union							15	22	37
Tulare Joint Union	26	17	345	92			199	225	904
Tuolumne, Summerville Union							27	24	51
Turlock Union			39	5			272	296	612
Tustin Union							51	62	113
Ukiah Union			14	35			100	115	264
Upper Lake Union							37	34	71
Vacaville Union			50	44			66	61	221
Vallejo	57	14	20	7			235	279	612
Venice Union	20	18			145	129	279	284	875
Ventura Union							136	146	282
Victorville, Victor Valley Union			7	7			26	35	75
Visalia Union	9	21	46	4			226	254	560
Wasco Union							70	79	149
Watsonville Union	33	18	67	46			218	222	694
Weaverville, Trinity County							19	32	51
Weed, Siskiyou Union			48				21	32	101
Westwood							37	42	79
Wheatland							6	17	23
Whittier Union				100			283	344	727
Williams Union							19	23	42
Willits Union							38	45	83
Willows, Glenn County							84	99	183
Winters Joint Union							51	43	94
Woodlake Union							61	59	120
Woodland							186	191	377
Yreka, Siskiyou Union							84	122	206
Totals, males	8,911		11,726		34,293		57,632		112,592
females	5,546		13,483		30,218		63,807		113,654
Totals, both sexes	14,457		25,209		64,511		121,469		226,646

Adult Schools and Classes Provide Instruction Needed by People.

In general, the school authorities do not attempt to decide beforehand, and finally, just what subjects will be offered, and just what the exact content of these subjects will be.

In this type of school and class, such matters are usually decided by the students themselves after advising with school authorities. If they were otherwise decided, no one would attend the classes.

After a school has once established one or more adult classes it usually adopts the policy of providing instruction in any subject, if a certain number of persons desire the same.

The local school district must bear the entire expense of maintaining such instruction during the current school year. However, during the following year it is partly or fully reimbursed by state or county for the cost of such instruction. Thus, any expansion of the program for adult education must depend upon the balance of local funds that may be legitimately applied to the work. As a matter of fact, a few, if any, high school districts of the state have been able to meet all of the legitimate demands made for adult classes.

Subject to financial limitations, some of the high schools have adopted the policy of setting up, at any time and for any period, instruction in any subject desired by at least fifteen residents of the district qualified for the work. These schools also follow the policy of discontinuing any class maintained, if the number of persons belonging to it falls below the number mentioned above.

Without doubt, one of the greatest factors leading to the rapid development of adult education has been the policy of consulting the wishes of the prospective students as to the type of work to be maintained. Yielding to the demand of the students has, in vocational lines, been equivalent to yielding to the educational demands of the craft. This, and the modification of the methods of instruction in language, for adult immigrants, has established a confidence on the part of the public that the schools can, and actually will, provide instruction that can be fully applied to a solution of every day problems.

Adult Education Responsive to Demands of Life.

Less than a generation ago the school and education were looked upon as something apart from the common affairs of life. At that time the adult would not have thought of turning to his local public school for help in securing instruction relative to his occupation. Today he turns to it with full confidence that he can secure the help needed in better qualifying himself as a citizen worker.

Relative Values of Subjects of Instruction in Adult Schools.

Part II of Statistical Table XXVII shows that an average of 20 per cent of the persons attending the adult classes and schools had no special aim in mind other than a desire to satisfy the inner urge for more schooling. If funds are available for the purpose, the local school is justified in maintaining instruction for such persons. If, on the other hand, the funds of the district are limited to the extent that the opportunities for adults to secure further education must be curtailed, then this group of persons should be the first to be refused service.

The subjects of instruction that may be maintained by adult schools and classes are not of equal importance. All will agree that illiteracy

**Sample of Questionnaire Sent to High School Principals.
ENROLLMENT BY AIM OR PURPOSE OF STUDY.**

Enter student only once for each subject pursued. Where two or more purposes exist, require a choice on part of student of most important aim.

Should it be impossible to secure the classification contemplated in this part of the report for all of the persons enrolled in the school or in the classes during the earlier part of this year, the report should be made only for those persons enrolled in the school at the present time.

	Male	Female
1. Total enrollment of persons (members of families, not employees) at the present time engaged in housekeeping who are taking subjects that are especially designed to increase their ability to perform the usual common home-making occupations. (Such subjects as basketry and the arts and crafts in general do not belong under this head, but such subjects as house, furniture, or dress design, etc., do belong.) Those taking courses to increase their efficiency as domestics, dressmakers, milliners, etc., should be entered under 3 below.		
2. Total enrollment of persons not at this time engaged in housekeeping who are taking subjects as described under 1 above, in order to prepare for home-making occupations as members of families.		
3. Total enrollment of persons taking subjects that are especially designed to increase their efficiency in occupations in which they are engaged. (Those taking courses to increase their efficiency in home-making occupations as members of families should be reported under 1 above. Domestics, dressmakers, milliners, etc., should be reported under this head.)		
4. Total enrollment of persons who are taking subjects that are especially designed to prepare them for entering upon home-making as members of families. (Those taking courses to prepare them for entering upon home-making as members of families should be reported under 2 above. Persons preparing to become domestics, dressmakers, milliners, etc., should be reported under this head.)		
5A. Total enrollment of persons taking subjects to remove deficiencies in English due to the influence of foreign birth or the use of foreign languages.		
5B. Total enrollment of persons, usually American born, taking subjects to remove illiteracy deficiencies due to causes other than those specified under A.		
6. Total enrollment of persons who are pursuing subjects especially designed to prepare for passing naturalization examinations.		
7. Total enrollment of persons who are taking subjects especially designed to prepare for a higher class of citizenship. (Do not include persons entered under 5A, 5B, or 6 above, unless they are taking one or more additional subjects especially designed for this purpose.)		
8. Total enrollment of persons who are taking subjects that are a part of a regular high school college preparatory course.		
9. Total number of persons who are pursuing subjects such as have not been reported by said persons under any of the headings specified above, and such as are taken for personal improvement or because they have a personal appeal.		

is tolerable on the part of either an American or a foreign born person. Therefore, whether or not opportunity is offered to adults to secure instruction in other subjects, every high school district in the state ought to provide the instruction necessary to completely eliminate, within its confines, illiteracy. Most persons will also agree that the employed adult who finds himself handicapped because of a lack of knowledge of the English, mathematics, science, and drawing necessary to enable him to advance in his chosen occupation, should be given an opportunity to remove these deficiencies. Likewise, any resident of the community who feels that further schooling would better qualify him as a homemaker and citizen of the community, the state, and the nation, should be given an opportunity for further study.

It appears that the order of importance of the fields of instruction for adult schools and classes is as follows:

First, the removal of illiteracy.

Second, vocational extension.

Third, naturalization and civic instruction.

Fourth, and least important, education for leisure.

In our opinion there is no place whatever in evening schools for persons who desire merely to be entertained at public expense.

Difficulty in Establishing Content of Supplemental Subjects.

As heretofore, the greatest problem before those who would promote adult education for occupations is that of establishing the content of the subjects that supplement the various lines of employment. Naturally the students who lack in this respect are not competent to make the selection for themselves. There are, however, among the employed, some persons who do have a technical knowledge of the supplemental fields. Unfortunately, these skilled workers are not trained teachers. The establishing of the content of the English, science, mathematics, drawing, and art that supplement occupations is practically equivalent to creating a new text book of instruction.

It will be years before we will have accomplished this work for all of the occupations wherein supplemental instruction is necessary and desirable. There is a great need for research in this field.

Similarity of Adult Schools and Special Classes.

A comparison of the matter presented in Statistical Table XXVI would indicate that the schedule of subjects taught in the special day and evening classes is similar to those presented in evening high schools. In fact, about the only difference between the evening high schools and the special class organizations, is that the former have principals and maintain instruction during most of the time covered by the annual high school term, while the latter consist of classes maintained at different times by the regular day high organization.

Source of Material for Study of Adult Education.

The Statistical Tables XXVI and XXVII contain a study of enrollment segregated according to aim and purpose of study. The matter contained in these tables was secured on a special questionnaire sent out to high school principals. On page 60 is a facsimile of the questionnaire submitted. The numbers of these questions correspond to the column numbers on the statistical tables. In making the segregation according to "purpose of study," no individual was included twice. Each person was required to choose the dominant purpose, or what was considered by him his most important aim.

STATISTICAL TABLE XXVI.

A Study of Enrollment in Evening High Schools and Special Classes of High Schools Segregated According to Aim and Purpose of Study.

This data could not be secured for the special classes of all schools nor for the entire enrollment of all reporting. In most instances only those who were in attendance at the time of the investigation are reported. The classes and persons are, however, representative, so that the figures may be safely applied to the entire special class enrollment in the high schools of the state.

Location and name of school	1		2	3	4	5-A	5-B	6	7	8	9	10	11
	Supplemental to home making	Preparatory to home making											
Alameda	1	2	32	37	46	35	12	3	52	920	820	Complete enrollment for year	
	Female												
	Male	40	27	28	83	15			34	227	416		
Alhambra Union													
	Female	21									21		
	Male												
Antioch, Riverview Union													
	Female												
	Male												
Arcata Union													
	Female												
	Male												
Azusa, Citrus Union													
	Female												
	Male												
Bakersfield, Kern County Union													
	Female												
	Male												
Benicia													
	Female												
	Male												
Berkeley													
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	Male												
Bishop Union													
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Brawley Union													
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Calverco													
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Callistoga Joint Union													
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STATISTICAL TABLE XXVII.
SUMMARY OF TABLE XXVI.
Part I. General Statement.

Number of evening high schools, and day high schools combined that maintained adult classes..... 142
Number of evening and day high schools that reported segregations of special students, according to purpose of study..... 62

	Males	Females	Total
Enrollment in evening high schools and in the classes for adults maintained by day high schools.....	46,019	43,701	89,720
Number of persons included in segregations, according to purpose, as reported by sixty-two evening high schools and day high schools that maintained adult classes, combined.....	27,336	24,023	61,359
Percentages of total enrollments, segregated and reported.....	59.8	55.	48.7

Part II. Segregations According to Purpose of Study.

	1	2	3	4	5-A	5-B	6	7	8	9	10	11
	Supplemental to home making.....	Preparatory to home making.....	Supplemental to other skilled occupations.....	Preparatory to other skilled occupations.....	English for non-English-speaking persons.....	Instruction for illiterate Americans.....	Preparatory to naturalization.....	Citizenship (advanced) other than columns 5-A, 5-B and 6.....	College preparatory.....	Non-classified.....	Total number reporting.....	Complete enrollment evening high schools and adult classes.....
Reported for sixty-two high schools that maintained adult education. Male	298	31	6,082	2,318	4,833	551	3,284	411	3,169	5,927	27,336	
Female	1,127	543	6,637	3,019	1,972	213	396	566	2,465	4,414	24,023	
Percentages, according to purpose, as reported.....	Male 17.2	Female 1.1	Male 24.3	Female 12.5	Male 17.6	Female 9	Male 11.9	Female 2.1	Male 11.5	Female 18.5		
Estimated distribution of entire enrollment, according to purpose, by sexes.....	Male 503	Female 7,517	Male 11,183	Female 12,061	Male 6,488	Female 3,583	Male 5,476	Female 568	Male 5,292	Female 4,501		Male 46,019
Estimated distribution of entire enrollment, according to purpose, as reported, both sexes combined.....	8,023	658	23,241	9,651	11,682	991	6,044	1,454	9,743	17,380		89,720
Percentages according to purpose, as reported, both sexes combined.....	9.0	.7	25.9	10.8	13.0	1.1	6.7	1.8	10.9	20.1		

Part III. Analysis of Above Statistics Relating to Enrollment in Courses That Prepare for, or Supplement Occupations.

Sex	Home making		Wage-earning occupations		All lines of occupational work		Entire enrollment in evening high schools and adult classes
	Enrollment	Percentage of enrollment in evening high schools and adult classes	Enrollment	Percentage of enrollment in evening high schools and adult classes	Enrollment	Percentage of enrollment in evening high schools and adult classes	
Male	552	1.2	15,371	33.4	15,923	34.6	46,019
Female	8,120	18.6	17,524	40.1	25,653	58.7	43,701
Both	8,681	9.6	32,895	36.7	41,576	46.3	89,720

Part IV. Analysis of Above Statistics as They Relate to Enrollment in Citizenship Courses.

A. FOREIGN-BORN GROUP.

Sex	English for illiterates		Naturalization		Total foreign-born group		Entire enrollment in evening high schools and adult classes
	Number	Percentage of foreign-born group	Number	Percentage of foreign-born group	Number	Percentage of enrollment in evening high schools and adult classes	
Male	8,989	59.7	5,476	40.3	13,575	91.0	46,019
Female	3,583	83.3	598	13.7	4,151	76.0	43,701
Both	11,682	65.9	6,044	34.1	17,726	87.0	89,720

B. AMERICAN-BORN GROUP.

Sex	English for American-born illiterates		Advanced course in citizenship		Foreign- and American-born groups combined		Entire enrollment in evening high schools and adult classes
	Number	Percentage of American group	Number	Percentage of entire enrollment	Number	Percentage of entire enrollment	
Male	598	44.8	736	1.3	14,369	32.4	46,019
Female	393	39.0	918	.9	5,462	12.5	43,701
Both	991	37.5	1,654	1.1	20,371	22.7	89,720

C. ENTIRE GROUP.

Sex	Foreign- and American-born groups combined		Entire enrollment in evening high schools and adult classes
	Number	Percentage of entire enrollment	
Male	14,369	32.4	46,019
Female	5,462	12.5	43,701
Both	20,371	22.7	89,720

Enrollment of Persons in Courses that Relate to Home-Making.

Men enrolled in courses: Statistical Table 27 (a summary of Statistical Table 26) shows that between 500 and 600, or approximately one per cent of the men attending adult schools and classes pursued courses supplemental or preparatory to home-making. In some instances, these persons were pursuing manual arts courses for the purpose of fitting themselves to perform better the common mechanical duties of the home; in others, they were utilizing the school equipment to repair or build furniture.

Women enrolled in courses: Between 8000 and 9000, or approximately 19 per cent of the women attending adult schools and classes were pursuing courses designed to supplement home-making experience or were preparing for home-making. Nearly 8 per cent of this number were not at the time engaged in home-making occupations, but in other occupational pursuits, mostly in commercial occupations. Most of these women were enrolled in the special day classes of high schools. Also, there appears to be a falling off in the total number of adult women pursuing home economics courses.

Enrollment of Persons in Courses that Relate to Wage-Earning Occupations.

Men enrolled in courses: 15,371, or more than 33 per cent of the men attending adult schools and classes were pursuing courses designed to prepare for, or to supplement trade, industrial, or commercial occupations. Two years ago, the report showed that 38 per cent were pursuing such courses. Thus there appears to be a falling off of 5 per cent.

Women enrolled in courses: 17,524, or more than 40 per cent of the women attending adult schools and classes were pursuing courses that prepared for or supplemented trade, industrial, and commercial occupations. This is a gain of 6 per cent over the number shown by the report of two years ago.

Total number of men and women pursuing wage-earning occupations: 32,895, or approximately 37 per cent of the persons enrolled in adult schools and classes were pursuing courses of instruction that prepared for or supplemented trade, industrial, or commercial occupations.

Total Enrollment of Persons, Men and Women, in Courses that Relate Both to Home-Making and to Wage-Earning Occupations.

Men pursuing occupational courses: 15,923, or nearly 35 per cent of the men enrolled in adult schools and classes were pursuing courses supplementing home work or wage-earning occupations.

Women pursuing occupational courses: 25,653, or nearly 59 per cent of the women attending adult schools and classes were enrolled in courses that prepare for home-making or wage-earning occupations.

Total number of men and women pursuing occupational courses: 41,576, or more than 46 per cent of the persons, men and women, enrolled in adult schools and classes were pursuing courses of instruction preparing for home-making or other occupational work. The report of two years ago shows 40 per cent. Thus there has been a net gain of 6 per cent over two years ago.

Foreign-Born Persons Enrolled in Citizenship Courses.

Persons enrolled in courses: 17,726, or nearly 20 per cent of the persons attending adult schools and classes were persons of foreign birth pursuing courses of instruction designed to prepare for citizenship.

Two years ago, a similar study showed 14 per cent. Thus there has been in this field of instruction a net gain of 6 per cent of the entire high school enrollment.

Of this number, 13,575, or nearly 77 per cent were men, and 4151, or over 23 per cent were women. Two years ago, 83 per cent were men and 17 per cent were women, which shows a net gain of 6 per cent for women and a corresponding decrease for men. The two percentages should approximately balance. Perhaps the number of men will always be larger because the number of male immigrants somewhat exceeds the number of female immigrants.

Foreign-Born Persons Studying English and Naturalization.

Of the 17,726 foreign-born persons pursuing citizenship instruction, 11,682, or approximately 66 per cent were pursuing courses designed to remove language deficiencies, and 6044, or approximately 34 per cent were pursuing courses designed to prepare for naturalization examinations. The relative distribution of persons in the two types of work mentioned above is exactly the same as that reported two years ago.

While the relative number of foreign-born women pursuing courses designed to prepare for citizenship is small, there has been a distinct gain in this direction. Undoubtedly, there is still further opportunity to promote citizenship instruction for women.

American-Born Persons Enrolled in Citizenship Courses.

Persons enrolled in courses: 991, or approximately one per cent of the persons enrolled in adult schools and classes were American-born persons pursuing courses designed to remove language deficiencies; 393 of these persons were women, and 598 were men. The report of two years ago shows that 2½ per cent of the entire enrollment of evening high schools were pursuing such courses. Either we have greatly reduced illiteracy, or our interest in the matter has slumped. These figures would indicate that high school authorities should investigate the matter, to find out exactly what the condition is. As stated before, illiteracy in an American community is intolerable, and is a reflection upon the school authorities unless they are exerting every effort to eliminate it.

STATISTICAL TABLE XXVIII.

AGE SEGREGATION BY YEARS.

Persons Enrolled in Day and Evening Adult Schools and Classes.

	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	Over 21	Total reported	Complete enrollment
Reported for thirty-nine evening and forty-nine day high schools -----								
Male	637	690	1,817	1,936	2,311	21,561	28,952	-----
Female	352	449	1,244	1,530	1,806	20,897	26,278	-----
Percentages of each age reported -----								
Male	2.3	2.5	6.3	6.8	8.1	74	100	-----
Female	1.4	1.9	4.8	5.9	7.0	79	100	-----
Estimated age distribution of entire enrollment, by sexes -----								
Male	1,058	1,150	2,890	3,129	3,728	34,055	-----	46,010
Female	612	830	2,068	2,578	3,059	34,524	-----	43,701
Estimated age distribution, both sexes -----								
ages	1,670	1,980	4,957	5,707	6,787	68,579	-----	89,720
Estimated percentages of each age, both sexes -----								
ages	1.9	2.4	5.6	6.4	7.7	76	-----	100

DIVISION V.
FINANCIAL REPORT VOCATIONAL EDUCATIONAL FUNDS.

STATISTICAL TABLE XXIX.

FINANCIAL REPORT OF RECEIPTS AND EXPENDITURES OF THE VOCATIONAL EDUCATION FUND OF THE STATE OF CALIFORNIA FOR THE FISCAL YEAR ENDING JUNE 30, 1921.

Item 1. Summary of Receipts and Expenditures During the Year 1920-21.

Item	Agriculture: For salaries of teachers, supervisors, and directors	Trade, industry, and home economics: For salaries of teachers	Teacher- training: For main- tenance of teacher- training, including supervisors	Totals
RECEIPTS AND EXPENDITURE OF FEDERAL MONEY.				
1. Balance of federal money in state treasury July 1		\$6,020 54		\$6,020 54
2. Receipts of federal money during the year:				
First quarter	\$5,748 67	4,839 43	\$6,486 01	17,074 11
Second quarter	5,748 67	10,859 97	6,486 02	23,094 66
Third quarter	5,748 68	10,859 98	6,486 04	23,094 70
Fourth quarter	5,748 68	10,859 98	6,486 03	23,094 69
3. Total of balance and receipts (1 plus 2)	\$22,994 70	\$43,439 90	\$25,944 10	\$92,378 70
4. Expenditure of federal money for reimbursement of expenditures from state and local funds	22,994 70	41,708 79	25,944 10	90,647 59
5. Unexpended balance of federal money in state treasury June 30 (3-4)		\$1,731 11		\$1,731 11
EXPENDITURE FROM STATE FUND.				
6. Balance of state money in state treasury		\$6,020 54		\$6,020 54
7. Receipts of state money:				
First quarter	\$5,748 67	4,839 43	\$6,486 01	17,074 11
Second quarter	5,748 67	10,859 97	6,486 02	23,094 66
Third quarter	5,748 68	10,859 98	6,486 04	23,094 70
Fourth quarter	5,748 68	10,859 98	6,486 03	23,094 69
8. Total of balance and receipts	\$22,994 70	\$43,439 90	\$25,944 10	\$92,378 70
9. Expenditure of state money for reimbursement of expenditures from state and local funds	22,994 70	41,708 79	25,944 10	90,647 59
10. Unexpended balance of state money in state treasury June 30		\$1,731 11		\$1,731 11
TOTAL EXPENDITURES.				
11. From federal and state funds	\$45,989 40	\$83,417 58	\$51,888 20	\$181,295 18

STATISTICAL TABLE XXIX—Continued.

Item 2. Summary of Expenditures from State and Federal Funds for Supervision and Salaries of Teachers, for the Year Ending June 30, 1921.

Classification of expenditures	From state funds	From federal funds	Totals
1. Teacher-training: For maintenance of teacher-training, including supervision—			
a. In agriculture.....	\$7,510 87	\$7,510 87	\$15,021 74
b. In trade and industry.....	12,484 055	12,484 055	24,968 11
c. In home economics.....	5,949 175	5,949 175	11,898 35
Totals (a, b, c).....	\$25,944 10	\$25,944 10	\$51,888 20
2. Agriculture: For salaries—			
a. Of supervisors of agriculture.....	\$1,800 00	\$1,800 00	\$3,600 00
b. Of teachers of agriculture.....	21,194 70	21,194 70	42,389 40
Totals (a, b).....	\$22,994 70	\$22,994 70	\$45,989 40
3. Trade, industry, and home economics: For salaries—			
A. Of teachers of trade or industrial subjects:			
a. In evening schools.....			
b. In part-time schools.....	\$1,013 81	\$1,013 81	\$2,027 62
c. In all-day schools.....	25,917 15	25,917 15	51,834 30
Totals (a, b, c).....	\$26,930 96	\$26,930 96	\$53,861 92
B. Of teachers of home economics subjects:			
a. In evening schools.....			
b. In part-time schools.....	\$5,645 20	\$5,645 20	\$11,295 40
c. In all-day schools.....	3,042 78	3,042 78	6,085 56
Totals (a, b, c).....	\$8,687 98	\$8,687 98	\$17,380 96
C. Of teachers in general continuation part-time schools.....	\$6,089 85	\$6,089 85	\$12,179 70
Totals (A, B, C).....	\$41,708 79	\$41,708 79	\$83,422 58
Totals (1, 2, 3).....	\$90,647 59	\$90,647 59	\$181,300 18

Item 3. Summary of Expenditures for Maintenance of Teacher-Training by Institutions and by State Board, Including Expenditures by State Board for Maintenance of Supervision, for the Year Ending June 30, 1921.

Name of institution	Kinds of teachers trained	From state funds	From federal funds	Totals
University of California.....	Agricultural.....	\$6,674 59	\$6,674 59	\$13,349 18
State Board of Education.....	Agricultural.....	836 28	836 28	1,672 56
University of California.....	Trade and industrial.....	7,161 18	7,161 18	14,322 36
State Board of Education.....	Trade and industrial.....	877 025	877 025	1,754 05
University of California (Southern Branch).....	Trade and industrial.....	3,568 825	3,568 825	7,137 65
State Board of Education.....	Trade and industrial.....	877 025	877 025	1,754 05
University of California (Southern Branch).....	Home economics.....	1,154 74	1,154 74	2,309 48
State Normal, Chico.....	Home economics.....	478 14	478 14	956 28
State Normal, Fresno.....	Home economics.....	142 53	142 53	285 06
State Normal, San Diego.....	Home economics.....	868 49	868 49	1,736 98
State Normal, San Jose.....	Home economics.....	326 66	326 66	641 52
State Normal, Santa Barbara.....	Home economics.....	281 47	281 47	562 94
State Board of Education.....	Home economics.....	2,703 145	2,703 145	5,406 29
Totals.....		\$25,944 10	\$25,944 10	\$51,888 20

STATISTICAL TABLE XXIX—Continued.

Item 4. Summary of Expenditure for All Teacher-Training. (Agriculture, Home Economics, and Trade and Industry), for the Year Ending June 30, 1921.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$5,425 00	\$5,425 00	\$10,850 00
(b) Salaries of teachers.....	13,045 025	13,045 025	26,090 05
2. Clerical service.....	3,633 76	3,633 76	7,267 52
3. Light, heat and postage.....	216 57	216 57	433 14
4. Travel.....	1,876 63	1,876 63	3,753 26
5. Communication.....	141 735	141 735	283 47
6. Rent, sundries.....	7 695	7 695	15 39
7. Printing.....	1,198 82	1,198 82	2,397 64
8. Supplies.....	388 365	388 365	776 73
9. Janitor service.....	10 50	10 50	21 00
Totals.....	\$25,944 10	\$25,944 10	\$51,888 20

Item 5. Summary of Expenditure for Training Teachers of Agriculture, for the Year Ending June 30, 1921.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$1,875 00	\$1,875 00	\$3,750 00
(b) Salaries of teachers.....	2,988 295	2,988 295	5,976 59
2. Clerical service.....	959 895	959 895	1,919 79
3. Light, heat and postage.....	39 05	39 05	78 10
4. Travel.....	1,077 095	1,077 095	2,154 19
5. Communication.....	10 565	10 565	21 13
6. Rent, sundries.....	9 64	9 64	19 28
7. Printing.....	447 495	447 495	894 99
8. Supplies.....	103 835	103 835	207 67
9. Janitor service.....			
Totals.....	\$7,510 87	\$7,510 87	\$15,021 74

Item 6. Summary of Expenditure for Training Teachers of Trades and Industries, for the Year Ending June 30, 1921.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$1,750 00	\$1,750 00	\$3,500 00
(b) Salaries of teachers.....	6,810 70	6,810 70	13,621 40
2. Clerical service.....	2,368 54	2,368 54	4,737 08
3. Light, heat and postage.....	152 085	152 085	304 17
4. Travel.....	234 03	234 03	468 06
5. Communication.....	128 375	128 375	256 75
6. Rent.....	7 695	7 695	15 39
7. Printing.....	739 00	739 00	1,478 00
8. Supplies.....	282 23	282 23	564 46
9. Janitor service.....	10 50	10 50	21 00
Totals.....	\$12,484 055	\$12,484 055	\$24,968 11

STATISTICAL TABLE XXIX—Continued.

Item 7. Summary of Expenditure for Training Teachers of Home Economics, for the Year Ending June 30, 1921.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$1,800 00	\$1,800 00	\$3,600 00
(b) Salaries of teachers.....	3,246 03	3,246 03	6,492 06
2. Clerical service.....	305 325	305 325	610 65
3. Light, heat and postage.....	18 095	18 095	36 19
4. Travel.....	564 605	564 605	1,129 21
5. Communication.....	2 795	2 795	5 59
6. Rent.....			
7. Printing.....	12 325	12 325	24 65
8. Supplies.....			
9. Janitor service.....			
Totals.....	\$5,949 175	\$5,949 175	\$11,898 35

STATISTICAL TABLE XXX.

FINANCIAL REPORT OF RECEIPTS AND EXPENDITURES OF THE VOCATIONAL EDUCATION FUND OF THE STATE OF CALIFORNIA FOR THE FISCAL YEAR ENDING JUNE 30, 1922.

Item 1. Summary of Receipts and Expenditures During the Year 1921-22.

Item	Agriculture: For salaries of teachers, supervisors, and directors	Trade, industry, and home economics: For salaries of teachers	Teacher- training: For main- tenance of teacher- training, including supervisors	Totals
RECEIPTS AND EXPENDITURE OF FEDERAL MONEY.				
1. Balance of federal money in state treasury July 1.....		\$1,731 11		\$1,731 11
2. Receipts of federal money during the year:				
First quarter.....	\$7,989 23	14,500 66	\$8,138 03	30,627 92
Second quarter.....	7,989 23	16,231 77	8,138 03	32,359 03
Third quarter.....	7,989 23	16,231 77	8,138 03	32,359 03
Fourth quarter.....	7,989 24	16,231 78	8,138 03	32,359 05
3. Total of balance and receipts (1 plus 2).....	\$31,956 93	\$64,927 09	\$32,552 12	\$129,436 14
4. Expenditure of federal money for reimbursement of expenditures from state and local funds.....	31,956 93	64,927 09	30,697 88	127,581 90
5. Unexpended balance of federal money in state treasury June 30 (3-4).....			\$1,854 24	\$1,854 24
EXPENDITURE FROM STATE FUND.				
6. Balance of state money in state treasury July 1.....		\$1,731 11		\$1,731 11
7. Receipts of state money during the year:				
First quarter.....	\$7,989 23	14,500 66	\$8,138 03	30,627 92
Second quarter.....	7,989 23	16,231 77	8,138 03	32,359 03
Third quarter.....	7,989 23	16,231 77	8,138 03	32,359 03
Fourth quarter.....	7,989 24	16,231 78	8,138 03	32,359 05
8. Total of balance and receipts.....	\$31,956 93	\$64,927 09	\$32,552 12	\$129,436 14
9. Expenditure of state money for reimbursement of expenditures from state and local funds.....	31,956 93	64,927 09	30,697 88	127,581 90
10. Unexpended balance of state money in state treasury June 30.....			\$1,854 24	\$1,854 24
TOTAL EXPENDITURE.				
11. From federal and state funds.....	\$63,913 86	\$129,854 18	\$61,395 76	\$255,163 80

STATISTICAL TABLE XXX—Continued.

Item 2. Summary of Expenditures from State and Federal Funds for Supervision and Salaries of Teachers, for the Year Ending June 30, 1922.

Classification of expenditures	From state funds	From federal funds	Totals
1. Teacher-training: For maintenance of teacher-training, including supervision—			
a. In agriculture.....	\$9,183 96	\$9,183 96	\$18,367 92
b. In trade and industry.....	14,137 09	14,137 09	28,274 18
c. In home economics.....	7,376 83	7,376 83	14,753 66
Totals (a, b, c).....	\$30,697 88	\$30,697 88	\$61,395 76
2. Agriculture: For salaries—			
a. Of supervisors of agriculture.....	\$2,100 00	\$2,100 00	\$4,200 00
b. Of teachers of agriculture.....	29,856 93	29,856 93	59,713 86
Totals (a, b).....	\$31,956 93	\$31,956 93	\$63,913 86
3. Trade, industry, and home economics: For salaries—			
A. Of teachers of trade or industrial subjects:			
a. In evening schools.....	\$950 66	\$950 66	\$1,901 32
b. In part-time schools.....	36,403 91	36,403 91	72,807 82
c. In all-day schools.....			
Totals (a, b, c).....	\$37,354 57	\$37,354 57	\$74,709 14
B. Of teachers of home economics subjects:			
a. In evening schools.....			
b. In part-time schools.....	\$8,845 34	\$8,845 34	\$17,690 68
c. In all-day schools.....	4,140 07	4,140 07	8,280 14
Totals (a, b, c).....	\$12,985 41	\$12,985 41	\$25,970 82
C. Of teachers in general continuation part-time schools.....	\$14,587 11	\$14,587 11	\$29,174 22
Totals (A, B, C).....	\$64,927 09	\$64,927 09	\$129,854 18
Totals (1, 2, 3).....	\$127,581 90	\$127,581 90	\$255,163 80

Item 3. Summary of Expenditures for Maintenance of Teacher-Training by Institutions and by State Board, Including Expenditures by State Board for Maintenance of Supervision, for the Year Ending June 30, 1922.

Name of institution	Kinds of teachers trained	From state funds	From federal funds	Totals
University of California.....	Agricultural.....	\$8,259 94	\$8,259 94	\$16,519 88
State Board of Education.....	Agricultural.....	924 02	924 02	1,848 04
University of California.....	Trade and industrial.....	7,536 575	7,536 575	15,073 15
State Board of Education.....	Trade and industrial.....	1,233 625	1,233 625	2,467 25
University of California (Southern Branch).....	Trade and industrial.....	4,358 265	4,358 265	8,716 53
State Board of Education.....	Trade and industrial.....	1,008 625	1,008 625	2,017 25
University of California (Southern Branch).....	Home economics.....	1,074 75	1,074 75	2,149 50
State Teachers College, Chico.....	Home economics.....	577 50	577 50	1,155 00
State Teachers College, Fresno.....	Home economics.....	178 725	178 725	357 45
State Teachers College, San Diego.....	Home economics.....	369 15	369 15	738 30
State Teachers College, San Jose.....	Home economics.....	371 25	371 25	742 50
State Teachers College, Santa Barbara.....	Home economics.....	130 80	130 80	261 60
University of California.....	*Home economics.....	1,470 22	1,470 22	2,940 44
State Board of Education.....	Home economics.....	3,204 435	3,204 435	6,408 87
Totals.....		\$30,697 88	\$30,697 88	\$61,395 76

*P.-T. instructors.

STATISTICAL TABLE XXX—Continued.

Item 4. Summary of Expenditure for all Teacher-Training. (Agriculture, Home Economics, and Trade and Industry), for the Year Ending June 30, 1922.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$4,014 56	\$4,014 56	\$8,029 12
(b) Salaries of teachers.....	16,672 355	16,672 355	33,344 71
2. Clerical service.....	3,344 285	3,344 285	6,688 57
3. Light, heat and postage.....	410 145	410 145	820 29
4. Travel.....	3,079 89	3,079 89	6,159 78
5. Communication.....	188 65	188 65	377 30
6. Rent, sundries.....	489 715	489 715	979 43
7. Printing.....	2,017 435	2,017 435	4,034 87
8. Supplies.....	469 845	469 845	939 69
9. Janitor service.....	11 00	11 00	22 00
Totals.....	\$30,697 88	\$30,697 88	\$61,395 76

Item 5. Summary of Expenditure for Training Teachers of Agriculture, for the Year Ending June 30, 1922.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$1,671 50	\$1,671 50	\$3,343 00
(b) Salaries of teachers.....	4,264 56	4,264 56	8,529 12
2. Clerical service.....	562 365	562 365	1,124 73
3. Light, heat and postage.....	65 55	65 55	131 10
4. Travel.....	1,658 225	1,658 225	3,316 45
5. Communication.....			
6. Rent, sundries.....	421 455	421 455	842 91
7. Printing.....	500 38	500 38	1,000 76
8. Supplies.....	39 925	39 925	79 85
9. Janitor service.....			
Totals.....	\$9,183 96	\$9,183 96	\$18,367 92

Item 6. Summary of Expenditure for Training Teachers of Trades and Industries, for the Year Ending June 30, 1922.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$162 00	\$162 00	\$324 00
(b) Salaries of teachers.....	8,235 45	8,235 45	16,470 90
2. Clerical service.....	2,355 67	2,355 67	4,711 34
3. Light, heat and postage.....	310 645	310 645	621 29
4. Travel.....	880 49	880 49	1,760 98
5. Communication.....	188 65	188 65	377 30
6. Rent.....	68 26	68 26	136 52
7. Printing.....	1,495 005	1,495 005	2,990 01
8. Supplies.....	429 92	429 92	859 84
9. Janitor service.....	11 00	11 00	22 00
Totals.....	\$14,137 09	\$14,137 09	\$28,274 18

STATISTICAL TABLE XXX—Continued.

Item 7. Summary of Expenditures for Training Teachers of Home Economics, for the Year Ending June 30, 1922.

Item	From state funds	From federal funds	Totals
1. (a) Salaries of supervisors.....	\$2,181 06	\$2,181 06	\$4,362 12
(b) Salaries of teachers.....	4,094 225	4,094 225	8,188 45
2. Clerical service.....	504 37	504 37	1,008 74
3. Light, heat and postage.....	33 95	33 95	67 90
4. Travel.....	541 175	541 175	1,082 35
5. Communication.....			
6. Rent.....	22 05	22 05	44 10
7. Printing.....			
8. Supplies.....			
9. Janitor service.....			
Totals.....	\$7,376 83	\$7,376 83	\$14,753 66

BIENNIAL REPORT

OF THE

ATTORNEY GENERAL

OF THE

STATE OF CALIFORNIA

1920 - 1922



CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

U. S. WEBB	ATTORNEY GENERAL
E. B. POWER	ASSISTANT ATTORNEY GENERAL
ROBERT W. HARRISON	CHIEF DEPUTY ATTORNEY GENERAL
R. T. MCKISICK	DEPUTY ATTORNEY GENERAL
JOHN W. MALTMAN	DEPUTY ATTORNEY GENERAL
FRANK ENGLISH	DEPUTY ATTORNEY GENERAL
FRANK L. GUERENA	DEPUTY ATTORNEY GENERAL
H. H. LINNEY	DEPUTY ATTORNEY GENERAL
J. CHARLES JONES	DEPUTY ATTORNEY GENERAL
JOHN H. RIORDAN	DEPUTY ATTORNEY GENERAL
LEON FRENCH	DEPUTY ATTORNEY GENERAL
ERWIN W. WIDNEY	DEPUTY ATTORNEY GENERAL

SACRAMENTO OFFICE:
State Capitol.

SAN FRANCISCO OFFICE:
Humboldt Bank Building.

REPORT OF THE ATTORNEY GENERAL.

SAN FRANCISCO, February 16, 1923.

Honorable FRIEND WM. RICHARDSON,
Governor of California,
Sacramento, California.

SIR: Complying with statutory direction, I submit herewith a report of the business of this department for the past two years.

Former reports have shown a steady increase of business corresponding to the growth of the state. The increase of business for the last biennium, however, has been more marked than that shown in any previous report. This increase is evidenced in what may be termed routine matters of the office, in the number of consultations with various public officials, in correspondence, in written opinions, in civil litigation and in criminal cases.

The volume of business now handled taxes to the utmost the office force. The growth of the state and the wide range of governmental activities make certain that a like increase in volume of business will be experienced in the next two years. It is therefore imperative that additional office force be provided so that the business in the next two years may be efficiently cared for.

Should work now and heretofore done by other departments be turned to this office by the present legislature such action will necessitate a further increase of the office force, and a further increase of the funds provided for the office. The amount of such required increase of force and funds will depend upon the amount of new business coming to the office as result of such legislative action.

During the period of this report this office has appeared in the various courts of this state and of the United States in over 700 civil cases, and of these 78 reached the appellate courts. It would too much extend this letter to give a history of these cases, or of any considerable number of them, but the detailed report herewith submitted will show the importance of the legal principles, as well as the money involved.

A few of the cases will be hereafter referred to in this letter. Of these cases 13 are now pending in the Supreme Court of the United States, and all of these have been fully briefed and are ready for hearing, and there is likewise pending in the Supreme and Appellate Courts of this state undetermined 23 cases.

For several years there had been pending in the Supreme Court of the United States two cases which involved the right of a native of the Empire of Japan to naturalization under the laws of the United States. One of these cases was taken to this court by appeal from a decision of the United States District Court in the State of Washington, while the other was certified to the United States Supreme Court for decision by the

Circuit Court of Appeals, Ninth Circuit. Because of the very great importance of the question involved to the people of the State of California this office, with the permission of the court, prepared and filed briefs in both cases and a decision was thereafter rendered in which it was held that natives of Japan were ineligible to citizenship under the laws of the United States.

Attention has been given to a large number of cases involving a construction of the California Alien Land Act of 1913, as amended in 1920, and this legislation has met with the approval of the courts in all respects, except it was held by the Supreme Court of the state that the provisions of the act prohibiting the appointment of an alien ineligible to citizenship to guardianship of the estate of his minor child were invalid, and it was held by the District Court of the United States, Ninth Circuit, that these acts did not prohibit the making of so-called "cropping contracts" by owners of agricultural land with ineligible aliens, and from this decision this office appealed to the Supreme Court of the United States where the case is now pending. This latter question is also involved in another case now pending in the Supreme Court of this state, which has been briefed, argued and submitted, and it is assumed that a decision will soon be rendered.

The constitutionality of the so-called "State Gross Receipts Tax," in its application to the property of interstate carriers, is now pending in the Supreme Court of the United States in cases in which the Pullman Company is plaintiff and Friend W. Richardson, as treasurer of the state, is defendant.

A number of cases were commenced for the state for the purpose of having escheated bank deposits remaining dormant for over 20 years, and all but four of these cases have been finally disposed of, with result that \$125,000 of such moneys has been covered into the state treasury, leaving about \$25,000 still in contest. Of the four cases undisposed of one is pending in the Supreme Court of the state and the other three are pending in the Supreme Court of the United States.

Four cases are pending, two commenced by the Southern Pacific Railroad Company and two by the Santa Fe Railroad Company, for the purpose of having declared invalid the assessment made by the legislature of 1921 of the operative properties of these railroads. Much time and labor have been given to the defense of these cases and the testimony, which has proceeded to great length, is still being taken.

In the case of *Payne, Director General of Railroads, vs. Richardson*, this office was successful in retaining for the state taxes amounting to about \$200,000 paid under protest and computed upon gross receipts from business done by railroads for the federal government during the period of federal control.

The legality of the state franchise tax upon foreign corporations was sustained in the case of *State vs. Ford Motor Company*, and as to domestic corporations in the case of *Miller & Lux vs. Richardson*.

A number of cases arose involving the constitutionality of the Real Estate Act and of the Corporate Securities Act. These cases have been determined and the validity of these acts upheld.

We were successful in defending the Real Estate Commissioner and the Commissioner of Corporations in actions for alleged libel in connection with the duties and proceedings of their respective offices.

We appeared for the State Board of Pharmacy in an action in the United States District Court, in which it was sought to recover damages for alleged illegal seizure of narcotics under the State Narcotic Act, with the result of a judgment in favor of such officers.

In an action involving that question, the right of the proper officers of the state to certify to the federal government the ratification of the eighteenth or prohibition amendment to the constitution of the United States was established, and in other actions the constitutionality of the Wright Act, in so far as it has been attacked, was sustained.

In an action wherein that question was involved, heard by the Supreme Court of the state, the act providing free textbooks to high school students was upheld.

In a proceeding brought in the Supreme Court of the state to test the constitutionality of the Alien Poll Tax Law, adopted in 1921, the court decided such law to be unconstitutional.

We have examined and approved all contracts entered into under the state building act, all contracts entered into for state highway construction, and all applications made to the Commissioner of Insurance for permission of foreign insurance companies to transact business in the State of California. Likewise we have passed upon the title of all real properties purchased by the state, and have examined and approved the proceedings on all bond issues purchased in whole or in part by the state.

In accordance with the statute the office prepared during the last two years a Digest of Election Laws in simple form for use in guidance of election officers, and we have prepared all ballot titles and circulation titles for initiative and referendum measures.

Persistent effort has been made by individuals, partnerships, associations and so-called common law trusts, to carry on business in this state without complying with the provisions of the Corporate Securities Act. These concerns, while professing to have something to offer for sale to the public, contended that the thing offered was not included in the term "securities." Many cases have been presented to us by this department and after investigation, with but few exceptions, we have advised the commissioner that the concerns came within the jurisdiction of such department.

In 1917 the state entered upon a plan of land settlement, without a statutory classification of those who might benefit thereunder. In 1921, through the creation of the Veterans' Welfare Board, it enlarged this policy giving special aid to veterans of the World War, not only in land settlement but in aiding them in the securing of homes and farms and in educational matters. In all of these matters we have advised the State Land Settlement Board, now the Department of Public Works, Division of Land Settlement, and the Veterans' Welfare Board upon all matters involving the construction of these acts and of the extent and authority of the boards thereunder.

We have prepared rules and forms and have successfully conducted litigation in connection with the title of the property purchased by the state at Durham and Delhi.

It is proper to note in this connection, that while the Durham settlement, which comprises about 6500 acres with about 150 settlers, and the Delhi settlement, comprising about 9000 acres with about 165 settlers, it has been necessary to institute but two proceedings for the dispossession

of settlers. The detailed activities of these boards will be found in their respective reports.

By far the greater number of these matters are handled in consultation, but the more important questions thus presented have been answered in some 500 formal written opinions, of which is kept a fully indexed file.

During this period 24 applications for the privilege to maintain suits in the name of the state, in proceedings in the nature of quo warranto, have been received, considered and disposed of. Fourteen of these applications were granted and suits thereafter commenced, and 10 were denied. The report attached sets forth the questions presented in detail.

The period shows a very marked increase in the number of criminal cases.

The reports of the district attorneys of the state, hereinafter presented in detail, show 10,762 accusations of felony, as against 7805 for the preceding biennium. These reports show that of these 3788 are pending in the lower courts, or have been disposed of without trial. Of the remainder 6220 were tried and convicted, or pleaded guilty, while 754 were acquitted at the trial.

Of the appeals in these cases 278 have been finally disposed of, the judgments being affirmed in 250 and reversed in 28. Most of the 28 cases reversed are sent back for new trials and final convictions obtained, so that only a few more than the 754 acquitted are finally freed of the charges against them. This shows that of the total number charged with felony, less than 11 per cent escape sentence.

There have been a large number of convictions for violations of the Criminal Syndicalism Act, passed by the legislature in 1919. Thirteen of these cases were carried by appeal to the Supreme and Appellate Courts of this state, resulting in affirmance of the judgment in 11 and reversals in 2. The validity of the act has thus been established by the state courts. One of these cases has been carried to the Supreme Court of the United States, where it is now pending.

Five judgments have been rendered against the state since the date of the last biennium, and we are pleased to report that the total of these judgments is but \$4,097.74. These judgments which now constitute established demands against the State of California are as follows:

<i>Story vs. Richardson</i> , as State Treasurer	\$764 90
<i>Story vs. Richardson</i> , as State Treasurer	1,430 10
<i>Story vs. Richardson</i> , as State Treasurer	1,456 32
<i>Hart vs. Richardson</i> , as State Treasurer	394 92
<i>State vs. Jusuke Shingu et al.</i>	51 50
	\$4,097 74

The following is a summary of the 1047 civil and criminal cases handled by this office during the period herein covered:

Summary of Cases.

CIVIL CASES.

Over in last report:	
Miscellaneous cases.....	119
Tax cases.....	235
New cases:	
Miscellaneous.....	145
Tax cases.....	221
Total.....	720
Disposed of:	
Miscellaneous.....	108
Tax cases.....	250
Total.....	358
Pending:	
Miscellaneous.....	154
Tax cases.....	208
Total.....	362

CRIMINAL CASES.

Over in last report.....	26
New cases.....	301
Total.....	327
Disposed of:	
In favor of people.....	262
In favor of defendants.....	31
Pending.....	34
Total.....	327
Total number of cases both civil and criminal.....	1047

The reports of the district attorneys are hereafter shown in detail.

Reports of the business of the various boards and commissions, of which the Attorney General is a member, will be presented by such boards and commissions.

A financial statement of the two fiscal years is attached to the report.

Very respectfully,

U. S. WEBB,
Attorney General.

CASES IN UNITED STATES SUPREME COURT.

- Raymond L. Frick and N. Satow vs. U. S. Webb, as Attorney General of the State of California, and Matthew Brady, as District Attorney of the City and County of San Francisco, State of California.* In United States District Court, Northern District of California. Injunction against escheating corporate stock issued contrary to alien land law. Judgment for defendant. Plaintiffs appealed. Pending.
- W. L. Porterfield and Y. Mizuno vs. U. S. Webb, as Attorney General of the State of California, and Thomas Lee Woolwine, as District Attorney of the County of Los Angeles.* In United States District Court, Southern District of California. Injunction against executing land lease contrary to alien land law. Judgment for defendants. Plaintiffs appealed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$28,995.47 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$28,591.07 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$38,248.55 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$40,187.26 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$33,775.35 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.
- The Pullman Company vs. The State Treasurer.* City and County of San Francisco. To recover \$60,755.74 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.

The Pullman Company vs. The State Treasurer. City and County of San Francisco. To recover \$40,516.86 franchise tax. Judgment for defendant. Plaintiff appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.

Edwin Schwab vs. Friend W. Richardson, as State Treasurer. To recover \$1,200 franchise tax. Judgment for defendant. Affirmed by District Court of Appeal. Hearing by Supreme Court granted. Affirmed. Writ of error allowed. Pending.

State of California vs. First National Bank of San Jose. Sacramento County. To recover bank deposits unclaimed for twenty years. Judgment for plaintiff. Defendant appealed to District Court of Appeal. Affirmed. Hearing granted by Supreme Court. Affirmed. Writ of error allowed. Pending.

State of California vs. Security Savings Bank, et al. County of Sacramento. To recover \$9,010.16 bank deposits unclaimed for more than twenty years. Judgment for plaintiff. Defendant appealed to Supreme Court. Affirmed. Writ of error allowed. Pending.

U. S. Webb, as Attorney General of the State of California, and C. C. Coolidge, as District Attorney of Santa Clara County, State of California, vs. J. J. O'Brien and J. Inouye. In District Court of United States, Northern District of California. Injunction against escheating land for cropping contract contrary to alien land law. Judgment for plaintiff. Defendants appealed. Pending.

Charlotte A. Whitney vs. The People of the State of California. In the Superior Court of Alameda County. Charge Syndicalism. Verdict of guilty. Appeal to District Court of Appeal, First District. Affirmed. Hearing by Supreme Court denied. Writ of error allowed. Pending.

IN THE UNITED STATES CIRCUIT COURT OF APPEALS,
FOR THE NINTH CIRCUIT.

E. E. Young vs. California State Board of Pharmacy, et al. In United States District Court, Northern District of California. To recover \$25,000 damages for the destruction of opium, morphine and cocaine. Judgment for defendants. Plaintiff appealed. Affirmed. Closed.

CIVIL CASES IN UNITED STATES DISTRICT COURT,
NORTHERN DISTRICT OF CALIFORNIA.

- Atchison, Topeka & Santa Fe Railway Company vs. Collins et al.* In the District Court of United States, Northern District of California. Injunction against completion of state assessment of complainant's operative property for year 1921, and to have state taxes for that year declared invalid. Preliminary injunction denied. Motion to dismiss bill of complaint denied. Answer filed. Pending.
- Atchison, Topeka & Santa Fe Railway Company vs. Collins et al.* In the District Court of United States, Northern District of California. Injunction against completion of state assessment of complainant's operative property for year 1922, and to have state taxes for that year declared invalid. Preliminary injunction denied. Motion to dismiss bill of complaint denied. Answer filed. Pending.
- Frieda Ephriam vs. The City of Oakland and State Board of Charities and Corrections.* Injunction to prevent defendants from interfering with plaintiff's care of minor children without a permit from defendant board. Dismissed. Closed.
- M. E. Johnson vs. E. C. Bellows et al.* To recover \$10,000 damages for libel. Demurrer sustained. Closed.
- In the Matter of George H. Hooke, Bankrupt.* In the District Court of the United States, Southern Division, Northern District of California, First Division. State cited to appear to support validity of tax levy. Pending.
- In the Matter of J. E. Lee, Bankrupt.* Los Angeles County. Order to show cause why moneys in custody of Highway Commission should not be paid into court. Moneys deposited under stipulation. Closed.
- S. H. Mitchell vs. Wm. D. Stephens et al.* Action to compel State officers to account for and pay into State Treasury moneys for the benefit of highway funds. Los Angeles County. Motion to dismiss granted.
- People of the State of California, ex rel. U. S. Webb, Attorney General, etc., vs. Truckee River General Company et al.,* Placer County. To quiet title to portion of Lake Tahoe and enjoin defendants from maintaining a dam, etc. Removal to United States District Court, Northern District of California. Motion to remand. Pending.

Southern Pacific Railway Company vs. Collins et al. District Court of United States, Northern District of California. Injunction against state assessment of complainant's operative property for year 1921, and to have state tax for that year declared invalid. Preliminary injunction denied. Motion to dismiss bill of complaint denied. Answer filed. Pending.

Southern Pacific Railway Company vs. Collins et al. District Court of United States, Northern District of California. Injunction against state assessment of complainant's operative property for year 1922, and to have state tax for that year declared invalid. Preliminary injunction denied. Motion to dismiss bill of complaint denied. Answer filed. Pending.

The United States vs. H. C. Angle et al. To determine conflicting claims and quiet rights of parties to waters of Stony Creek. Dismissed as to State. Closed.

IN THE SUPREME COURT OF THE STATE OF CALIFORNIA.

In re Estate of Suzanne Aufret, deceased. City and County of San Francisco. Objection to distribution by State under claim of escheat. Objection overruled and distribution ordered. State appealed. Affirmed. Closed.

The Bankers Life Company vs. Friend W. Richardson, as State Treasurer. Sacramento County. To recover excess tax of \$5,000.00 for year 1916, paid on insurance business. Judgment for defendant. Plaintiff appealed. Pending.

The Bankers Life Company vs. Friend W. Richardson, as State Treasurer. Sacramento County. To recover excess tax of \$5,000.00 for year 1917, paid on insurance business. Judgment for defendant. Plaintiff appealed. Pending.

The Bankers Life Company vs. Friend W. Richardson, as State Treasurer. Sacramento County. To recover excess tax of \$3,955.91 for year 1918, paid on insurance business. Judgment for defendant. Plaintiff appealed. Pending.

The Bankers Life Company vs. Friend W. Richardson, as State Treasurer. Sacramento County. To recover excess tax of \$3,894.14 for year 1919, paid on insurance business. Judgment for defendant. Plaintiff appealed. Pending.

- T. L. Brecheen, Petitioner, vs. Ray L. Riley, as Real Estate Commissioner, Respondent.* Application for writ of review of acts of Respondent in revoking license of broker, on ground statute unconstitutional. Writ denied. Closed.
- John B. Curtin vs. The State of California.* Action to recover for personal services rendered and moneys expended in behalf of the State. Appeal from judgment of Superior Court, Sacramento County, in favor of plaintiff. Pending.
- John S. Dufton vs. Gilbert B. Daniels et al., members of the Board of Control of the State of California.* Mandamus to compel respondents, as members of the Board of Control, to allow claim of petitioner for expenses in returning prisoner upon interstate rendition. Demurrer filed. Matter argued and submitted. Pending.
- W. R. Ellis, Petitioner, vs. W. D. Stephens et al., Respondents.* Petition for writ of mandate to compel respondents to order paid into certain designated funds the moneys received from the Federal Government under joint road projects. Hearing granted after judgment of the Court of Appeal, Third District, denying such writ. Reversed. Writ granted. Closed.
- W. B. Franklin, Plaintiff, vs. The Churchill Company, Defendant.* Hearing granted after judgment of District Court of Appeal, Third District, reversing judgment of Superior Court, Siskiyou County, in favor of defendant in actions between adverse applicants to purchase State lands. State intervened to procure determination of status of land in controversy. Judgment of Superior Court reversed. Closed.
- John C. Frohlinger, Plaintiff and Respondent, vs. F. W. Richardson, as State Treasurer, et al., Defendants and Appellants.* Alameda County. Injunction to prevent restoration of San Diego Mission. Judgment for plaintiff. Defendants appealed. Pending.
- Hueneme, Malibu & Port Los Angeles Railway vs. A. B. Fletcher et al.* Los Angeles County. Petition for injunction to enjoin construction of State Highway. Judgment for defendant dissolving temporary restraining order and refusing injunction pendente lite. Petitioner appeals. Pending.
- John A. Jose et al. vs. H. S. Utley, District Attorney of San Diego County.* San Diego County. To restrain defendant from prosecuting plaintiff under Blue Sky Law. Judgment for defendant. Affirmed. Closed.

Henry Levy Company vs. G. H. Hecke, Director of Agriculture. City and County of San Francisco. Injunction against inspection of cattle and collection fees. Judgment for plaintiff. Defendant appealed. Submitted.

County of Los Angeles vs. State of California. Action commenced in Los Angeles Superior Court to recover \$12,963.48 paid to State on account of support of wards committed to state institutions. Transferred on motion of State to Sacramento Superior Court. Judgment in favor of State on demurrer. Appeal taken. Pending.

County of Los Angeles vs. Daniels et al. Action commenced in Los Angeles Superior Court to recover \$12,963.48 paid to State on account of support of wards committed to State institutions. Transferred on motion of State to Sacramento County Superior Court. Judgment in favor of State on demurrer. Appeal taken. Pending.

The MacMillan Company vs. C. P. Clark et al., as State Board of Education. Mandate to require respondents to issue a list of high school textbooks. Writ denied. Closed.

Marin Municipal Water District vs. Charles J. Chenu. Petition for mandate to compel defendant to issue motor vehicle license without charge. Writ granted. Closed.

William A. McNeil, Petitioner, vs. W. S. Kingsbury, as Surveyor General, etc., Respondents. Proceeding in mandate to compel respondent to issue to petitioner a permit to prospect for oil and gas upon lands of Norwalk State Hospital. Motion to strike out, demurrer and answer filed. Demurrer orally argued. Ordered to be submitted on briefs. Writ denied.

H. Moffat Company vs. G. H. Hecke, Director of Agriculture. City and County of San Francisco. Injunction against inspection of cattle and collection of fees. Judgment for plaintiff. Defendant appealed. Submitted.

John Barton Payne vs. Friend W. Richardson. San Francisco Superior Court. Action to recover taxes paid under protest. Amount sued for, \$186,711.22. Judgment for State. Case appealed to State Supreme Court. Judgment affirmed. Closed.

Pacific Coast Steamship Company vs. Friend W. Richardson. City and County of San Francisco. To recover \$1,500 franchise tax. Judgment for plaintiff. Defendant appealed. Reversed. Closed.

Pacific Electric Railway Company vs. Commonwealth Bonding and Casualty Insurance Company et al. Los Angeles County. Intervention. Judgment for plaintiff. Affirmed. Closed.

People of the State of California vs. City of Los Angeles. Superior Court Los Angeles County. To declare invalid vacation of public street by City Council. Judgment for plaintiff. Defendant appealed. Pending.

People of the State of California vs. Ford Motor Company. Sacramento County. To recover franchise tax, \$24,000.00, and \$3,000.00 penalty. Judgment for plaintiff. Affirmed. Closed.

W. B. Franklin, Plaintiff, vs. The Churchill Company, Defendant. Hearing granted after judgment of District Court of Appeal, Third District, reversing judgment of Superior Court, Siskiyou County, in favor of defendant in actions between adverse applicants to purchase state lands. State intervened to procure determination of status of land in controversy. Judgment of Superior Court reversed. Closed.

Estate of Romaris, No. 26919. San Francisco Superior Court. Petition for distribution by alleged heirs. Opposition by State. Distribution ordered. Appeal by State. Pending.

A. Schomig, Petitioner, vs. Edwin T. Keiser, as Real Estate Commissioner, etc., Respondent. Petition for writ of certiorari in District Court of Appeal, First District, to review action of respondent in revoking petitioner's license as broker. Writ denied. Hearing by Supreme Court granted. Order of Real Estate Commission annulled. Closed.

State of California vs. Bank of California, National Association. Sacramento County. To recover bank deposits unclaimed for more than twenty years. Judgment for plaintiff. Defendant appealed. Pending on stipulation to wait decision on other cases.

State of California vs. The Crocker National Bank. Sacramento County, Superior Court. Escheat of unclaimed bank deposits. Judgment for plaintiff. Defendant appealed. District Court of Appeal, Third District affirmed. Hearing by Supreme Court granted. Affirmed. Closed.

State of California vs. First National Bank of Santa Barbara et al. Sacramento County. To recover bank deposits unclaimed for more than twenty years. Judgment for plaintiff. Affirmed. Closed.

State of California vs. Hayao Yano and Tetsubumi Yano. Butte County. To escheat land under alien land law conveyed by father to native born minor child. Judgment for defendants. Plaintiff appealed. Pending.

State of California vs. Royal Consolidated Mining Company. Sacramento County. To recover rents, issues and profits of property sold to state for taxes. Judgment for defendant. Affirmed by District Court of Appeal. Reversed. Closed.

State of California vs. San Francisco Savings & Loan Society. Superior Court, Sacramento County. Action to escheat unclaimed bank accounts under Section 1273 C. C. P. Judgment for plaintiff. Pending.

State of California vs. Savings Union Bank & Trust Company. Sacramento County. To recover bank deposits unclaimed for twenty years. Judgment for plaintiff. Affirmed. Closed.

Walter P. Story vs. The Treasurer of the State of California. County of Sacramento. To recover \$764.90 franchise tax. Judgment for plaintiff for \$426.65. Both parties appeal. Affirmed for \$764.90. Closed.

Estate of John Sullivan. Superior Court, Marin County. Petition for distribution by alleged heirs. State claimed escheat. Petition denied. Appeal by petitioners. Reversed. Closed.

State of California, Plaintiff, vs. Jusuko Shingu, Sumiye Shingu and Kiyoko Shingu, Defendants. Superior Court, County of Yuba. To escheat land under alien land law conveyed by father to native-born minor children. Judgment for defendants. Plaintiff appealed. Dismissed. Closed.

In the Matter of the Estate and Guardianship of Tetsubumi Yano, a Minor. Sutter County. Order denying guardianship of minor to alien ineligible to citizenship. Reversed. Closed.

Tulare Water Company vs. State Water Commission. City and County of San Francisco. Action in mandamus to compel grant of permit to take water from Kern river. Demurrer sustained. Judgment for defendant. Reversed by Superior Court. Costs of appellant disallowed in Superior Court. Plaintiff appealed. Pending.

Utah Construction Company vs. State Treasurer. City and County of San Francisco. To recover \$4,000 franchise tax. Judgment for defendant. Affirmed. Closed.

Utah Construction Company vs. State Treasurer. City and County of San Francisco. To recover \$2,268 franchise tax. Judgment for defendant. Affirmed. Closed.

CIVIL CASES IN DISTRICT COURTS OF APPEAL.

- Alexander R. Abrams, Petitioner, vs. Edwin M. Daugherty, as Commissioner of Corporations, Respondent.* District Court of Appeal, First District. Writ of Review of action of Commissioner in suspending broker's license. Suspension set aside. Closed.
- D. W. Carmichael, Petitioner, vs. Ray L. Riley, as State Controller, etc., Respondent.* Mandate to compel respondent to issue warrant of Sacramento and San Joaquin Drainage District to pay claim of petitioner allowed by State Reclamation Board. Granted. Closed.
- County of Inyo vs. Fred Hess et al.* Inyo County. Suit by county to recover taxes. Judgment for plaintiff. Affirmed. Closed.
- Wm. F. Dean vs. Board of Education.* Tulare County. To compel Board to retire petitioner on pension under the provision of the Teachers' Retirement Act. Judgment for plaintiff. Defendant appealed. Pending.
- J. J. Eiseman vs. Edwin M. Daugherty, Commissioner of Corporations.* Los Angeles County. Review of decision of Commissioner of Corporations. Pending.
- Herbert W. Furlong vs. Richard W. White et al., State Land Settlement Board.* Butte County. To recover commission for sale of real estate and make it a charge on land. Judgment for defendants. Affirmed. Closed.
- People, ex rel. Clark, vs. Milk Producers' Association of Central California, Incorporated.* Stanislaus County. Quo warranto to forfeit corporate charter for usurpation of franchise. Motion to strike granted and demurrer sustained. Plaintiff appealed. Judgment reversed and case remanded for further proceedings.
- Reference Association, Incorporated, vs. Labor Commissioner.* Petition for writ of supersedeas pending determination of appeal. Dismissed. Closed.
- Reference Association, Incorporated, vs. Labor Commissioner.* Petition for writ of prohibition. Superior Court of Los Angeles County. Petition denied. Plaintiff appealed. Dismissed. Closed.
- Reclamation District No. 1500, Petitioner, vs. Ray L. Riley, as State Controller, etc., Respondent.* Mandate to compel respondent to issue warrant of Sacramento and San Joaquin Drainage District in part payment for certain levees purchased by State Reclamation Board. Argued and submitted. Briefs filed. Pending.

CIVIL CASES IN THE SUPERIOR COURTS OF THE STATE OF CALIFORNIA.

- Scott W. Alexander vs. Austin B. Fletcher et al.* Los Angeles County. Petition for writ of mandate and injunction to compel construction of State highway along certain route and to enjoin present construction. Non-suit granted. Closed.
- William F. Bray, Petitioner, vs. E. P. Clarke et al., as members of the State Board of Education of the State of California, and the Public School Teachers Retirement Salary Fund Board.* County of Sacramento. Mandate to grant teachers retirement salary. Answer filed. Pending.
- Charles D. Bates et al. vs. The Department of Engineering of The State of California et al.* Alameda County. To recover \$8,447.29 for state highway work. State holder of fund. Waiting disposition of main case.
- Berkeley Water Front Company, Plaintiff, vs. State of California, Defendant.* Superior Court, County of Contra Costa. Suit to quiet title to tide lands. Answer filed. Pending.
- The Bishop Company vs. The State of California.* Alameda County. To quiet title to certain salt, marsh and tide lands. Judgment for plaintiff. Closed.
- Application of William R. Blumenthal, as Guardian of Fanny Pander, an incompetent person.* Sacramento County. To recover dormant bank deposit escheated to state. Demurrer, answer and counterclaim filed. Pending.
- Chappel vs. C. O. Jagers Company.* Los Angeles County. Appeal from decision of Commissioner of Real Estate. Pending.
- A. M. Conrad vs. Ray L. Riley, Real Estate Commissioner et al.* Los Angeles County. To recover \$150,000.00 for libel. Transferred to Sacramento County. Dismissed. Closed.
- Ethel Darrow vs. Gilbert B. Daniels et al., as members of the State Board of Control.* Sacramento County. Proceeding to establish half orphan status of certain minors. Decree entered adjudging that said minors are half orphans. Closed.
- L. B. De Camp vs. Board of Directors of Veterans' Home of California.* Sacramento County. Action for damages for alleged breach of contract. Order judgment for defendants. Closed.

- Department of Public Works of the State of California, Division of Land Settlement, vs. Fred Worthington and Jean Worthington, his wife.* Merced County. Ejectment suit to recover possession forfeited land sale. Answer filed. Ready.
- John F. Dickson vs. W. S. Kingsbury, as Surveyor General, etc.* Sacramento County. Mandate to compel reference of land contest. Demurrer filed.
- W. W. Dinwiddie vs. Edwin T. Keiser, Commissioner of State Real Estate Department, et al.* Los Angeles County. Petition for writ of mandate to compel issuance of license. Writ denied. Closed.
- Russell L. Dunn vs. W. S. Kingsbury, as Surveyor General, etc.* City and County of San Francisco. Mandate to compel reference of land contest. Demurrer filed.
- Bessie G. Falvey vs. W. S. Kingsbury, as Surveyor General, etc.* City and County of San Francisco. Mandate for duplicate certificate of purchase. Answer filed.
- Hypolite Farot vs. W. S. Kingsbury, as Surveyor General, etc., et al.* Tuolumne County. Action to enjoin issuance of patent for state land. Demurrer and answer filed. Ready for trial.
- Ellen Foss et al. vs. Humboldt Brewing Company et al. and the State of California.* Humboldt County. Action to foreclose mortgage upon certain real property which is subject to subsequent lien of an unpaid fine imposed upon one of the defendants. Demurrer interposed. Submitted.
- In re Application of Phillippe Girard.* Sacramento County. Petition to recover from state treasury moneys deposited therein to the credit of petitioner by bank superintendent after liquidation Kern Valley Bank. Granted. Closed.
- W. H. Goff vs. U. S. Fidelity and Guarantee Company and Newell D. Darlington et al. as members of the Highway Commission.* Los Angeles County. Complaint on bond and notice to withhold in matter of construction of state highway. Demurrer filed and sustained.
- Theodore Grady vs. The State of California.* City and County of San Francisco. To recover \$7,200.00 for services rendered the State Blind Asylum. Pending.

- L. E. Grimm vs. Ray L. Riley, Real Estate Commissioner et al.* Los Angeles County. To recover \$150,000.00 for libel. Transferred to Sacramento County. Dismissed. Closed.
- Hart Bros. vs. Friend William Richardson, Treasurer of the State of California.* Los Angeles County. Suit to declare assessment null and void and to recover the amount paid under said assessment. Judgment for plaintiff. Closed.
- Martin Hanson vs. The State of California.* City and County of San Francisco. To quiet title to tide lands. Demurrer filed. Pending.
- Wm. Hartigan vs. State Civil Service Commission.* To enjoin hearing of charges against plaintiff by defendant. Judgment for defendant. Closed.
- G. W. Hathaway, Plaintiff, vs. M. F. Fillmore, Defendant.* Lassen County. Contest between adverse applicants to purchase state land. State intervened to procure dismissal of contest. Motion to dismiss granted. Closed.
- John W. Havens vs. Louise Hillegras et al.* Alameda County. To quiet title to tide lands. Demurrer filed. Pending.
- W. A. Hockman et al. vs. Daniel Berger and U. S. Webb, Attorney General, et al.* Los Angeles County. Petition for order for appointment of trustees and execution of lease of property of German Baptist Church. Order granted. Closed.
- Thomas A. Hughes vs. State Real Estate Department of the State of California, and Edwin T. Keiser, Real Estate Commissioner.* Los Angeles County. Petition for writ of prohibition. Alternative writ dismissed. Demurrer filed. Pending.
- William T. Jeter vs. The State of California.* Contra Costa County. To quiet title to certain real property. Answer filed. Pending.
- Robert F. Jones vs. Southern Pacific Railroad Company, N. D. Darlington et al.* Los Angeles County. Suit to quiet title to certain property. Pending.
- City of Los Angeles vs. J. Crampton Anderson et al.* Los Angeles County. Proceeding to condemn land in which state has an interest. Pending.

County of Los Angeles vs. Gilbert B. Daniels et al., as members of the State Board of Control. Los Angeles County. Petition for writ of mandate to compel audit of claims of County of Los Angeles against the State of California for the care of persons at Preston School of Industry. Motion for a change of venue and demurrer filed. Motion granted. Transferred to Sacramento County.

City of Los Angeles vs. A. H. Fixen et al. Los Angeles County. Condemnation proceedings to take property in which state has interest. Pending.

City of Los Angeles vs. Andrew Glassell et al. Los Angeles County. Proceedings to condemn land in which state has an interest. Pending.

City of Los Angeles vs. Frank W. Shedd et al. Los Angeles County. Proceedings to condemn land in which state has an interest. Pending.

Los Angeles & Salt Lake Railway Company vs. Richardson. Sacramento County. Action to recover state taxes paid under protest. Demurrer filed by state. Pending.

County of Los Angeles vs. State Board of Control. Los Angeles County. Petition for writ of mandate to recover moneys paid to Southern California State Hospital by County of Los Angeles. Briefs filed. Submitted.

County of Los Angeles vs. State of California. Los Angeles County. Action to recover money paid by county for care of persons at Preston School of Industry. Demurrer and motion for change of venue filed. Motion granted. Transferred to County of Sacramento.

County and City Mission Society in the Diocese of Los Angeles, a corporation, vs. Emily Seamans and U. S. Webb, Attorney General, et al. Los Angeles County. Action to procure leave of court for execution of mortgage. Judgment for plaintiff. Closed.

A. Martin vs. Eben F. Chase et al., and F. W. Richardson, as Treasurer. City and County of San Francisco. To recover securities for \$5,000 deposited by California Bond Corporation and apportion among creditors. Demurrer filed.

Walter G. Mathewson, Commissioner of Labor Statistics vs. Norbert Myles et al. Los Angeles County. Suit on labor claim. Ready. Pending.

Green Majors, Plaintiff, vs. Louise J. Stackpole et al., Defendants. Lassen County. Contest between adverse applicants to purchase state land. State intervened to procure dismissal of contest. Motion to dismiss granted. Closed.

Ergo A. Majors, Plaintiff, vs. L. M. McKenney et al., Defendants. Lassen County. Contest between adverse applicants to purchase state land. State intervened to procure dismissal of contest. Motion to dismiss granted. Closed.

In re William Wallace Nixon et al. Los Angeles County. Petition to register land title under Torrens Act. State interested. Pending.

Edna J. Mathiesen vs. State of California et al. City and County of San Francisco. Action to enforce agreement to make a will. Opposition filed by state. Pending.

Nevada and California Land and Live Stock Company vs. Frank C. Jordan, as Secretary of State. City and County of San Francisco. To recover \$225.00 license tax. Ready.

Nevada County Narrow Gauge Railroad Company vs. Richardson, as State Treasurer. City and County of San Francisco. To recover taxes paid under protest. Transferred to Sacramento County on motion of state. Demurrer and answer filed. Pending.

Zoe Nilsson vs. Nathan Landsberg and Frank Baierski. Los Angeles County. Appeal from decision of Commissioner of Real Estate. Pending.

Lloyd E. Noble vs. State Real Estate Department of the State of California, and Edwin T. Keiser, Commissioner thereof. Los Angeles County. Petition for writ of prohibition restraining Commissioner from conducting hearing. Demurrer and notice of motion to dissolve alternative writ filed. Pending.

City of Oakland, a Municipal Corporation, Plaintiff, vs. Nancy E. Lee et al., Defendants. County of Alameda. Suit to quiet title. Answer filed. State holds a tax deed to a portion of the property sought to be condemned. Answer filed. Pending.

Pacific Coast Railway Company, a corporation, vs. Frank C. Jordan, as Secretary of State. City and County of San Francisco. To recover \$200 license tax. Demurrer filed.

Pacific Coast Railway Company, a corporation, vs. Friend W. Richardson, as State Treasurer. City and County of San Francisco. Transferred on motion to Sacramento. Action to recover state tax paid under protest. Demurrer filed. Pending.

Sylvester E. Payne vs. Public School Teachers Retirement Salary Fund Board et al. Sacramento County. Mandate to compel defendants to retire petitioner under Teachers Retirement Salary Act. Submitted.

People, ex rel. Webster, vs. Associated Dairymen of California, Incorporated. City and County of San Francisco. Quo warranto to forfeit charter for usurpation of corporate franchise. Demurrer filed.

People vs. Atchison, Topeka & Santa Fe Railway Company. Sacramento County. Action to collect unpaid state taxes for year 1921. Answer filed. State's demurrer to answer filed. Pending.

People, ex rel. Bailey, vs. Imperial Valley Milk Producers' Association. Imperial County. Quo warranto to forfeit charter for usurpation of corporate franchise. Demurrer filed.

People of the State of California vs. Leila Jones et al. Kings County. To cancel patents issued in bed of Tulare Lake. Dismissed. Closed.

People of the State of California et al. vs. Robert F. Jones, May K. Rindge et al. Los Angeles County. Condemnation proceedings to take certain property for highway construction. Property taken. Pending.

People of the State of California vs. Kings County Development Company. Kings County. To cancel patents issued in bed of Tulare Lake. Dismissed. Closed.

People of the State of California vs. Kings County Development Company. Kings County. To cancel patents issued in bed of Tulare Lake. Dismissed. Closed.

People of the State of California vs. Kings County Development Company. Kings County. To cancel patents issued in bed of Tulare Lake. Dismissed. Closed.

People of the State of California vs. Kings County Development Company. Kings County. To cancel patents issued in bed of Tulare Lake. Dismissed. Closed.

- People of the State of California vs. Marine Products Company, a corporation.* Los Angeles County. Suit to recover \$88.22 privilege tax. Pending.
- People of the State of California vs. Newport Packing Company, a corporation.* Los Angeles County. Suit to recover \$237.08 privilege tax. Pending.
- People, ex rel. Merion M. Webster, vs. Northern California Milk Producers' Association, Incorporated.* Sacramento County. To forfeit corporate charter for usurpation of franchise. Pending.
- People, ex rel. Webster, vs. Associated Dairymen of California, Incorporated.* Sacramento County. Quo warranto to forfeit charter for usurpation of corporate franchise. Pending.
- People, ex rel. Gearhart, vs. San Joaquin Valley Milk Producers' Association, Incorporated.* Fresno County. Quo warranto to forfeit charter for usurpation of corporate franchise. Demurrer filed. Pending.
- People of the State of California vs. Southern California Fish Company, a corporation.* Los Angeles County. Suit to recover \$408.90 privilege tax. Pending.
- People of the State of California, by the Department of Public Works of the State of California, vs. Southern Pacific Railroad Company et al.* Los Angeles County. Condemnation proceedings to take certain property for highway construction. Pending.
- People of the State of California vs. Southern Pacific Railway Company.* Sacramento County. Action to recover unpaid state taxes for year 1921. Demurrer to complaint filed. Pending.
- People of the State of California vs. Samuel Strohn.* Action to quiet title to certain lands in Los Angeles County belonging to the State of California. Judgment for plaintiff.
- People of the State of California vs. Ida May Tanigoshi.* Los Angeles County. Suit to declare escheat under the Alien Land Law. Case at issue. Ready for trial.
- People of the State of California, by the Department of Public Works of the State of California, vs. Title Insurance & Trust Company et al.* Los Angeles County. Condemnation proceeding to take certain property for highway construction. Pending.

Louis Pfeiffer vs. W. S. Kingsbury, as Surveyor General. Sacramento County. Mandate to compel defendant to refer land contest. Demurrer overruled and stipulation made for answer to be served on notice.

Charles C. Price et al. vs. Sixth District Agricultural Association et al. Los Angeles County. Suit for injunction to enjoin building of Memorial Colosseum and restoration of exposition grounds and the cancellation of contract providing for erection of colosseum. Pending.

Pullman Company vs. Richardson, as State Treasurer. City and County of San Francisco. Action to recover state taxes paid under protest. Appearance filed. Pending on stipulation.

Pullman Company vs. Richardson, as State Treasurer. City and County of San Francisco. Action to recover state taxes paid under protest. Demurrer filed. Pending on stipulation.

Reed Lumber Company vs. W. S. Kingsbury, as Surveyor General. City and County of San Francisco. Mandate to issue certificate for return of purchase money on failure of title. Answer filed.

Fred J. H. Ricken and R. Ehrhart, etc., vs. The State of California. City and County of San Francisco. To recover \$3,270 damages under contract for work on San Jose Normal School. Demurrer sustained.

Rincon Ditch Company and The State of California vs. Frank Pelliser et al. Los Angeles County. Injunction proceedings involving irrigation water of Whittier State School. Judgment for plaintiff. Closed.

Harry C. Ross vs. W. W. Dinwiddie. Los Angeles County. Appeal from decision of Commissioner of Real Estate. Pending.

Amanda Meta Salter vs. Commissioner of Corporations et al. Los Angeles County. Foreclosure of pledge on stock in escrow under order of Commissioner of Corporations. Pending.

San Pedro, Los Angeles and Salt Lake Railway Company vs. Frank C. Jordan, as Secretary of State. Los Angeles County. To recover \$260 license tax. Stipulation extending time to plead until decision in Albert Pick & Company case by Supreme Court.

Jay Saunders vs. Fish and Game Commission. Los Angeles County. Petition for writ of mandate to compel Fish and Game Commission to issue permit for the reduction of fish. Pending.

Charles F. Saunders vs. W. S. Kingsbury, as Surveyor General, etc. Sacramento County. Petition for equitable relief from forfeiture of interest in certain lands, following failure of petitioner to pay delinquent interest, as provided in chapter 602 of California Statutes of 1917, said petition being based upon non-receipt of the notice prescribed by said statute. Relief denied on account of laches of petitioner. Closed.

Sierra Amalgamated Mines Company et al. vs. H. L. Carnahan. Alameda County. To recover \$100,000 damages for action as Commissioner of Corporations. Demurrer filed.

F. Shibata vs. Van Camp Sea Food Company. Los Angeles County. Petition for writ of review directed against Fish and Game Commission. Action dismissed. Closed.

Southern Pacific Company vs. Richardson, as State Treasurer. City and County of San Francisco. Action to recover state taxes paid under protest. Pending on stipulation.

Stafford Packing Company vs. Fish and Game Commission of California. Los Angeles County. Petition for writ of review directed against Fish and Game Commission. Action dismissed. Closed.

In re Albert Stanley et al. Los Angeles County. Petition to register land title under Torrens Act. State interested. Pending.

The State of California vs. Reclamation District No. 784. Yuba County. Action brought to recover judgment upon a warrant of the district. Warrant paid in full with interest. Dismissed. Closed.

State of California, by J. S. Chambers, as State Controller, vs. Sultana Mining Company et al. Sacramento County. To recover rents, issues and profits of property sold to state for taxes. Waiting decision of case against Royal Consolidated Mining Company now in Supreme Court.

State of California vs. U. N. Farm Company. Sutter County. To forfeit land deeded to defendant on ground that stock of said defendant corporation is owned by aliens ineligible to citizenship in violation of Alien Land Law.

State of California vs. H. Sumida et al. Tulare County. Escheat case under Alien Land Law. Demurrer filed.

State of California vs. H. Sumida et al. Tulare County. Escheat case under Alien Land Law. Demurrer filed.

State of California vs. Tojuero Tagami and Ramon D. Sepulveda. Los Angeles County. To escheat land leased to Japanese contrary to Alien Land Law. Pending.

State Improvement-Development Company, a corporation, vs. W. S. Kingsbury, as Surveyor General, etc. Shasta County. Mandate to compel respondent to issue patents for certain lands. Motion to set aside judgment argued, briefed and submitted.

L. C. Stuckey vs. W. S. Kingsbury, as Surveyor General, etc. Sacramento County. Petition for equitable relief from forfeiture of interest in certain lands, following failure of petitioner to pay delinquent interest, as provided in chapter 602 of California Statutes of 1917, said petition being based upon non-receipt of the notice prescribed by said statute. Granted upon condition petitioner pay all delinquent interest, penalties and costs. Closed.

Walter P. Story vs. Friend William Richardson, Treasurer of the State of California. Los Angeles County. Suit to declare assessment null and void and to recover the amount paid under said assessment. Judgment for plaintiff. Closed.

Walter P. Story vs. Friend William Richardson, Treasurer of the State of California. Los Angeles County. Suit to declare assessment null and void and to recover the amount paid under said assessment. Judgment for plaintiff. Closed.

Mary A. Sturdivant, vs. Gilbert B. Daniels et al, as members of State Board of Control. Sacramento County. Proceeding to establish half orphan status of certain minors. Decree entered adjudging that said minors are half orphans. Closed.

Theresa Sutro, a widow, Plaintiff, vs. The State of California et al, Defendants. Alameda County. Suit to quiet title to tide lands under chapter 335, Statutes of 1921. Judgment for plaintiff. Pending.

Frank C. Sykes, Plaintiff, vs. State of California, Defendant. City and County of San Francisco. Suit to quiet title under chapter 236, Statutes of 1921. Judgment for plaintiff. Closed.

Beatrice M. Thaxter vs. The State of California. Contra Costa County. To quiet title to certain tide lands. Pending.

- Susan E. Thompson vs. The State of California.* Contra Costa County. To quiet title to certain tide lands. Pending.
- L. Togni vs. John S. Chambers, as State Controller, etc.* Sacramento County. Petition for writ of mandate to compel respondent to draw warrant in favor of petitioner for the sum of \$109.87 deposited in the receiver's fund in state treasury. Demurrer and answer filed.
- Tulare Water Company vs. State Water Commission.* City and County of San Francisco. Action in mandamus. Judgment sustaining demurrer reversed by Supreme Court. Motion to strike plaintiff's cost bill from the files granted, and appeal taken. Answer filed. Pending.
- Alva Udell vs. W. S. Kingsbury, as Surveyor General, etc.* Sacramento County. Mandate to compel defendant to file petition to purchase state land. Demurrer filed.
- Elizabeth Underwood vs. W. S. Kingsbury, as Surveyor General, etc.* City and County of San Francisco. Mandate to compel defendant to file petition to purchase state land. Demurrer filed.
- U. S. Fidelity and Guaranty Company, a corporation, vs. Frank C. Jordan, as Secretary of State.* City and County of San Francisco. To recover \$600 license tax. Demurrer filed.
- Universal Film Manufacturing Company vs. Friend W. Richardson, as State Treasurer.* Sacramento County. Action to recover state taxes paid under protest. Answer filed. Pending.
- Chandler O. and Emma C. Waters vs. Arthur E. Hull.* Los Angeles County. Appeal from decision of Commissioner of Real Estate. Pending.
- In re Arthur Andrew White et al.* Los Angeles County. Petition to register land title under Torrens Act. State interested. Pending.
- Caroline L. Wendler vs. J. S. Gendron, Wim. C. Casteel and Chris Nelson, as Boulevard Land & Oil Co.* Los Angeles County. Appeal from decision of Commissioner of Real Estate. Pending.

ESCHEATED ESTATES IN THE SUPERIOR COURTS.

In the Matter of the Estate of Branceford Alcorn, deceased. Sacramento County. Petition of Aley A. Robeson et al to recover money deposited in the state treasury to the credit of said estate. Demurrer filed.

In the Matter of the Estate of William Brady, deceased. Los Angeles County. Half of estate declared subject to escheat by Supreme Court. State began action to declare escheat and various heirs are contesting. Testimony by deposition being taken.

In the Matter of the Estate of Frank Black, deceased. City and County of San Francisco. The state intervened in opposition to petition for probate of will by Seward M. Estabrook. Pending.

In the Matter of the Estate of Frederick Brown, deceased. City and County of San Francisco. State intervened and claimed escheat. Deposition being taken in Switzerland.

In the Matter of the Estate of Margaret J. Carney, deceased. City and County of San Francisco. State demurred to petition of alleged heirs for distribution. Demurrer sustained. Pending.

In the Matter of the Estate of Margaret J. Carney, deceased. Sacramento County. Petition of Mary C. Metzger et al to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony by depositions being taken.

In the Matter of the Estate of William Carson, deceased. Sacramento County. Petition of Margaret Carson to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony by depositions being taken.

In the Matter of the Estate of Margaret T. Clark, deceased. Petition by heirs for decree of distribution of moneys held by public administrator of the County of Los Angeles. Public administrator petitioning for distribution to the State of California. Decree denied. Closed.

In the Matter of the Estate of John Cloran, deceased. Sacramento County. Petition of Michael Fahy et al to recover \$5,229.46 on deposit in the state treasury to the credit of said estate. Petition granted. Closed.

- In the Matter of the Estate of George Hite Cook, deceased.* Sacramento County. Petition of Surilday Mary Adamson and Frank Cook to recover money deposited in the state treasury to the credit of said estate. Mary A. Cook cross claimant. Tried and submitted. Pending.
- In the Matter of the Estate of Nancy Darr, deceased.* Humboldt County. Petition for distribution pending. State intervened claiming escheat.
- In the Matter of the Estate of Emanuelle Dasso, deceased.* Sacramento County. Petition of Emma Dasso Trifolgli to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony taken by depositions. Ready for hearing.
- In the Matter of the Estate of John D. Erhardt, deceased.* Sacramento County. Petition of D. McDougall, as administrator of the estate of Sophi Niemann to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of Mary Fairfield, deceased.* Petition for order directing state treasurer to pay money on deposit to administrator. Decree granted. Closed.
- In the Matter of the Estate of Jean Faure, deceased.* Sacramento County. Petition of Andre Faure to recover \$193.58 on deposit in the state treasury to the credit of said estate. Under examination.
- In the Matter of the Estate of Samuel Furter, deceased.* Sacramento County. Petition of Joseph A. Fisch to establish heirship and to recover money deposited in the state treasury to the credit of said estate. Demurrer filed.
- In the Matter of the Estate of J. C. Hale, deceased.* Lake County. Petition of Curtis Hale to recover money deposited in the state treasury to the credit of said estate. Motion for change of venue to Sacramento County granted. Ready for trial.
- In the Matter of the Estate of Harry A. Hastings, deceased.* Sacramento County. Petition of William Landers et al., to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony being taken by depositions.
- In the Matter of the Estate of James Hickey, deceased.* City and County of San Francisco. State demurred to petition of alleged heirs for distribution. Demurrer sustained. Pending.

- In the Matter of the Estate of Herma Wilhelmina Hyrob, deceased.* Sacramento County. Petition of Anna Maria Wilhelmina Sobbe Briggs to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of Perfidio Joseph, sometimes called Joseph Perfidio, deceased.* Napa County. Petition of Emilia d' Avila et al., to recover money on deposit in the state treasury to the credit of said estate. Motion for change of venue to Sacramento County argued and submitted.
- In the Matter of the Estate of George Kroken, deceased.* Sacramento County. Petition of Mathias Monsen Kroken to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony taken by depositions. Ready for hearing.
- In the Matter of the Estate of Gottfried Marti, deceased.* Sacramento County. Petition of Bertha Spring et al., to recover money deposited in the state treasury to the credit of said estate. Answer filed.
- In the Matter of the Estate of C. A. McMahan, deceased.* Sacramento County. Petition of Marion D. McMahan et al., to recover money deposited in the state treasury to the credit of said estate. Answer filed. Dismissed. Closed.
- In the Matter of the Estate of Leon Morrison, deceased.* Alameda County. Proceeding to establish lost will. Intervention by state. Proceeding dismissed with prejudice.
- In the Matter of the Estate of Leon Morrison, deceased.* Alameda County. Probate of will, contest by state. Pending.
- In the Matter of the Estate of Mable Moulton, deceased.* Sacramento County. Action to declare escheat of money in state treasury. Pending.
- In the Matter of the Estate of Antonia Nolting, deceased.* Sacramento County. Petition of Edward Mehlert, Jr., to recover \$221.02 on deposit in the state treasury to the credit of said estate. Under examination.
- In the Matter of the Estate of John Peller, deceased.* Sacramento County. Petition of Herman Peller et al., to recover money deposited in the state treasury to the credit of said estate. Answer filed.

In the Matter of the Estate of Thomas Power, deceased. Sacramento County. Petition of Mary Morris to recover money on deposit in the state treasury to the credit of said estate. Answer filed.

In the Matter of the Estate of William Henry Preston, deceased. Sacramento County. Petition of Harriet T. Rice et al., to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.

In the Matter of the Estate of Jawalla Ram, deceased. Sacramento County. Petition of Jaikaur and T. E. K. Cormac as guardian of Bhafoo Apo, a minor, to recover money deposited in the state treasury to the credit of said estate. Demurrer filed.

In the Matter of the Estate of Clara Remion, deceased. Alameda County. Petition by alleged heirs for distribution. Demurrer filed by state. Pending.

In the Matter of the Estate of John Reisinger, deceased. Sacramento County. Petition of Lewis Reisinger to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony being taken by depositions.

In the Matter of the Estate of Andre Ricard, deceased. Sacramento County. Petition of Pauline Esmiol to recover from the state treasury the residue of the escheated estate of the said Andre Ricard. Awaiting decision in the test case of the Estate of Suzanne Aufret.

In the Matter of the Estate of Eswald Schmeckpeper, deceased. Sacramento County. Petition of Federico Unger, foreign executor, etc., to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.

In the Matter of the Estate of Lorenz Schmid, deceased. Sacramento County. Petition of Therese Schrott to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.

In the Matter of the Estate of Martin Schoof, deceased. Sacramento County. Petition of Martha Sieman to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony being taken by depositions.

In the Matter of the Estate of Fred A. Scott, deceased. Sacramento County. Petition of Paul W. Scott et al., to recover money deposited in the state treasury to the credit of said estate. Answer filed. Testimony being taken by depositions.

- In the Matter of the Estate of John Seipen, deceased.* Sacramento County. Petition of Cecilia Seipen et al., to recover money deposited in the state treasury to the credit of said estate. Demurrer to petition sustained.
- In the Matter of the Estate of William Sellers, deceased.* Sacramento County. Petition of D. McDougall, as the administrator of the estate of Marie Jaeger, deceased, to recover money deposited in the state treasury to the credit of said estate. Answer filed.
- In the Matter of the Estate of Joseph Shank, deceased.* Sacramento County. Petition of Jacob Shank et al., to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of Julius Singer, deceased.* Sacramento County. Petition of Yetta Taub to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of Frederick William Strang, deceased.* Sacramento County. Petition of Christina Strang to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of August Walter Strasden, deceased.* Sacramento County. Petition of Paul Strasden et al., to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of Eskelander Svensson, also known as Eskil Anders Svensson, deceased.* Sacramento County. Petition of Cecilia Paalsson et al., to recover money deposited in the state treasury to the credit of said estate.
- In the Matter of the Estate of Kamiki Ujihara, deceased.* Sacramento County. Petition of Torakuma Ujihara to recover money deposited in the state treasury to the credit of said estate. Granted. Closed.
- In the Matter of the Estate of John Wolff, deceased.* Sacramento County. Petition of Joseph Wolff et al., to recover money deposited in the state treasury to the credit of said estate. Demurrer filed.

APPLICATIONS TO SUE IN THE NAME OF THE PEOPLE OF
THE STATE.

Twenty-four applications for permission to sue in the name of the People of the State of California have been filed in my office. I have granted thirteen of these, denied nine, one was abandoned and one is pending the outcome of another suit. These applications were as follows:

People, ex rel. W. H. Cram, vs. Redlands High School District et al. San Bernardino County. To declare void order annexing Redlands High School District to Cram School District. Application granted.

People, ex rel. City of Imperial, vs. Holton Power Company. San Diego County. To declare unwarranted usurpation of franchise to furnish petitioner electricity. Application granted.

People, ex rel. City of Pacific Grove, vs. Monterey and Pacific Grove Railway Company. Monterey County. To declare unwarranted usurpation of franchise for operating street railroad. Application granted.

People, ex rel. Everett K. Da Vall et al., vs. Coachella Valley Storm Water District et al. Riverside County. To exclude defendant from use of franchise claimed. Application denied.

People, ex rel. James H. Devine, vs. Albert Elkus et al. Sacramento County. To declare unconstitutional the proportionate system of voting and to remove the councilmen of the City of Sacramento. Application granted.

People, ex rel. R. P. Davidson, vs. City of Los Angeles. Los Angeles County. To nullify the annexation of Palms District to the City. Application denied.

People, ex rel. N. H. Gleason et al., vs. Corona High School District. Riverside County. To declare void order annexing certain school districts to high school district. Application granted.

People, ex rel. W. W. Gailbraith et al., vs. Thomas Haverty Co. et al. Tulare County. To declare void formation of Tulare County Water Works District No. 1. Application granted.

- People, ex rel. John C. Gerlach, vs. Lathrop Lighting District et al.* San Joaquin County. To declare void the organization of Lathrop Lighting District. Application granted.
- People, ex rel. Lloyd Holowell, vs. John W. R. Grogan.* Los Angeles County. To exclude defendant from office of Lieutenant of Police in the City of Los Angeles. Application denied.
- People, ex rel. Lassen Lumber and Box Company, vs. Susanville Sanitary District et al.* Lassen County. To declare void organization of Sanitary District. Application granted.
- People, ex rel. Locke-Paddon et al., vs. Reclamation District No. 1 of the County of Santa Cruz et al.* Santa Cruz County. To declare void organization of Reclamation District. Application granted.
- People, ex rel. Lawyers Institute of San Diego, vs. Merchants Protective Corporation.* San Diego County. To declare unlawful the practice of law by corporations. Application granted.
- People, ex rel. Walter A. Lewis, vs. The County of Los Angeles.* Los Angeles County. To declare invalid the charter of the County of Los Angeles. Application denied.
- People, ex rel. Edgar McKee, vs. O. B. Kibele.* Los Angeles County. To exclude defendant from office of member of Harbor Commissioners of the City of Los Angeles. Application denied.
- People, ex rel. L. E. McBride, vs. The City of Los Angeles.* Los Angeles County. To declare void annexation of Westgate District. Application denied.
- People, ex rel. V. L. Martin and J. J. McCabe, vs. M. L. Richmond, Superintendent of Schools of Kings County, et al.* Kings County. To declare void the consolidation of Lake View School District and Stratford School District. Application abandoned.
- People, ex rel. Andrew Smith et al., vs. Kelseyville Union School District et al.* Lake County. To declare void annexation of Big Valley School District to Kelseyville Union School District. Application granted.
- People, ex rel. R. S. Thompson, vs. San Bernardino High School District et al.* San Bernardino County. To declare void order annexing Highland School District to San Bernardino High School District. Application granted.

People, ex rel. Walter P. Temple, vs. City of Montebello et al. County of Los Angeles. To declare void proceedings for the incorporation of the City of Montebello. Application granted.

People, ex rel. James Turner, vs. Manteca Union High School District. San Joaquin County. To declare void the proceedings for the formation of the Manteca Union High School District. Application denied.

People, ex rel. Geo. H. Thompson, vs. Lakeport Union High School District. Lake County. To declare void annexation of school district. Application pending decision of court in Kelseyville School District case.

People, ex rel. Jennie R. Thompson, vs. Highland Lighting District et al. San Bernardino County. To declare void organization of Highland Lighting District. Application granted.

People, ex rel. Anna A. Wise, vs. James Patrick. San Diego County. To exclude defendant from office of Police Matron of the City of San Diego. Application denied.

TAX SUITS, 1921.

Suits to recover franchise taxes were filed in Sacramento County in 1921, as follows:

The People of the State of California vs. Alexander Building Company.
Tax \$222.00. Penalty \$11.10.

The People of the State of California vs. Amalgamated Motors Corporation.
Tax \$156.00. Penalty \$19.50. Paid and dismissed.

The People of the State of California vs. The American Engine Corporation.
Tax \$90.00. Penalty \$11.25.

The People of the State of California vs. American Engraving and Color Plate Company. Tax \$48.00. Penalty \$6.00.

The People of the State of California vs. Anaheim Beef and Provision Company. Tax \$360.00. Penalty \$45.00. Paid and dismissed.

The People of the State of California vs. A. R. G. Bus Company. Tax \$360.00. Penalty \$45.00.

The People of the State of California vs. Associated Brokers, Inc. Tax \$72.00. Penalty \$9.00.

The People of the State of California vs. Associated Property Owners of San Francisco. Tax \$48.00. Penalty \$6.00.

The People of the State of California vs. The Bailey Company. Tax \$144.00. Penalty \$18.00.

The People of the State of California vs. Bay Side Fish Company. Tax \$102.00. Penalty \$5.10.

The People of the State of California vs. Big Trees Auto Stage Company.
Tax \$48.00. Penalty \$6.00.

The People of the State of California vs. Blanchard Brown Company.
Tax \$144.00. Penalty \$18.00. Paid and dismissed.

- The People of the State of California vs. California Vegetable Packing Company.* Tax \$102.00. Penalty \$12.75.
- The People of the State of California vs. Christie Film Company.* Tax \$72.00. Penalty \$3.60. Paid and dismissed.
- The People of the State of California vs. Coats & Williamson, Inc.* Tax \$54.00. Penalty \$60.75.
- The People of the State of California vs. Dimond Estate Company.* Tax \$300.00. Penalty \$37.50. Paid and dismissed.
- The People of the State of California vs. E. L. Potter Company.* Tax \$240.00. Penalty \$30.00.
- The People of the State of California vs. Fishermen's Fish Company of San Pedro.* Tax \$144.00. Penalty \$18.00.
- The People of the State of California vs. Geo. Pepperdino, Inc.* Tax \$60.00. Penalty \$3.00.
- The People of the State of California vs. Golden West Mercantile Company.* Tax \$54.00. Penalty \$6.75.
- The People of the State of California vs. Grant-Holmes Hotel Operating Company.* Tax \$75.00. Penalty \$3.75.
- The People of the State of California vs. Harry Green & Co., Inc.* Tax \$84.00. Penalty \$10.50.
- The People of the State of California vs. Hemet San Jacinto Growers Association.* Tax \$150.00. Penalty \$18.75.
- The People of the State of California vs. Imperial Valley Oil and Cotton Company.* Tax \$1,200.00. Penalty \$150.00.
- The People of the State of California vs. Japanese Fishermen's Association of San Diego.* Tax \$120.00. Penalty \$15.00. Paid and dismissed.
- The People of the State of California vs. Lachman Wall Bed Company.* Tax \$84.00. Penalty \$10.50.

- The People of the State of California vs. Levy Cafe Company.* Tax \$90.00.
Penalty \$11.25.
- The People of the State of California vs. Liberty Food Products Company.*
Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Moore-Watson Dry Goods Company.*
Tax \$120.00. Penalty \$15.00.
- The People of the State of California vs. Motor Distributors Company.*
Tax \$72.00. Penalty \$9.00.
- The People of the State of California vs. Nile Garden Canning Company.*
Tax \$51.00. Penalty \$2.55.
- The People of the State of California vs. Oakland Securities Holding Company.*
Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Pacific Fish Products Company.*
Tax \$72.00. Penalty \$9.00.
- The People of the State of California vs. Pacific Coast Salvage Association.*
Tax \$240.00. Penalty \$30.00.
- The People of the State of California vs. Pingree Sugar Company.* Tax
\$144.00. Penalty \$18.00.
- The People of the State of California vs. Pioneer Wrecking and Construction
Company.* Tax \$54.00. Penalty \$6.75. Paid and dismissed.
- The People of the State of California vs. Rauer's Law and Collection Com-
pany.* Tax \$84.00. Penalty \$10.50.
- The People of the State of California vs. San Antonio Growers Association.*
Tax \$144.00. Penalty \$18.00.
- The People of the State of California vs. San Francisco Milling Company.*
Tax \$144.00. Penalty \$18.00.
- The People of the State of California vs. Santa Cruz Brewing Company.*
Tax \$90.00. Penalty \$11.25.

The People of the State of California vs. Southern California Fish Company.
Tax \$660.00. Penalty \$82.50.

The People of the State of California vs. States Land Company. Tax
\$84.00. Penalty \$10.50. Paid and dismissed.

The People of the State of California vs. Summerland Realty Company.
Tax \$144.00. Penalty \$18.00.

The People of the State of California vs. Theatre Owners Association.
Tax \$60.00. Penalty \$7.50.

The People of the State of California vs. Western Auto Stage Company.
Tax \$186.00. Penalty \$23.25.

The People of the State of California vs. W. Frank Miller & Company.
Tax \$120.00. Penalty \$15.00. Paid and dismissed.

The People of the State of California vs. Worswick Construction Company.
Tax \$144.00. Penalty \$18.00.

The People of the State of California vs. Big Bursar Mining Company.
Tax \$48.00. Penalty \$6.00. Paid and dismissed.

The People of the State of California vs. Golden State Oil Company. Tax
\$102.00. Penalty \$12.75.

The People of the State of California vs. General Pacific Railroad Company.
Tax \$54.00. Penalty \$6.75. Paid and dismissed.

FOREIGN CORPORATIONS.

The People of the State of California vs. F. C. Austin Company, Inc. Tax
\$48.00. Penalty \$6.00.

The People of the State of California vs. Pacific Mail Steamship Company.
Tax \$600.00. Penalty \$75.00.

The People of the State of California vs. P. S. Wick Company. Tax \$162.00.
Penalty \$20.25.

The People of the State of California vs. Robert Brunton Studios, Inc.
Tax \$750.00. Penalty \$93.75.

The People of the State of California vs. Union Supply Company. Tax
\$66.00. Penalty \$8.25.

The People of the State of California vs. Washoe County Bank. Tax \$84.00.
Penalty \$10.50. Paid and dismissed.

PUBLIC SERVICE CORPORATIONS.

The People of the State of California vs. Latrobe Telephone Company.
Tax \$2.10. Penalty \$0.26. Paid and dismissed.

The People of the State of California vs. Bidwell Electric Company. Tax
\$79.96. Penalty \$10.00.

The People of the State of California vs. Citrus Belt Gas Company. Tax
\$3,482.69. Penalty \$174.14.

The People of the State of California vs. Southwestern Gas Company.
Tax \$798.88. Penalty \$99.85.

*The People of the State of California vs. Winterhaven Improvement Com-
pany.* Tax \$129.86. Penalty \$16.23.

*The People of the State of California vs. Monterey and Pacific Grove Rail-
way Company.* Tax \$2,142.66. Penalty \$267.83.

*The People of the State of California vs. Patterson & Western Railroad
Company.* Tax \$525.56. Penalty \$65.69. Paid and dismissed.

*The People of the State of California vs. Mutual Savings Bank of San Fran-
cisco.* Tax \$11,397.64. Penalty \$1,424.70.

The People of the State of California vs. First National Bank of Gridley.
Tax \$299.86. Penalty \$14.99.

*The People of the State of California vs. Security National Bank of San
Mateo County.* Tax \$288.14. Penalty \$36.01.

*The People of the State of California vs. First National Bank of Pescadero,
California.* Tax \$256.06. Penalty \$32.00. Paid and dismissed.

TAX SUITS, 1922.

Suits to recover franchise taxes were filed in Sacramento County in 1922, as follows:

- The People of the State of California vs. A. G. Heunisch Company.* Tax \$56.00. Penalty \$7.00.
- The People of the State of California vs. Al. G. Faulkner Company, Inc.* Tax \$218.00. Penalty \$10.90.
- The People of the State of California vs. American Fruit Distributors of California.* Tax \$80.00. Penalty \$10.00.
- The People of the State of California vs. American Sea Food Company.* Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Asahi Transfer Company.* Tax \$104.00. Penalty \$13.00.
- The People of the State of California vs. The Barr Bros. Company.* Tax \$44.00. Penalty \$5.50.
- The People of the State of California vs. Barrel House.* Tax \$90.00. Penalty \$11.25.
- The People of the State of California vs. Beadle Bros., Inc.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Blythe Mercantile Company.* Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Bond Scale Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Borello Bros. Company.* Tax \$56.00. Penalty \$7.00.
- The People of the State of California vs. California Cotton and Factorage Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. California Growers Association.* Tax \$40.00. Penalty \$5.00.

- The People of the State of California vs. California Purity Paper Bottle Company.* Tax \$88.00. Penalty \$11.00.
- The People of the State of California vs. California Rubber Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Chico Land and Water Company.* Tax \$44.00. Penalty \$5.50.
- The People of the State of California vs. Consolidated Film Corporation.* Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Consolidated Warehouse Company.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Cooks Springs Mineral Water Company.* Tax \$80.00. Penalty \$10.00.
- The People of the State of California vs. Cooperative Wholesale Company.* Tax \$104.00. Penalty \$13.00.
- The People of the State of California vs. Crescent Theatres, Incorporated.* Tax \$44.00. Penalty \$5.50.
- The People of the State of California vs. Dante Market Company.* Tax \$140.00. Penalty \$17.50.
- The People of the State of California vs. Davis Bros. Inc., of California.* Tax \$128.00. Penalty \$16.00.
- The People of the State of California vs. The Ditty Brothers, Incorporated.* Tax \$72.00. Penalty \$9.00.
- The People of the State of California vs. Du Broy Motor Company.* Tax \$180.00. Penalty \$22.50.
- The People of the State of California vs. Eaton Bradford Corporation.* Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. East Piedmont Land Company.* Tax \$180.00. Penalty \$22.50.

The People of the State of California vs. Ehman Tire and Rubber Company of California. Tax \$40.00. Penalty \$5.00.

The People of the State of California vs. Ellis Street Investment Company. Tax \$66.00. Penalty \$3.30.

The People of the State of California vs. The Erbes Brothers Music Company. Tax \$48.00. Penalty \$6.00.

The People of the State of California vs. Eureka Bottle Supply Company. Tax \$60.00. Penalty \$3.00.

The People of the State of California vs. Fontana Company. Tax \$50.00. Penalty \$2.50.

The People of the State of California vs. Food Supply Company. Tax \$100.00. Penalty \$12.50.

The People of the State of California vs. Frawley Motor Company. Tax \$520.00. Penalty \$65.00.

The People of the State of California vs. Frank O. Renstrom Company. Tax \$160.00. Penalty \$6.00.

The People of the State of California vs. Gnu Investment Company. Tax \$40.00. Penalty \$5.00.

The People of the State of California vs. Globe Oil Mills. Tax \$600.00. Penalty \$30.00.

The People of the State of California vs. Globe Wholesale Grocery Company, Inc. Tax \$104.00. Penalty \$13.00.

The People of the State of California vs. Golden Crown Butter Company. Tax \$80.00. Penalty \$10.00.

The People of the State of California vs. Great Eastern Trade Company. Tax \$80.00. Penalty \$10.00.

The People of the State of California vs. Gundlach Bundschu Wine Company, Inc. Tax \$204.00. Penalty \$25.50.

- The People of the State of California vs. Hamilton Carhartt Cotton Mills of California.* Tax \$120.00. Penalty \$6.00.
- The People of the State of California vs. Harbor City Canning Company.* Tax \$50.00. Penalty \$2.50.
- The People of the State of California vs. Harris Rethreading Equipment Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Henry G. de Roos, Inc.* Tax \$52.00. Penalty \$6.50.
- The People of the State of California vs. Herald Hotel Company.* Tax \$76.00. Penalty \$9.50.
- The People of the State of California vs. Hercules Carburetor Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Hinckley Beach Canning Company, Incorporated.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Hogan Realty Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. The Hooper Creamery Company.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Huff Brill & Company, Inc.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Imperial Delta Cotton Association.* Tax \$352.00. Penalty \$17.60.
- The People of the State of California vs. The Independent Cloak and Suit Manufacturers' Protective Association.* Tax \$72.00. Penalty \$9.00.
- The People of the State of California vs. Junior Investment Company.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. King-Hollaway Company.* Tax \$48.00. Penalty \$6.00.

- The People of the State of California vs. Knapp & Baxter, Inc.* Tax \$60.00.
Penalty \$7.50.
- The People of the State of California vs. L. D. Allen, Inc.* Tax \$320.00.
Penalty \$40.00.
- The People of the State of California vs. L. E. Bontz Publishing Company.*
Tax \$44.00. Penalty \$5.50.
- The People of the State of California vs. Lindsay Ripe Olive Packing Com-
pany.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Mangrum and Otter Company.*
Tax \$68.00. Penalty \$8.50.
- The People of the State of California vs. Mechanics Building Company.*
Tax \$68.00. Penalty \$8.50.
- The People of the State of California vs. Mercantile Finance Company.*
Tax \$632.00. Penalty \$79.00.
- The People of the State of California vs. Midland Farms Company.* Tax
\$132.00. Penalty \$16.50.
- The People of the State of California vs. Miller Fruit Company.* Tax \$40.00.
Penalty \$5.00.
- The People of the State of California vs. Milwaukee California Fruit Com-
pany.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Mineral Properties Company.*
Tax \$80.00. Penalty \$10.00.
- The People of the State of California vs. Mission Bake-Rite Company.*
Tax \$72.00. Penalty \$9.00.
- The People of the State of California vs. M. Katzman Company.* Tax
\$40.00. Penalty \$5.00.
- The People of the State of California vs. Modesto Turlock Land Company.*
Tax \$50.00. Penalty \$2.50.

- The People of the State of California vs. Montgomery Kimble Motors Corporation.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Monterey Fishermen's Organizations.* Tax \$44.00. Penalty \$5.50.
- The People of the State of California vs. Nanking Fook Woh Company.* Tax \$56.00. Penalty \$7.00.
- The People of the State of California vs. National Auto Sales Corporation.* Tax \$88.00. Penalty \$11.00.
- The People of the State of California vs. National Time Service and Advertising Company.* Tax \$188.00. Penalty \$23.50.
- The People of the State of California vs. Newmark Grain Company.* Tax \$54.00. Penalty \$2.70.
- The People of the State of California vs. New York Hat and Cap Company.* Tax \$84.00. Penalty \$10.50.
- The People of the State of California vs. O'Day Investment Company.* Tax \$180.00. Penalty \$22.50.
- The People of the State of California vs. Ocean Transport Company.* Tax \$100.00. Penalty \$5.00.
- The People of the State of California vs. O'Neill & Hayes.* Tax \$120.00. Penalty \$15.00.
- The People of the State of California vs. Paige Motor Company.* Tax \$64.00. Penalty \$8.00.
- The People of the State of California vs. Palace Amusement Company.* Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. Pacific Rice Land Company.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Pacific States Automotive Company.* Tax \$60.00. Penalty \$7.50.

The People of the State of California vs. Pacific Waste Products Company.
Tax \$48.00. Penalty \$6.00.

The People of the State of California vs. The Planters Company. Tax
\$80.00. Penalty \$4.00.

The People of the State of California vs. Porter & Brown, Inc. Tax \$44.00.
Penalty \$5.50.

The People of the State of California vs. Railway Specialties Company.
Tax \$48.00. Penalty \$2.40.

The People of the State of California vs. Reed Williams Corporation.
Tax \$48.00. Penalty \$6.00.

*The People of the State of California vs. Republic Rubber Company of Cali-
fornia.* Tax \$180.00. Penalty \$22.50.

*The People of the State of California vs. Rialto Theatre Company of San
Francisco.* Tax \$68.00. Penalty \$8.50.

*The People of the State of California vs. Ruff Weaver and Krantzthor Shoe
Company.* Tax \$76.00. Penalty \$9.50.

The People of the State of California vs. Sandercock Land Company.
Tax \$60.00. Penalty \$7.50.

*The People of the State of California vs. San Joaquin Agricultural Corpora-
tion.* Tax \$60.00. Penalty \$7.50.

The People of the State of California vs. Security Motor Coporation. Tax
\$48.00. Penalty \$6.00.

The People of the State of California vs. Sequoia Cafe and Grill, Inc.
Tax \$56.00. Penalty \$7.00.

The People of the State of California vs. Smith and Son Lumber Company.
Tax \$56.00. Penalty \$7.00.

The People of the State of California vs. Stanford Hotel Company. Tax
\$52.00. Penalty \$6.50.

- The People of the State of California vs. Star Auto Stage Association.*
Tax \$144.00. Penalty \$18.00.
- The People of the State of California vs. Star Drug Company.* Tax \$40.00.
Penalty \$5.00.
- The People of the State of California vs. The Stern Talking Machine Corporation.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Straub Manufacturing Company.*
Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. Sugar Machinery Company.*
Tax \$50.00. Penalty \$2.50.
- The People of the State of California vs. Teicheira Lumber Company.*
Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Toyo Industrial Corporation.*
Tax \$120.00. Penalty \$15.00.
- The People of the State of California vs. Union Sales Corporation.* Tax
\$124.00. Penalty \$15.50.
- The People of the State of California vs. United Fruit Company.* Tax
\$48.00. Penalty \$6.00.
- The People of the State of California vs. Van Nuys Cash Grocery, Incorporated.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. West Coast Fiber Company.*
Tax \$92.00. Penalty \$11.50.
- The People of the State of California vs. Whitelaw Wrecking Company.*
Tax \$180.00. Penalty \$22.50.
- The People of the State of California vs. Winkle's Riding Boot Company.*
Tax \$56.00. Penalty \$7.00.
- The People of the State of California vs. Winterhaven Commercial Company.*
Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Ruby King Mineral Paint Company.* Tax \$100.00. Penalty \$12.50.

The People of the State of California vs. Elsinore and Temescal Oil and Land Company. Tax \$80.00. Penalty \$10.00.

The People of the State of California vs. New Center Oil Company. Tax \$140.00. Penalty \$18.00.

The People of the State of California vs. Atwell Island Mutual Water Company. Tax \$40.00. Penalty \$5.00.

The People of the State of California vs. Highland Ditch Company. Tax \$80.00. Penalty \$10.00.

The People of the State of California vs. Luitwieler Irrigation Company. Tax \$60.00. Penalty \$7.50.

The People of the State of California vs. Roseville Water Company. Tax \$56.00. Penalty \$7.00.

The People of the State of California vs. Sacramento Valley West Side Canal Company. Tax \$120.00. Penalty \$6.00.

The People of the State of California vs. San Geronio Water Company. Tax \$56.00. Penalty \$7.00.

The People of the State of California vs. Imperial Valley Gas Company. Tax \$64.00. Penalty \$8.00.

The People of the State of California vs. Tracy Irrigation Association. Tax \$80.00. Penalty \$10.00.

The People of the State of California vs. The Universal Packing Company. Tax \$60.00. Penalty \$7.50.

FOREIGN CORPORATIONS.

The People of the State of California vs. Braender Rubber & Tire Company. Tax \$60.00. Penalty \$7.50.

The People of the State of California vs. Buffalo Springfield Roller Company. Tax \$800.00. Penalty \$100.00.

The People of the State of California vs. The Canton Blackstone Company. Tax \$300.00. Penalty \$37.50.

- The People of the State of California vs. Eldridge Dairy Products Company.*
Tax \$48.00. Penalty \$6.00.
- The People of the State of California vs. The Estle Investment Company.*
Tax \$84.00. Penalty \$10.50.
- The People of the State of California vs. Katzenbach and Bullock Company.*
Tax \$60.00. Penalty \$3.00.
- The People of the State of California vs. Mark Motor Company.* Tax \$80.00.
Penalty \$10.00.
- The People of the State of California vs. New York Motion Picture Corporation.* Tax \$400.00. Penalty \$50.00.
- The People of the State of California vs. Overseas Shipping Company.*
Tax \$100.00. Penalty \$12.50.
- The People of the State of California vs. Portage Tire and Rubber Company.*
Tax \$76.00. Penalty \$3.80.
- The People of the State of California vs. Washington California Iron and Steel Co.* Tax \$40.00. Penalty \$5.00.
- The People of the State of California vs. W. H. McElwain Company.*
Tax \$320.00. Penalty \$16.00.
- The People of the State of California vs. New Guadalupe Mining Company.*
Tax \$64.00. Penalty \$8.00.
- The People of the State of California vs. Midway Five Oil Company.* Tax \$172.00. Penalty \$21.50.
- The People of the State of California vs. The True Oil Company.* Tax \$60.00. Penalty \$7.50.
- The People of the State of California vs. Arizona Fire Insurance Company.*
Tax \$135.48. Penalty \$16.92.
- The People of the State of California vs. Jefferson Insurance Company.*
Tax \$615.00. Penalty \$76.87.

The People of the State of California vs. Peninsula Fire Insurance Company of America. Tax \$1,983.10. Penalty \$99.16.

The People of the State of California vs. Wichita Great Western Underwriters. Tax \$1,226.52. Penalty \$153.31.

The People of the State of California vs. The Atchison, Topeka and Santa Fe Railway Company. Tax \$687,526.83.

The People of the State of California vs. Southern Pacific Company. Tax \$2,270,394.13.

PUBLIC SERVICE CORPORATIONS.

The People of the State of California vs. California National Bank (Modesto). Tax \$1,818.22. Penalty \$227.29.

The People of the State of California vs. First National Bank (Seeley). Tax \$220.37. Penalty \$11.02.

The People of the State of California vs. Fresno Savings Bank. Tax \$1,515.56. Penalty \$189.45.

The People of the State of California vs. Kings Lake Shore Railroad Company. Tax \$1,670.84. Penalty \$208.85.

The People of the State of California vs. Monterey and Pacific Grove Railway Company. Tax \$2,069.08. Penalty \$258.63.

The People of the State of California vs. Mountain Light and Water Company. Tax \$47.64. Penalty \$5.95.

The People of the State of California vs. Southwestern Gas Company. Tax \$750.00. Penalty \$93.75.

The People of the State of California vs. Alpaugh Telephone and Telegraph Company. Tax \$132.00. Penalty \$16.50.

The People of the State of California vs. Blake Independent Telephone System. Tax \$5.50. Penalty \$0.68.

The People of the State of California vs. Lost Hills Telephone and Telegraph Company. Tax \$137.50. Penalty \$17.00.

BOND ISSUES PASSED UPON BY ATTORNEY GENERAL'S OFFICE FOR
PURCHASES BY THE STATE FROM SEPTEMBER 15, 1920, to
SEPTEMBER 15, 1922.

1921—		
February 9	Waukena School District Bonds	\$40,000 00
June 3	Town of San Juan, Municipal Bonds	20,000 00
June 14	Pacific School District Bonds	6,500 00
July 2	Flores School District Bonds	10,000 00
July 5	Orland Joint Union High School Bonds	22,000 00
July 21	Town of Orland Bonds	20,000 00
July 29	Sacramento City High School Bonds	34,000 00
July 29	Sacramento City School Bonds	66,000 00
August 26	Gustine School Bonds	45,000 00
August 26	Templeton Union High School Bonds	45,000 00
September 6	Grand View Heights School Bonds	4,800 00
September 8	Glenovon School Bonds	19,000 00
September 24	Monte Vista School Bonds	13,000 00
September 26	Stoddard School Bonds	12,000 00
September 29	Manhattan Beach City School Bonds	34,000 00
October 19	City of Brea Water Works Completion Bonds	40,000 00
October 21	Bates Union School Bonds	20,000 00
October 25	Grass Valley High School Bonds	14,000 00
November 6	San Francisco Water Bonds	25,000 00
December 28	Rippperdan School Bonds	25,000 00
1922—		
February 3	Kelseyville Union School Bonds	20,000 00
March 4	Lakeport Union School Bonds	60,000 00
March 22	Berkeley High School Bonds	15,000 00
March 22	Oakland School District Bonds	18,000 00
March 30	Los Angeles City High School Bonds	25,000 00
April 14	South Boulevard District of Lassen (Semi-annual) County Bonds	10,000 00
April 17	Chico High School Bonds	5,000 00
April 18	Ukiah Water Bonds	17,000 00
April 19	San Diego School District Bonds	5,000 00
April 19	San Diego High School Bonds	8,000 00
April 20	Moorpark Memorial Union High School Bonds	10,000 00
May 11	Kerman Union High School Bonds	18,000 00
May 24	Lodi Grammar School Bonds	10,000 00
June 3	Salida School Bonds	11,000 00
June 3	City of Pittsburgh Bonds	15,000 00
June 5	St. Helena Municipal Bonds	17,500 00
June 5	Bishop Union High School Bonds	19,000 00
June 5	Tulare County Highway Bonds	7,000 00
June 22	Los Angeles School District Bonds	5,000 00
July 12	Dinuba Union High School Bonds	65,000 00
July 12	Dinuba Union High School Bonds	41,000 00
July 13	Visalia School Bonds	10,000 00
July 13	Richmond School Bonds	38,000 00

July 13.....	Lemoore Union Elementary Bonds.....	\$36,000 00
July 13.....	Garden Grove Union High School Bonds.....	55,000 00
July 17.....	Santa Rosa City School Bonds.....	41,000 00
July 27.....	El Segundo School Bonds.....	20,000 00
August 5.....	Venice Union High School Bonds.....	25,000 00
August 5.....	Selma Union High School Bonds.....	32,000 00
August 16.....	Dinuba School Bonds.....	90,000 00
August 23.....	Glendale Union High School Bonds.....	110,000 00
September 5.....	Rocklin Grammar School Bonds.....	10,500 00
September 6.....	Oakland High School Bonds.....	16,000 00
September 13.....	Arbuckle Elementary School District Bonds.....	6,000 00
Total.....	.....	<hr/>\$1,406,300 00

CRIMINAL CASES IN THE SUPREME COURT

(Cases in which the penalty is "death" are original appeals to the Supreme Court.)

No.	Defendant	County	Charge	Judgment
				Date
2,312	F. G. Anthony	Solano	L. and L. Act.	June 5, '19
2,331	David Clifton	Sacramento	Murder	July 20, '20
2,348	N. Steelik	Los Angeles	Syndicalism	April 5, '20
2,349	Roy R. Lauman	Los Angeles	False proof of loss	Feb. 16, '20
2,358	John C. Taylor	Alameda	Syndicalism	June 20, '20
2,360	Walter Lee Smith	Monterey	Murder	Jan. 14, '21
2,366	H. F. Troutman	Alameda	Sec. 288 P. C.	July 7, '20
2,370	A. O. Davis	Shasta	Murder	Jan. 20, '21
2,375	E. R. Martin	San Diego	Bigamy	Mar. 28, '22
2,379	Alfred Ellis	Ventura	Murder	May 3, '21
2,386	John Valcalda	Amador	Murder	June 6, '21
2,388	Fred H. Mayen	Los Angeles	Grand larceny	Aug. 30, '20
2,400	Lew Fat	San Francisco	Murder	Sept. 6, '21
2,404	Samuel Smith	San Francisco	Juvenile Court Law	Jan. 31, '21
2,406	Wong Toy	Fresno	Murder	Aug. 8, '21
2,409	Miguel Manriquez	Imperial	Murder	July 22, '21
2,411	E. N. Saniers	Los Angeles	Extortion	Jan. 14, '21
2,412	W. W. Swan	Los Angeles	Extortion	Jan. 14, '21
2,413	Lee Yick	Fresno	Murder	Oct. 13, '21
2,415	Joe Sama	Alameda	Attempted robbery	Feb. 21, '21
2,417	A. M. Estes	Los Angeles	Murder	Feb. 15, '21
2,423	Maybelle Roe	Los Angeles	Murder	Feb. 19, '21
2,431	T. Marui	Monterey	Murder	Dec. 27, '21
2,438	Ullah Mohammed	Sonoma	Murder	Dec. 12, '21
2,451	O. B. Berry	Los Angeles	Grand Larceny	June 18, '21
2,462	Geo. Donnelly	Sacramento	Murder	Mar. 21, '22
2,471	Howard Welton et al	Alameda	Syndicalism	Nov. 28, '21
2,510	J. K. Woods	Orange	False pretenses	Feb. 11, '22

One case being the People's appeal, which was reversed, makes 24 cases decided for plaintiff, 2 for defendants, and 2 pending.

OF THE STATE OF CALIFORNIA.

The other cases are rehearings from the District Courts of Appeal.)

of lower court	Transcript filed	Judgment of supreme court		Status of appeal
		Date	Penalty	
Penalty				
Indeterminate	May 28 '21	Feb. 24, '21	Reversed	Closed.
Death	Aug. 30, '20	June 13, '21	Affirmed	Closed.
Indeterminate	Jan. 20, '21	Nov. 12, '21	Affirmed	Closed.
Motion arrest of judgment	Jan. 27, '21	Oct. 11, '21	Reversed	Closed.
Indeterminate	April 5, '21	Nov. 12, '21	Affirmed	Closed.
Death	Mar. 14, '21	Aug. 16, '21	Affirmed	Closed.
Indeterminate	April 19, '21	Nov. 7, '21	Affirmed	Closed.
Death	April 9, '21	Jan. 5, '22	Affirmed	Closed.
Indeterminate	Sept. 26, '21	Feb. 24, '22	Affirmed	Closed.
Death	June 9, '21	May 5, '22	Affirmed	Closed.
Death	July 25, '21	Mar. 7, '22	Affirmed	Closed.
Indeterminate	Aug. 15, '21	Feb. 21, '22	Affirmed	Closed.
Death	Sept. 26, '21	July 6, '22	Affirmed	Closed.
Indeterminate	Oct. 31, '21	May 26, '22	Affirmed	Closed.
Death	Oct. 15, '21	Sept. 19, '22	Affirmed	Closed.
Death	Oct. 26, '21	April 4, '22	Affirmed	Closed.
Indeterminate	Nov. 14, '21	May 20, '22	Affirmed	Closed.
Indeterminate	Nov. 14, '21	May 20, '22	Affirmed	Closed.
Death	Nov. 7, '21	Sept. 19, '22	Affirmed	Closed.
Indeterminate	Dec. 1, '21	June 16, '22	Affirmed	Closed.
Second degree	Dec. 1, '21	Mar. 28, '22	Affirmed	Closed.
Life	Dec. 22, '21	Sept. 18, '22	Reversed	Closed.
Death	Jan. 4, '22	Dec. 7, '22	Affirmed	Closed.
Death	Feb. 6, '22	Aug. 14, '22	Affirmed	Closed.
Indeterminate	April 14, '22			Pending.
Death	April 13, '22	Nov. 9, '22	Affirmed	Closed.
Indeterminate	June 12, '22	Dec. 29, '22	Affirmed	Closed.
Indeterminate	Nov. 9, '22			Pending.

CRIMINAL CASES IN THE DISTRICT COURT

First Apel

No.	Defendant	County	Charge	Judgment	
					Date
886	Luigi Muscamica	San Francisco	Murder	Nov. 26, '19	
894	John Martin	Alameda	Murder	Dec. 24, '19	
896	John Gavin	San Francisco	Juvenile court law	Dec. 31, '19	
907	C. A. Whitney	Alameda	Syndicalism	Feb. 24, '20	
918	J. C. Wieler	Alameda	Syndicalism	Mar. 29, '20	
929	Frank Thomas	San Francisco	Murder	April 29, '20	
930	Alice Woodcock	San Francisco	Perjury	April 29, '20	
933	Joe Flores	San Francisco	Rape	May 26, '20	
934	Waldo Offut et al.	Alameda	Robbery	June 18, '20	
937	J. C. Taylor	Alameda	Syndicalism	June 21, '20	
939	H. F. Troutman	Alameda	288, P. C.	July 7, '20	
941	Fred Nicolai	San Francisco	Juvenile court law	Aug. 4, '20	
944	J. E. Thompson	Alameda	Abortion	Sept. 2, '20	
945	Angelo Zari	San Francisco	Murder	Oct. 8, '20	
946	A. C. Goscinsky	Monterey	Practicing medicine	Oct. 13, '20	
949	Wm. H. Parker	Alameda	Pimping	Oct. 27, '20	
950	John De Vries	San Francisco	Perjury	Oct. 28, '20	
951	Rosendo Ramos	San Francisco	Robbery	Nov. 1, '20	
952	John O'Brien	Santa Clara	Burglary	Oct. 5, '20	
954	Bernard Gordon	Alameda	Burglary	Dec. 6, '20	
955	A. E. Williams	San Francisco	261, P. C.	Dec. 10, '20	
959	Edmund Murphy	San Francisco	Rape	Dec. 28, '20	
960	John Somers	San Francisco	Robbery	Dec. 30, '20	
961	R. G. P. Wymer	San Francisco	False pretenses	Jan. 5, '21	
962	Edw. Krivosky	San Francisco	Rape	Dec. 31, '20	
963	G. R. Hickok	San Mateo	Abortion	Dec. 8, '20	
964	F. J. Healy	Alameda	288, P. C.	Dec. 14, '20	
967	Fred Smith	Santa Clara	Motor Vehicle Act	Dec. 27, '20	
969	James Carey	San Francisco	Rape	Jan. 11, '21	
970	Amito Sindici	San Francisco	Forgery	Jan. 15, '21	
971	Joseph Burns	Alameda	Infamous crime	Jan. 4, '21	
974	Allan MacDonald	San Francisco	Rape	Jan. 22, '21	
975	Elia Calpestri	San Francisco	Forgery	Jan. 5, '21	
977	Samuel Smith	San Francisco	Juvenile court law	Jan. 31, '21	
978	Virginia P. Clark	Alameda	Murder	Jan. 20, '21	
979	Chew Sing et al.	Alameda	Selling morphine	Jan. 20, '21	
980	Chas. Mutchler	Fresno	Rape	Jan. 21, '21	
981	Franklin Silva	Fresno	Rape	Jan. 28, '21	
983	Thos. Brady	San Francisco	Rape	Feb. 17, '21	
985	Joe Sama	Alameda	Robbery	Feb. 21, '21	
989	A. J. Cameron	Contra Costa	Burglary	Mar. 7, '21	
993	Lewis Sterling	San Francisco	Murder	Mar. 22, '21	
994	G. A. Lynch	San Francisco	False pretenses	Mar. 19, '21	
996	James Bishop	Monterey	Murder	April 7, '21	
997	Jno. A. Sullivan	Alameda	Robbery	April 18, '21	
998	Alester Pardini	San Francisco	Juvenile court law	April 16, '21	
999	Hanna Ashkenazi	San Francisco	Abortion	April 27, '21	
1,000	Franciso Captain	San Francisco	Juvenile court law	May 3, '21	
1,001	Rose Fritz	San Francisco	Practicing medicine	May 18, '21	
1,002	John Catalini	Fresno	Grand larceny	May 27, '21	
1,003	John Gillis	San Francisco	504a, P. C.	June 4, '21	
1,006	Thos. J. Mooney	San Francisco	Murder	May 28, '21	
1,007	Rinaldo Bianchi et al.	San Francisco	False pretenses	June 18, '21	
1,008	Thos. Foley	Alameda	Robbery	July 11, '21	
1,010	Jos. Koostrista	San Francisco	Juvenile court law	Aug. 4, '21	
1,012	A. V. Seiler	San Mateo	Manslaughter	June 2, '21	
1,015	L. D. Treseda	Santa Clara	Practicing medicine	June 2, '21	
1,016	Geo. Rittenhouse	Fresno	Forgery	Aug. 16, '21	
1,017	Hayden King	San Francisco	Rape	Sept. 2, '21	
1,018	M. Tambara	San Francisco	Embezzlement	Sept. 15, '21	
1,019	J. J. McHugh	Alameda	Motor Vehicle Act	Sept. 14, '21	
1,021	Al Ryan	Santa Cruz	Practicing medicine	Sept. 26, '21	
1,022	Mary Vuyacich	Santa Clara	Murder	Sept. 30, '21	
1,023	Alonzo Jenkins	San Francisco	Burglary	Oct. 15, '21	
1,025	Frank Johnson	San Francisco	Burglary	Oct. 26, '21	
1,031	Geo. Ruef	San Francisco	Robbery	Nov. 12, '21	
1,032	Chew Jewey	San Francisco	Murder	Nov. 19, '21	
1,033	Howard Welton et al.	Alameda	Syndicalism	Nov. 28, '21	
1,036	Thos. Smith	Alameda	266g, P. C.	Dec. 12, '21	
1,038	Sataro Samayeda	San Francisco	Murder	Dec. 29, '21	
1,039	Antonio Navarro	San Francisco	Pimping	Dec. 31, '21	
1,040	John Zamet	San Francisco	288, P. C.	Jan. 13, '22	
1,045	Josephus W. Anderson	San Francisco	Murder	Feb. 11, '22	
1,046	A. A. Sander	Alameda	Fictitious check	Jan. 31, '22	
1,047	Geo. H. Pauli	Santa Clara	Forgery	Dec. 30, '22	

OF APPEAL OF THE STATE OF CALIFORNIA.

late District.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status of appeal
		Date	Penalty		
Indeterminate	Dec. 23, '19	Feb. 18, '21	Affirmed		Closed.
Life	Jan. 26, '20	June 20, '21	Affirmed		Closed.
1 year county jail	Jan. 28, '20	Dec. 16, '20	Affirmed	Denied	Closed.
Indeterminate	Mar. 26, '20	April 25, '21	Affirmed	Denied	See U. S. S. C.
Indeterminate	May 12, '20	Dec. 16, '21	Affirmed	Denied	Closed.
Indeterminate	June 19, '20	Mar. 14, '21	Affirmed	Denied	Closed.
Indeterminate	June 29, '20	April 30, '21	Reversed	Denied	Closed.
Indeterminate	July 19, '20	Jan. 11, '21	Affirmed		Closed.
Indeterminate	July 20, '20	June 20, '21	Affirmed		Closed.
Indeterminate	Aug. 11, '20	Feb. 4, '21	Affirmed	Granted	See S. C.
Indeterminate	Sept. 7, '20	Feb. 23, '21	Affirmed	Granted	See S. C.
90 days county jail	Aug. 27, '20	June 21, '21	Affirmed		Closed.
Indeterminate	Sept. 20, '20	Jan. 11, '21	Affirmed		Closed.
Indeterminate	Oct. 30, '20	Sept. 3, '21	Affirmed		Closed.
\$500 or 250 days jail	Nov. 3, '20	Mar. 25, '21	Affirmed		Closed.
Indeterminate	Nov. 15, '20	Aug. 26, '21	Affirmed		Closed.
Indeterminate	Nov. 3, '20	May 19, '21	Affirmed	Denied	Closed.
Indeterminate	Nov. 19, '20	May 4, '21	Affirmed		Closed.
Indeterminate	Dec. 10, '20	Aug. 5, '21	Affirmed		Closed.
Indeterminate	Dec. 30, '20	Aug. 8, '21	Affirmed		Closed.
Indeterminate	Dec. 30, '20	May 12, '21	Affirmed		Closed.
Indeterminate	Jan. 17, '21	July 12, '21	Affirmed	Denied	Closed.
Indeterminate	Jan. 17, '21	Mar. 9, '21	Affirmed		Closed.
Indeterminate	Jan. 17, '21	June 15, '21	Affirmed	Denied	Closed.
Indeterminate	Jan. 17, '21	Aug. 5, '21	Affirmed		Closed.
Indeterminate	Jan. 17, '21	Dec. 30, '21	Affirmed	Denied	Closed.
Indeterminate	Jan. 20, '21	May 7, '21	Affirmed		Closed.
\$1,000 or 250 days county jail	Jan. 27, '21	Aug. 8, '21	Affirmed		Closed.
Indeterminate	Jan. 27, '21	Aug. 5, '21	Affirmed		Closed.
Indeterminate	Jan. 27, '21	Sept. 12, '21	Affirmed	Denied	Closed.
Indeterminate	Jan. 31, '21	Sept. 27, '21	Affirmed		Closed.
Indeterminate	Feb. 14, '21	July 12, '21	Affirmed		Closed.
Indeterminate	Feb. 14, '21	Aug. 19, '21	Reversed		Closed.
Indeterminate	Feb. 21, '21	Sept. 1, '21	Affirmed	Granted	See S. C.
Indeterminate	Feb. 21, '21	Nov. 2, '21	Reversed	Denied	Closed.
Indeterminate	Feb. 23, '21	Aug. 22, '21	Affirmed		Closed.
Indeterminate	Feb. 23, '21	June 2, '21	Affirmed		Closed.
Indeterminate	Mar. 1, '21	Sept. 27, '21	Affirmed		Closed.
Indeterminate	Mar. 8, '21	Mar. 9, '22	Reversed	Denied	Closed.
Indeterminate	Mar. 22, '21	Oct. 4, '21	Affirmed	Granted	See S. C.
Indeterminate	Mar. 26, '21	Aug. 13, '21	Affirmed		Closed.
Indeterminate	April 8, '21	Sept. 26, '21	Affirmed		Closed.
Indeterminate	April 8, '21	Sept. 27, '21	Affirmed		Closed.
Indeterminate	April 20, '21	Sept. 2, '21	Affirmed		Closed.
Indeterminate	May 6, '21	Sept. 27, '21	Affirmed		Closed.
Indeterminate	May 10, '21	Dec. 12, '21	Affirmed		Closed.
Indeterminate	May 17, '21	Sept. 26, '21	Affirmed		Closed.
1 year county jail	May 20, '21	Mar. 20, '22	Affirmed		Closed.
Indeterminate	June 8, '21	Sept. 6, '21	Affirmed	Denied	Closed.
Indeterminate	June 17, '21	Aug. 18, '21	Affirmed		Closed.
Indeterminate	June 24, '21	Oct. 24, '21	Affirmed		Closed.
Motion to vacate judgment	July 14, '21	May 8, '22	Affirmed		Closed.
Indeterminate	July 14, '21	Feb. 21, '22	Affirmed	Denied	Closed.
Indeterminate	July 29, '21	May 3, '22	Affirmed	Denied	Closed.
8 months county jail	Aug. 25, '21	June 22, '22	Affirmed	Denied	Closed.
Indeterminate	Aug. 30, '21	Mar. 28, '22	Affirmed	Denied	Closed.
\$100 or 50 days county jail	Sept. 12, '21	Nov. 15, '21	Affirmed		Closed.
Indeterminate	Sept. 19, '21	Feb. 17, '22	Affirmed	Denied	Closed.
Indeterminate	Sept. 21, '21	Feb. 16, '22	Affirmed		Closed.
Indeterminate	Oct. 4, '21				Pending.
6 months county jail	Oct. 8, '21				Pending.
Demurrer sustained	Oct. 28, '21	Nov. 24, '22	Reversed		Closed.
Indeterminate	Nov. 19, '21	April 3, '22	Affirmed		Closed.
Indeterminate	Nov. 4, '21	Mar. 20, '22	Affirmed		Closed.
Indeterminate	Nov. 16, '21	April 19, '22	Affirmed		Closed.
Indeterminate	Nov. 12, '21	Mar. 31, '22	Affirmed		Closed.
Life	Dec. 9, '21	May 5, '22	Affirmed	Denied	Closed.
Indeterminate	Dec. 16, '21	April 13, '21	Reversed	Granted	See S. C.
Indeterminate	Jan. 9, '22	July 22, '22	Affirmed		Closed.
Life	Jan. 16, '22	Nov. 27, '22	Affirmed		Closed.
Indeterminate	Jan. 31, '22	Dec. 18, '22	Affirmed		Closed.
Indeterminate	Jan. 31, '22	Dec. 11, '22	Affirmed		Closed.
Indeterminate	Feb. 28, '22	June 21, '22	Affirmed		Closed.
Indeterminate	Mar. 3, '22	Sept. 8, '22	Affirmed		Closed.
Indeterminate	Mar. 3, '22	July 21, '22	Affirmed		Closed.

CRIMINAL CASES IN THE DISTRICT COURT

First Appellate

No.	Defendant	County	Charge	Judgment
				Date
1,049	Thos. Wren	San Francisco	Possession of morphine	Feb. 25, '22
1,060	Jesse Entelman	Alameda	Motor Vehicle Act	Mar. 31, '22
1,061	Sidney Herbert	Alameda	Poison act	April 6, '22
1,063	James Ross	San Francisco	Burglary	April 29, '22
1,067	Robert Johnstone	Alameda	Robbery	May 8, '22
1,068	W. A. Hightower	San Mateo	Murder	Oct. 15, '21
1,071	Wm. Pribnaw	San Francisco	Rape	June 8, '22
1,072	Ida Randolph	Alameda	Arson	June 5, '22
1,073	Joe Bennett	Alameda	Lewd and lascivious act	June 16, '22
1,075	Frank Vaccarella	Santa Cruz	Murder	June 23, '22
1,076	Jas. Moriarity	San Francisco	Lewd and lascivious act	July 14, '22
1,077	H. H. Newell	Alameda	Fictitious check	June 26, '22
1,079	C. R. Reese	San Francisco	Robbery	July 11, '22
1,080	Wesley May	San Francisco	Poison act	July 14, '22
1,081	Thos. Haines	Alameda	Rape	July 20, '22
1,082	Nagareno Sapienzo	Fresno	Assault to murder	July 12, '22
1,084	Wm. Regan	San Francisco	Selling poison	Aug. 18, '22

*No. 907, C. A. Whitney is appealed to the Supreme Court of the United States.

One case being the People's appeal, which was reversed, makes 73 cases decided for plaintiff, 5 for defendants and 14 pending.

OF APPEAL OF THE STATE OF CALIFORNIA.

District—Concluded.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status of appeal
		Date	Penalty		
Indeterminate	Mar. 16, '22	Sept. 20, '22	Affirmed		Closed.
\$500 or county jail	April 25, '22	Aug. 31, '22	Affirmed		Closed.
Indeterminate	April 29, '22	Sept. 25, '22	Affirmed		Closed.
Indeterminate	May 19, '22				Pending.
Indeterminate	June 8, '22	Dec. 11, '22	Affirmed		Closed.
Life	July 1, '22				Pending.
Indeterminate	June 27, '22				Closed.
Indeterminate	June 30, '22	Dec. 11, '22	Affirmed		Closed.
Indeterminate	July 7, '22				Pending.
Indeterminate	July 13, '22				Pending.
Indeterminate	July 31, '22				Pending.
Indeterminate	July 25, '22				Pending.
Indeterminate	July 31, '22				Pending.
Indeterminate	Aug. 2, '22				Pending.
Indeterminate	Aug. 5, '22				Pending.
-----	Aug. 11, '22				Pending.
-----	Sept. 6, '22				Pending.

CRIMINAL CASES IN THE DISTRICT COURT

Second Appel

No.	Defendant	County	Charge	Judgment
				Date
717	J. W. Truitt	Los Angeles	Robbery	Mar. 5 '20
721	Ralph E. Powell	Los Angeles	Extortion	Mar. 15 '20
727	N. Steelik	Los Angeles	Criminal syndicalism	April 5 '20
734	W. M. Steen	Los Angeles	Criminal syndicalism	April 30 '20
735	James Columbus	Los Angeles	Lewd and lascivious act	April 29 '20
743	Charles Deschencau	Los Angeles	Burglary	Aug. 13 '20
745	Fred Johnson	Kern	Rape	Mar. 13 '20
746	Fred Mayen	Los Angeles	Grand larceny	Aug. 30 '20
747	P. R. Stock	Orange	Forgery	Sept. 17 '20
748	Earl F. Delaney	Los Angeles	Lewd and lascivious act	Oct. 1 '20
750	Gaspard N. Marsiglia	Los Angeles	Rape	June 22 '20
751	W. H. Holder	Los Angeles	Embezzlement	Oct. 1 '20
752	Geo. D. Clarke	San Diego	Abandonment	Oct. 11 '20
753	Marin Lopez	San Diego	Lewd and lascivious act	Oct. 21 '20
754	G. E. Brown	San Diego	Murder	Oct. 28 '20
756	A. C. Dorsey	Kern	Rape	Oct. 9 '20
758	F. M. Longland	Tulare	Arson	Nov. 6 '20
760	J. A. Sprague	Tulare	Rape	Nov. 18 '20
761	Jose Alba	Imperial	Grand larceny	Dec. 17 '20
762	E. N. Sanders	Los Angeles	Extortion	Jan. 14 '21
763	W. W. Swan	Los Angeles	Extortion	Jan. 14 '21
764	J. M. Flowers	Los Angeles	False pretenses	Jan. 3 '21
766	Dominico Gays	Los Angeles	Murder	Jan. 18 '21
768	W. W. Dean	Los Angeles	Grand larceny	Jan. 21 '21
773	John Chimes	Los Angeles	Assault with a deadly weapon	Jan. 27 '21
774	Joella Singh	Tulare	Lewd and lascivious act	Dec. 1 '20
775	A. A. Garcia	San Bernardino	Murder	Feb. 8 '21
777	A. M. Estes	Los Angeles	Murder	Feb. 15 '21
778	Frank Macchiaroli	Los Angeles	Robbery and rape	Feb. 14 '21
779	Frank Walton	Los Angeles	Burglary	Feb. 21 '21
780	J. M. Mullins	Los Angeles	Perjury	Mar. 24 '21
781	R. M. Lana	Tulare	Rape	Feb. 24 '21
782	Louise L. Peete	Los Angeles	Murder	Feb. 16 '21
783	Carl Plumeyer	Los Angeles	Lewd and lascivious act	Feb. 17 '21
784	Carl Plumeyer	Los Angeles	Lewd and lascivious act	Feb. 17 '21
785	Francisco Andrade	Riverside	Murder	Mar. 7 '21
786	Geo. Rogers	Kern	Attempt to commit murder	Mar. 12 '21
787	Maybelle Roe	Los Angeles	Murder	Feb. 19 '21
788	Emil Spitzer	Los Angeles	Felony	Mar. 11 '21
791	P. S. Zarate	San Diego	Forgery	Mar. 21 '21
792	James M. Norrington	Los Angeles	Assault with intent to commit rape	Mar. 14 '21
793	Ed R. Martin	San Diego	Embezzlement	Mar. 28 '21
794	Ed R. Martin	San Diego	Bigamy	Mar. 28 '21
799	E. A. Hutchings	Los Angeles	Grand larceny	April 2 '21
800	Jos. Daniel Morrison	San Diego	Failure to provide for minor child	April 20 '21
801	Juanita Casanova	San Diego	Perjury	April 8 '21
803	James Elder	Los Angeles	Murder	April 14 '21
804	Oscar A. Bowers	Los Angeles	Murder	April 28 '21
805	R. E. Chapman	Los Angeles	False pretenses	April 28 '21
806	A. D. Cochran	Los Angeles	Practicing medicine	April 16 '21
807	Alfred Sichofsky	Los Angeles	Grand larceny	April 21 '21
808	Guy Hamby	San Bernardino	Forgery	May 4 '21
811	Claude M. McCain	Los Angeles	Murder	April 28 '21
813	Jack Gaveel	Los Angeles	Criminal syndicalism	May 24 '21
815	Paul F. Huihart	Los Angeles	Lewd and lascivious act	May 20 '21
816	H. A. Kettle	Los Angeles	Practicing medicine	May 25 '21
817	Clarence Caldwell	Orange	Rape	June 3 '21
818	James Price	Los Angeles	Criminal syndicalism	June 7 '21
819	Timothy O'Keefe	Kern	Burglary	June 11 '21
820	Alfred T. A. Sander	San Diego	Practicing medicine	June 9 '21
822	Raymond Smith	Los Angeles	Murder	July 7 '21
823	Otus B. Berry	Los Angeles	Grand larceny	June 18 '21
825	A. E. Hunt	San Bernardino	Practicing medicine	June 6 '21
826	Walter Lips	Los Angeles	Bribery	July 1 '21
827	Frank Carroll	San Diego	Bookmaking	June 21 '21
828	Robert Burns	Riverside	Felony-assault	April 16 '21
829	W. M. Gibbs	Riverside	Felony-assault	April 16 '21
830	John Ellena	San Bernardino	Selling intoxicating liquor	June 11 '21
832	W. Wignall	Orange	Criminal conspiracy	July 25 '21
833	Jose Morales	Riverside	Kidnapping	Aug. 17 '21
834	A. B. Black	Riverside	Practicing medicine	July 23 '21
835	Leopoldo Rubalcado	Ventura	Rape	July 18 '21
837	Lena Alexander	Los Angeles	Assault with intent to commit murder	Aug. 11 '21
838	A. W. Birdsall	Los Angeles	Embezzlement	July 19 '21
841	R. Minamino	Los Angeles	Assault with intent to commit murder	July 15 '21

OF APPEAL OF THE STATE OF CALIFORNIA.

late District.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status of appeal
		Date	Penalty		
Indeterminate	April 7, '20	Nov. 3, '20	Affirmed		Closed.
Indeterminate	April 21, '20	Dec. 16, '20	Affirmed	Denied	Closed.
Indeterminate	May 6, '20	Nov. 24, '20	Affirmed	Granted	See S. C.
Indeterminate	June 7, '20	Jan. 10, '21	Affirmed		Closed.
Indeterminate	June 10, '20	Nov. 9, '20	Reversed		Closed.
Indeterminate	Sept. 25, '20	Feb. 17, '21	Affirmed		Closed.
Indeterminate	Oct. 11, '20	Feb. 21, '21	Affirmed		Closed.
Indeterminate	Oct. 14, '20	June 16, '21	Reversed	Granted	See S. C.
Indeterminate	Oct. 25, '20	April 15, '21	Affirmed		Closed.
Indeterminate	Nov. 4, '20	May 24, '21	Reversed		Closed.
Indeterminate	Nov. 10, '20	April 29, '21	Affirmed		Closed.
Indeterminate	Nov. 10, '20	June 2, '21	Reversed	Denied	Closed.
6 months county jail	Nov. 17, '20	Feb. 21, '21	Reversed	Denied	Closed.
Indeterminate	Nov. 29, '20	Feb. 21, '21	Affirmed		Closed.
Indeterminate	Dec. 6, '20	July 26, '21	Affirmed		Closed.
Indeterminate	Dec. 27, '20	April 26, '21	Affirmed		Closed.
Indeterminate	Dec. 30, '20	May 4, '21	Reversed		Closed.
Indeterminate	Jan. 7, '21	April 27, '21	Affirmed		Closed.
San Quentin, 1 to 10 years	Jan. 10, '21	May 11, '21	Affirmed		Closed.
Indeterminate	Feb. 18, '21	Sept. 17, '21	Reversed	Granted	See S. C.
Indeterminate	Feb. 18, '21	Sept. 17, '21	Reversed	Granted	See S. C.
Indeterminate	Feb. 18, '21	Sept. 14, '21	Affirmed		Closed.
Life	Feb. 24, '21	Oct. 6, '21	Affirmed		Closed.
Indeterminate	Feb. 26, '21	May 6, '21	Affirmed	Denied	Closed.
Indeterminate	Feb. 28, '21	Sept. 6, '21	Affirmed		Closed.
Indeterminate	Mar. 3, '21	April 11, '21	Affirmed		Closed.
Indeterminate	Mar. 3, '21	July 11, '21	Affirmed		Closed.
Indeterminate	Mar. 19, '21	Oct. 5, '21	Reversed	Granted	See S. C.
Indeterminate	Mar. 24, '21	Oct. 26, '21	Affirmed		Closed.
Indeterminate	Mar. 29, '21	May 27, '21	Affirmed	Denied	Closed.
10 years probation	Mar. 29, '21	April 7, '21	Affirmed		Closed.
Indeterminate	Mar. 30, '21	July 25, '21	Affirmed		Closed.
Life	Mar. 31, '21	Sept. 26, '21	Affirmed	Denied	Closed.
Indeterminate	April 2, '21	Nov. 1, '21	Affirmed	Denied	Closed.
Indeterminate	April 2, '21	Nov. 1, '21	Affirmed	Denied	Closed.
Indeterminate	April 28, '21	May 5, '21	Affirmed		Closed.
Indeterminate	April 7, '21	July 25, '21	Affirmed		Closed.
Life	April 11, '21	Oct. 26, '21	Reversed	Granted	See S. C.
6 months county jail	April 11, '21	Nov. 29, '21	Affirmed		Closed.
Indeterminate	April 26, '21	Sept. 26, '21	Affirmed		Closed.
Indeterminate	April 27, '21	Nov. 7, '21	Affirmed		Closed.
Indeterminate	May 2, '21	July 25, '21	Affirmed		Closed.
Indeterminate	May 3, '21	July 28, '21	Affirmed	Granted	See S. C.
Indeterminate	May 10, '21	Feb. 11, '22	Affirmed	Denied	Closed.
Indeterminate	May 16, '21	Oct. 7, '21	Affirmed		Closed.
Indeterminate	May 16, '21	Oct. 5, '21	Affirmed		Closed.
Life	May 18, '21	Dec. 14, '21	Affirmed	Denied	Closed.
Life	June 1, '21	Jan. 7, '22	Affirmed	Denied	Closed.
Indeterminate	June 2, '21	Nov. 15, '21	Affirmed		Closed.
90 days county jail	June 3, '21	Feb. 11, '21	Affirmed		Closed.
Indeterminate	June 3, '21	June 21, '22	Affirmed	Denied	Closed.
Indeterminate	June 4, '21	Nov. 2, '21	Affirmed	Denied	Closed.
Indeterminate	June 9, '21	Oct. 10, '21	Affirmed		Closed.
Indeterminate	June 30, '21	July 10, '21	Affirmed		Closed.
Indeterminate	July 8, '21	Nov. 8, '21	Affirmed		Closed.
90 days county jail	July 11, '21				Pending.
Indeterminate	July 12, '21	Nov. 22, '21	Reversed		Closed.
Indeterminate	July 13, '21	July 10, '21	Affirmed		Closed.
Indeterminate	July 19, '21	Oct. 25, '21	Reversed		Closed.
\$250 or 125 days county jail	July 19, '21	Oct. 10, '21	Affirmed		Closed.
Life	Aug. 1, '21	Nov. 25, '21	Reversed		Closed.
Indeterminate	Aug. 2, '21	Feb. 14, '22	Reversed	Granted	See S. C.
60 days county jail	July 27, '21				Pending.
Indeterminate	Aug. 10, '21	Oct. 20, '22	Affirmed		Closed.
4 months county jail	Aug. 11, '21	Oct. 28, '21	Affirmed	Denied	See S. C.
Indeterminate	Aug. 17, '21	Jan. 12, '22	Affirmed		Closed.
Indeterminate	Aug. 17, '21	Jan. 12, '22	Affirmed		Closed.
\$600 or 300 days	Aug. 17, '21	Feb. 14, '22	Affirmed		Closed.
Indeterminate	Aug. 29, '21	Feb. 14, '22	Affirmed	Denied	Closed.
Indeterminate	Sept. 7, '21	Jan. 25, '22	Affirmed		Closed.
\$200 or 100 days county jail	Aug. 19, '21	July 1, '22	Affirmed		Closed.
Indeterminate	Sept. 2, '21	Feb. 14, '22	Reversed		Closed.
Indeterminate	Sept. 15, '21	Feb. 14, '22	Affirmed	Denied	Closed.
Indeterminate	Sept. 17, '21	Jan. 9, '22	Affirmed		Closed.
Indeterminate	Sept. 29, '21	Feb. 11, '22	Affirmed		Closed.

CRIMINAL CASES IN THE DISTRICT COURT

Second Appellate

No.	Defendant	County	Charge	Judgment
				Date
842	T. T. Condley	Tulare	Murder	July 18, '21
843	A. C. Dingle	Orange	Felony	Aug. 26, '21
845	Juan Jurado	Los Angeles	Murder	Aug. 20, '21
846	W. A. Loomis et al.	Los Angeles	Assault	Oct. 4, '21
848	H. A. Watson	San Bernardino	Burglary	Nov. 1, '21
849	G. S. Boardman	Kern	Rape	Oct. 4, '21
850	Quon Foo et al.	San Diego	Murder	Oct. 24, '21
851	F. J. Phillips	Los Angeles	Practicing medicine	Oct. 17, '21
852	M. Wood	Tulare	Rape	Oct. 20, '21
853	A. H. Parrish	Los Angeles	Practicing medicine	Oct. 13, '21
854	Joe Gonzales	San Bernardino	Rape	Oct. 25, '21
856	Leo W. Hurst, alias	Los Angeles	Arson	Nov. 3, '21
857	C. W. Anderson	Los Angeles	Murder	Oct. 26, '21
858	A. Mandeville et al.	San Bernardino	Intent to commit murder	Nov. 14, '21
859	A. C. Foy	Orange	Practicing medicine	Nov. 18, '21
860	D. P. Dudley	Orange	Practicing medicine	Nov. 18, '21
861	James Reed	Los Angeles	Burglary	Nov. 12, '21
862	D. B. Irish	San Diego	Practicing medicine	Dec. 2, '21
863	Jose Romera	Los Angeles	Murder	Nov. 28, '21
864	Chas. Winer	Los Angeles		
865	A. Rivera	Los Angeles	Burglary	Dec. 10, '21
866	Miguel Martinez	Los Angeles	Rape	Nov. 10, '21
867	Emil Spitzer	Los Angeles	Bigamy	Nov. 12, '21
869	James Mackey et al.	Imperial	Grand larceny	Dec. 20, '21
870	Nick Coppas	Tulare	Arson	Dec. 5, '21
873	B. D. Whiteside	Los Angeles	False pretenses	Dec. 27, '21
876	Lino Martinez	Tulare	Rape	Jan. 3, '22
877	W. A. Barnes	San Diego	Grand larceny	Jan. 16, '22
878	H. A. C. Graff	Los Angeles	Forgery	
879	Roy R. Lauman	Los Angeles	Arson	Nov. 28, '21
881	Edward Bannon	Los Angeles	Murder	Jan. 24, '22
883	Joseph Passafiume	Los Angeles	Assault with intent to commit murder	Feb. 8, '22
885	Chas. Harris	Los Angeles	Burglary	Jan. 30, '22
886	Chippie Coles	Los Angeles	Larceny	Feb. 4, '22
887	J. K. Woods	Orange	False pretenses	Feb. 11, '22
888	R. D. Young	Los Angeles	Practicing medicine	Feb. 21, '22
890	Joe Mercado	San Diego	Burglary	Mar. 7, '22
891	Chas. Savinovich	Imperial	Arson	Feb. 8, '22
892	Simon Pearson	Los Angeles	Rape	Mar. 4, '22
894	M. Iverson	Los Angeles	Practicing medicine	Feb. 3, '22
895	Edward Marty	Los Angeles	Murder	Mar. 21, '22
896	Walter Sharp	Los Angeles	Burglary	Mar. 28, '22
897	J. L. Walker	San Diego	Robbery	Mar. 30, '22
898	Frank A. Salisbury	Tulare	Juvenile court law	Mar. 29, '22
899	Mit Singh	Imperial	Assault with intent to commit rape	Mar. 17, '22
901	Geo. Reynolds	Kern	Rape	Mar. 28, '22
902	C. J. Sullivan	Kern	Criminal syndicalism	April 1, '22
903	John Studer	Los Angeles	Murder	April 17, '22
904	J. K. Woods	Orange	False pretenses	April 14, '22
906	Jack Sutherland	San Diego	Bookmaking	May 18, '22
907	W. J. Anderson	Los Angeles	Bribery	April 19, '22
909	James De Voore et al.	Kern	Burglary	May 20, '22
910	Jerry Zuvela	Los Angeles	Felony; seduction	June 22, '22
911	J. B. Clark	Los Angeles	Robbery	June 9, '22
913	Roland O. Hunter	San Diego	Burglary	June 27, '22
914	Charles Ross	Tulare	Concealed weapon	June 7, '22
916	Arthur S. Lawrence	Riverside	Felony	June 29, '22
917	Augustine Herrera	Kern	Rape	July 6, '22
918	John H. Vitelle	Kern	Assault with intent to kill	July 6, '22
919	Addison Greer	Tulare	Murder	July 17, '22
920	Susano Garcia	Imperial	Kidnapping	July 21, '22
921	W. L. Barnard et al.	Los Angeles	Felony	July 24, '22
922	L. L. Magee	Los Angeles	Assault deadly weapon	July 18, '22
923	A. G. Fouts	Los Angeles	Burglary	July 27, '22
924	M. F. Kady	Santa Barbara	Arson	July 28, '22
926	W. M. Pckens	Kern	Felony	June 6, '22
927	Wm. Klopfer	Los Angeles	Forgery	July 24, '22

One case, being the People's appeal, was reversed, makes 101 cases decided for plaintiff, 24 for defendants, and 17 pending.

OF APPEAL OF THE STATE OF CALIFORNIA.

District—Continued.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status of appeal
		Date	Penalty		
Indeterminate	Sept. 27, '21	Feb. 14, '22	Affirmed		Closed.
6 mos. county jail	Oct. 3, '21	Feb. 14, '22	Affirmed		Closed.
Indeterminate	Oct. 21, '21	Feb. 16, '22	Affirmed		Closed.
\$1,000 and six months; Wm. Ostroff, \$250 and 1 day	Oct. 21, '21	Nov. 3, '21	Affirmed		Closed.
Indefinite sentence	Nov. 23, '21	Mar. 15, '22	Affirmed		Closed.
Indefinite sentence	Nov. 29, '21	Feb. 23, '22	Reversed		Closed.
Indefinite sentence	Nov. 29, '21	April 3, '22	Affirmed		Closed.
\$150 or 75 days county jail	Nov. 30, '21	July 6, '22	Affirmed		Closed.
9 months county jail	Nov. 30, '21	Feb. 14, '22	Affirmed		Closed.
\$250 or 125 days county jail	Dec. 1, '21	Oct. 9, '22	Reversed		Closed.
Indeterminate	Dec. 3, '21	Jan. 30, '22	Affirmed		Closed.
Indeterminate	Dec. 9, '21	April 27, '22	Affirmed		Closed.
Indeterminate	Dec. 13, '21	May 20, '22	Affirmed		Closed.
Indeterminate	Dec. 17, '21	April 26, '22	Affirmed		Closed.
\$200 and 110 days county jail	Dec. 19, '21	May 6, '22	Affirmed		Closed.
\$200 and 120 days county jail	Dec. 28, '21	May 6, '22	Affirmed		Closed.
Indeterminate	Dec. 29, '21	May 25, '22	Affirmed	Denied	Closed.
\$200 or 100 days county jail	Jan. 4, '22	July 1, '22	Affirmed		Closed.
Indeterminate	Jan. 5, '22	May 29, '22	Affirmed		Closed.
		Jan. 7, '22	Affirmed		Closed.
Indeterminate	Jan. 10, '22	April 25, '22	Affirmed		Closed.
Indeterminate	Jan. 10, '22	May 23, '22	Affirmed		Closed.
Indeterminate	Jan. 11, '22	May 4, '22	Affirmed	Denied	Closed.
Indeterminate	Jan. 12, '22	June 16, '22	Reversed		Closed.
Indeterminate	Jan. 19, '22	April 22, '22	Affirmed		Closed.
Indeterminate	Jan. 31, '22	May 29, '22	Affirmed	Denied	Closed.
Indeterminate	Feb. 3, '22	Sept. 20, '22	Affirmed		Closed.
Indeterminate	Feb. 8, '22	April 29, '22	Affirmed		Closed.
Appeal by People from order granting motion to quash information	Feb. 16, '22	Nov. 20, '22	Reversed	Denied	Closed.
Indeterminate	Feb. 16, '22	Sept. 22, '22	Reversed	Denied	Closed.
Indeterminate	Feb. 24, '22	Sept. 6, '22	Affirmed	Denied	Closed.
Indeterminate	Mar. 13, '22	Oct. 5, '22	Affirmed		Closed.
Indeterminate	Mar. 30, '22	June 29, '22	Affirmed		Closed.
Indeterminate	Mar. 23, '22	July 24, '22	Affirmed		Closed.
Indeterminate	Mar. 28, '22	Sept. 11, '22	Reversed	Granted	See S. C.
\$500 fine	April 4, '22				Pending.
Indeterminate	April 10, '22	Sept. 7, '22	Affirmed		Closed.
Indeterminate	April 11, '22	Sept. 30, '22	Reversed		Closed.
Indeterminate	April 13, '22	Oct. 4, '22	Affirmed	Denied	Closed.
3 months county jail	April 26, '22				Pending.
Indeterminate	May 1, '22	Oct. 26, '22	Affirmed		Closed.
Indeterminate	May 2, '22	July 28, '22	Affirmed		Closed.
Indeterminate	May 5, '22	July 10, '22	Affirmed		Closed.
1 year, 3 months county jail	May 5, '22	Oct. 7, '22	Reversed		Closed.
Indeterminate	May 8, '22	Sept. 6, '22	Affirmed	Denied	Closed.
Indeterminate	May 19, '22	Oct. 9, '22			Pending.
Indeterminate	May 19, '22	Nov. 14, '22	Reversed		Closed.
Indeterminate	May 22, '22	Nov. 2, '22	Reversed		Closed.
Indeterminate	May 24, '22	Nov. 23, '22	Affirmed	Granted	
3 months county jail	June 20, '22	Oct. 24, '22	Affirmed		Closed.
Indeterminate	June 29, '22				Pending.
Indeterminate	July 14, '22				Pending.
Indeterminate	July 19, '22	Oct. 28, '22	Affirmed		Closed.
Indeterminate	July 25, '22				Pending.
Indeterminate	July 26, '22	Oct. 23, '22	Affirmed		Closed.
Indeterminate	July 29, '22	Dec. 16, '22	Affirmed		Closed.
Indeterminate	Aug. 4, '22		Affirmed		Closed.
Indeterminate	Aug. 25, '22				Pending.
Indeterminate	Aug. 25, '22				Pending.
Life	Aug. 25, '22				Pending.
Indeterminate	Sept. 5, '22	Oct. 24, '22	Affirmed		Closed.
Indeterminate	Sept. 5, '22				Pending.
Indeterminate	Sept. 8, '22				Pending.
Indeterminate	Sept. 8, '22				Pending.
Indeterminate	Sept. 5, '22				Pending.
Indeterminate	Sept. 13, '22				Pending.
Indeterminate	Sept. 14, '22				Pending.

CRIMINAL CASES IN THE DISTRICT COURT

Third Appel

No.	Defendant	County	Charge	Judgment
				Date
547	Frank Dodini	Tehama	Assault with deadly weapon	Oct. 8 '20
548	John Coffee et al.	Stanislaus	Burglary	Nov. 4 '20
549	Eugene Quijada	Sacramento	Escaping from State prison	Nov. 9 '20
550	Henry Hindricks	Stanislaus	Lascivious conduct	Nov. 26 '20
551	Roy A. Coulter	Madera	Assault to murder	April 17 '20
552	Joseph A. Wilder	Tehama	Petit larceny	Nov. 8 '20
554	Clyde Kepford et al.	San Joaquin	Motor Vehicle Act	Nov. 1 '20
555	Arthur Barrios	Merced	Burglary	Dec. 21 '20
558	Anton Vitro	Stanislaus	Seduction	Mar. 4 '21
560	John English	Sacramento	Fraudulent voting	Jan. 28 '21
563	T. H. David	Sacramento	Practicing medicine	Feb. 25 '21
564	A. J. Washburn	Sacramento	Assault to murder	Feb. 21 '21
565	Frank B. Whidden	Sacramento	Practicing medicine	Feb. 24 '21
566	Brad Collins et al.	Tehama	Selling liquor	Mar. 15 '21
568	A. B. Brackless	Sacramento	Embezzlement	Mar. 16 '21
570	Horace Miller	Stanislaus	Rape	April 14 '21
571	G. C. Rollins	San Joaquin	Embezzlement	Mar. 29 '21
574	J. E. Webb	Tuolumne	Forgery	Feb. 18 '21
575	Annet Spencer	Mendocino	Burglary	May 20 '21
576	Jean Fallon	Sacramento	Embezzlement	May 2 '21
577	J. W. Phillips	Sacramento	Perjury	May 9 '21
581	J. T. Ballas	Yolo	Forgery	April 30 '21
582	Raymond Prosser	San Joaquin	Check; no funds	June 20 '21
583	Cyrus Lusk et al.	Yolo	Robbery	June 18 '21
585	E. Cuppelli	Mendocino	Selling liquor	July 26 '21
587	M. Tomasovich	Sutter	Selling liquor	July 23 '21
588	Tom Barr et al.	Merced	Robbery	July 15 '21
590	Michael Crimmin	San Joaquin	Manslaughter	Aug. 25 '21
591	Wm. J. Ahearn et al.	Merced	Grand larceny	Sept. 15 '21
593	Orville Johnson	Napa	Robbery	Aug. 20 '21
595	A. M. McCoy	Stanislaus	Rape	Oct. 27 '21
597	R. L. Sanchez	Sacramento	Syndicalism	Oct. 20 '21
598	Geo. Owens	Mendocino	Check; no funds	Nov. 12 '21
599	J. A. Spencer	Lake	Murder	Oct. 10 '21
601	Jo Fong et al.	Yuba	Murder	Nov. 21 '21
602	C. L. Norvall	Tehama	Practicing medicine	Oct. 1 '21
604	Gus Groenig	San Joaquin	Grand larceny	Nov. 7 '21
605	S. N. Apple	Tehama	Motor Vehicle Act	Aug. 18 '22
607	Charlie Diamond	Butte	Burglary	Sept. 6 '21
609	James Roe	Sacramento	Syndicalism	Dec. 20 '21
610	Wm. Ryan	Sacramento	Assault to murder	Dec. 12 '21
611	Y. Navarette	Sacramento	Murder	Dec. 22 '21
612	E. Varni	Merced	Assault; deadly weapon	Dec. 12 '21
613	Geo. Williams	Sacramento	Burglary	Jan. 4 '22
615	R. J. Anderson et al.	Sacramento	Robbery	Jan. 3 '22
618	Lee Mon	San Joaquin	Taking opium into county jail	Feb. 6 '22
619	J. H. Heusers	Glenn	Selling liquor	Jan. 19 '22
620	Walter Corbett	Sacramento	Grand larceny	Jan. 9 '22
621	Geo. Fong	Solano	Rape	Dec. 13 '21
622	S. Bassetti	Mendocino	Selling liquor	Feb. 7 '22
623	Walter Wismer	Sacramento	Syndicalism	Jan. 31 '22
624	G. Spagnoli	Tuolumne	Selling liquor	Feb. 1 '22
625	J. L. Lamo	Madera	Secreting insured property	Feb. 11 '22
627	H. I. Buckman	Tuolumne	Selling liquor	Feb. 1 '22
628	John Safar	Sacramento	Grand larceny	Feb. 25 '22
629	A. W. Dunston	Glenn	Perjury	Mar. 4 '22
630	Chas. Hahn	Sacramento	Robbery	Mar. 10 '22
631	E. Teixeira	Stanislaus	Perjury	Mar. 25 '22
632	Louis Cassella	Mendocino	Selling liquor	Mar. 28 '22
633	C. E. Lazear	Yuba	Receiving stolen property	April 19 '22
634	H. E. Thomas	Sacramento	Manslaughter	Mar. 29 '22
637	J. A. Casdorf	Sacramento	Syndicalism	April 12 '22
638	Frank Sherman	Yolo	Syndicalism	Dec. 20 '21
639	John McMillan	Humboldt	Rape	April 27 '22
640	S. Rogers et al.	Sacramento	Robbery	May 5 '22
641	F. E. Amort	Glenn	Selling liquor	April 25 '22
642	H. M. Selinas	Glenn	Manslaughter	May 6 '22
645	O. Oliver	Stanislaus	Rape	June 7 '22
646	F. Seases	San Joaquin	Burglary	June 15 '22
647	E. H. DeVaul	Mendocino	Manslaughter	April 22 '22
648	C. A. Anderson	Stanislaus	Practicing medicine	June 20 '22
649	W. E. Beck et al.	El Dorado	Conspiracy	May 19 '22
650	Antone Zmak	Mendocino	Selling liquor	July 10 '22
651	C. Silbello	Nevada	Conspiracy	June 14 '22
652	S. Roderiguez	Nevada	Conspiracy	June 6 '22

OF APPEAL OF THE STATE OF CALIFORNIA.

late District.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status of appeal
		Date	Penalty		
\$350 fine	Oct. 30 '20	Jan. 26 '21	Affirmed		Closed.
Indeterminate	Nov. 27 '20	Mar. 28 '21	Affirmed	Denied	Closed.
Life	Mar. 12 '20	May 31 '21	Affirmed		Closed.
Indeterminate	Dec. 6 '20	June 14 '21	Affirmed		Closed.
Indeterminate	Dec. 8 '20	Dec. 8 '20	Affirmed		Closed.
\$250 fine	Dec. 10 '20	April 21 '21	Affirmed		Closed.
Indeterminate	Dec. 28 '20	May 5 '21	Affirmed		Closed.
Indeterminate	Jan. 26 '21	May 6 '21	Affirmed		Closed.
Indeterminate	Mar. 24 '21	Sept. 12 '21	Affirmed	Denied	Closed.
Indeterminate	April 4 '21	Aug. 26 '21	Affirmed		Closed.
2 months county jail and \$100	April 11 '21	May 14 '21	Affirmed		Closed.
6 months county jail	April 11 '21	Sept. 2 '21	Affirmed		Closed.
2 months county jail and \$100	April 11 '21	June 18 '21	Affirmed		Closed.
Indeterminate	April 15 '21	Oct. 13 '21	Affirmed	Denied	Closed.
Indeterminate	April 28 '21	Aug. 19 '21	Affirmed		Closed.
Indeterminate	May 6 '21	Feb. 16 '22	Affirmed	Denied	Closed.
Indeterminate	May 4 '21	Oct. 19 '21	Affirmed		Closed.
Indeterminate	June 4 '21	Nov. 10 '21	Affirmed		Closed.
Demurrer sustained	June 13 '21	Aug. 23 '21	Affirmed		Closed.
Indeterminate	June 16 '21	Dec. 7 '21	Affirmed		Closed.
Indeterminate	June 16 '21	Jan. 26 '22	Affirmed		Closed.
Indeterminate	June 27 '21	Dec. 23 '21	Reversed		Closed.
Indeterminate	Aug. 3 '21	Feb. 15 '22	Affirmed		Closed.
Indeterminate	Aug. 4 '21	Jan. 6 '22	Affirmed		Closed.
\$500 fine	Aug. 13 '21	Nov. 30 '21	Affirmed	Denied	Closed.
\$1,000 fine	Sept. 9 '21	Feb. 17 '22	Affirmed	Denied	Closed.
Indeterminate	Sept. 12 '21	Nov. 23 '21	Reversed	Denied	Closed.
Indeterminate	Sept. 29 '21	Mar. 28 '22	Affirmed		Closed.
Indeterminate	Oct. 21 '21	Feb. 21 '22	Affirmed		Closed.
Indeterminate	Oct. 28 '21	April 7 '22	Affirmed		Closed.
Indeterminate	Nov. 18 '21	July 17 '22	Affirmed	Denied	Closed.
Indeterminate	Nov. 30 '21	Mar. 20 '22	Affirmed		Closed.
Indeterminate	Dec. 1 '21	Mar. 15 '22	Affirmed		Closed.
Life	Dec. 3 '21	June 20 '22	Affirmed	Denied	Closed.
Life	Dec. 10 '21	Sept. 30 '22	Affirmed		Closed.
\$300 fine	Dec. 16 '21	April 4 '22	Affirmed		Closed.
Indeterminate	Dec. 22 '21	April 28 '22	Affirmed	Denied	Closed.
30 days county jail	Dec. 27 '21	Mar. 18 '22	Affirmed		Closed.
Indeterminate	Jan. 5 '22	Mar. 23 '22	Affirmed	Denied	Closed.
Indeterminate	Jan. 19 '22	Aug. 4 '22	Affirmed	Denied	Closed.
Indeterminate	Jan. 23 '22	April 20 '22	Affirmed		Closed.
Indeterminate	Jan. 23 '22	June 2 '22	Affirmed		Closed.
Indeterminate	Jan. 25 '22	May 8 '22	Affirmed		Closed.
Indeterminate	Jan. 31 '22	April 7 '22	Affirmed		Closed.
Indeterminate	Feb. 6 '22	Oct. 23 '22	Affirmed		Closed.
Indeterminate	Feb. 18 '22	April 20 '22	Affirmed		Closed.
\$500 fine	Feb. 20 '22	June 6 '22	Affirmed		Closed.
Indeterminate	Feb. 21 '22	June 28 '22	Affirmed		Closed.
Indeterminate	Feb. 24 '22	Aug. 4 '22	Affirmed	Denied	Closed.
\$500 fine	Mar. 4 '22	June 30 '22	Affirmed	Denied	Closed.
Indeterminate	Mar. 16 '22	Aug. 4 '22	Reversed	Denied	Closed.
\$500 fine	Mar. 16 '22	June 19 '22	Affirmed	Denied	Closed.
Indeterminate	Mar. 24 '22	May 10 '22	Reversed		Closed.
\$560 fine and 2 months county jail	April 3 '22	April 3 '22	Affirmed		Closed.
Indeterminate	April 5 '22	June 5 '22	Affirmed		Closed.
Indeterminate	April 7 '22	Nov. 9 '22	Affirmed		Closed.
Indeterminate	April 11 '22	Aug. 5 '22	Affirmed	Denied	Closed.
Indeterminate	April 14 '22	Nov. 13 '22	Reversed		Closed.
6 months county jail and \$350 fine	April 18 '22	July 18 '22	Affirmed	Denied	Closed.
Demurrer to indictment sustained	April 21 '22	June 5 '22	Affirmed		Closed.
Indeterminate	April 24 '22	June 24 '22	Affirmed		Closed.
Indeterminate	May 18 '22	Nov. 11 '22	Affirmed		Closed.
Indeterminate	May 25 '22	Sept. 12 '22	Affirmed		Closed.
Indeterminate	June 3 '22	Nov. 27 '22	Affirmed		Closed.
Indeterminate	June 6 '22	Dec. 18 '22	Affirmed		Closed.
\$600 fine	June 10 '22	Nov. 29 '22	Affirmed		Closed.
Indeterminate	June 10 '22	July 21 '22	Affirmed		Closed.
Indeterminate	June 30 '22		Affirmed		Closed.
Indeterminate	July 11 '22	Dec. 11 '22	Affirmed		Closed.
Indeterminate	June 1 '22		Affirmed		Closed.
\$250 fine	July 15 '22		Affirmed		Closed.
Indeterminate	July 17 '22		Affirmed		Closed.
\$500 fine	July 28 '22		Affirmed		Closed.
Indeterminate	Aug. 2 '22		Affirmed		Closed.
Indeterminate	Aug. 2 '22		Affirmed		Closed.

CRIMINAL CASES IN THE DISTRICT COURT

Third Appellate

No.	Defendant	County	Charge	Judgment
				Date
653	G. A. Rodriguez	Nevada	Conspiracy	June 26, '22
654	Conrad Florian	Sacramento	Failure to support children	July 3, '22
655	W. W. Cockrill et al.	Sonoma	Conspiracy	June 30, '22
656	O. J. Eaton	Humboldt	Syndicalism	July 1, '22
657	F. W. Clayton	Sacramento	Grand larceny	Aug. 17, '23

74 cases decided for plaintiff, 5 for defendants, and 1 pending.

Summary of criminal cases:

Supreme Court	28
First Appellate	92
Second Appellate	142
Third Appellate	80
Total	342
Rehearings, counted twice	15
Total number of separate cases	327

OF APPEAL OF THE STATE OF CALIFORNIA.

District—Continued.

of lower court Penalty	Transcript filed	Judgment of appellate court		Hearing by supreme court	Status o appeal
		Date	Penalty		
Indeterminate.....	Aug. 5, '22		Affirmed.....		Closed.
Indeterminate.....	Aug. 9, '22	Jan. 3, '23	Affirmed.....		Closed.
\$750 fine.....	Sept. 7, '22				Pending.
Indeterminate.....	Sept. 11, '22		Affirmed.....		Closed.
Indeterminate.....	Sept. 13, '22		Affirmed.....		Closed.

FINANCIAL STATEMENT.

Seventy-second and Seventy-third Fiscal Years.

	Appropriation	Amount expended	Balance
SEVENTY-SECOND FISCAL YEAR.			
<i>Contingent Fund.</i>			
Balance from seventy-first fiscal year	\$355 41		
Amount returned during seventy-second fiscal year	50 00		
Appropriation for seventy-second fiscal year	2,500 00		
Amount expended during seventy-second fiscal year		\$2,884 71	\$20 70
<i>Traveling Fund.</i>			
Balance from seventy-first fiscal year	\$118 72		
Appropriation for seventy-second fiscal year	750 00		
Amount expended during seventy-second fiscal year		\$824 79	\$43 93
<i>Costs of Suit Fund.</i>			
Balance from seventy-first fiscal year	\$1,551 91		
Amount returned during seventy-second fiscal year	966 88		
Appropriation for seventy-second fiscal year	3,750 00		
Amount expended during seventy-second fiscal year		\$6,000 54	\$268 25
<i>Purchase Law Book Fund.</i>			
Balance from seventy-first fiscal year	\$58 05		
Appropriation for seventy-second fiscal year	1,000 00		
Amount expended during seventy-second fiscal year		\$1,037 40	\$20 65
<i>Rent Fund (San Francisco).</i>			
Balance from seventy-first fiscal year			
Appropriation for seventy-second fiscal year	\$3,000 00		
Emergency Resolution No. 52	1,421 00		
Amount expended during seventy-second fiscal year		\$4,421 00	
<i>Printing Fund.</i>			
Balance from seventy-first fiscal year	\$664 76		
Appropriation for seventy-second fiscal year	2,500 00		
Amount expended during seventy-second fiscal year		\$3,164 76	
<i>Conserving State Land Fund.</i>			
Balance from seventy-first fiscal year			
Appropriation for seventy-second fiscal year	\$1,000 00		
Amount expended during seventy-second fiscal year		\$1,000 00	
SEVENTY-THIRD FISCAL YEAR.			
<i>Contingent Fund.</i>			
Appropriation for seventy-third fiscal year			
Amount returned during seventy-third fiscal year	\$9,750 00		
Amount expended during seventy-third fiscal year	915 29		
		\$10,391 18	\$274 11
<i>Purchase Law Book Fund.</i>			
Appropriation for seventy-third fiscal year	\$1,500 00		
Amount expended during seventy-third fiscal year		\$1,010 65	\$489 35
<i>Rent Fund (San Francisco).</i>			
Appropriation for seventy-third fiscal year	\$5,910 00		
Amount expended during seventy-third fiscal year		\$4,422 00	\$1,488 00
<i>Conserving State Lands Fund.</i>			
Appropriation for seventy-third fiscal year	\$1,000 00		
Amount expended during seventy-third fiscal year		\$623 06	\$376 94
<i>Escheated Property Fund.</i>			
Appropriation for seventy-third and seventy-fourth fiscal years	\$2,500 00		
Amount expended during seventy-third fiscal year		\$50 00	\$2,450 00

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Twenty-seventh Biennial Report

OF THE

State Board of Health
of California

for the

Fiscal Years from July 1, 1920, to June 30, 1922



CALIFORNIA STATE PRINTING OFFICE

FRANK J. SMITH, Superintendent

SACRAMENTO, 1923



WALTER LINDLEY, M.D.,

Member California State Board of Health. Died January 24, 1922.

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LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, September 1, 1922.

*To His Excellency, Wm. D. STEPHENS,
Governor of California.*

DEAR SIR: In accordance with the state law, I herewith transmit to you the twenty-seventh biennial report of the State Board of Health for the seventy-second and seventy-third years.

Respectfully submitted.

WALTER M. DICKIE,
Secretary of State Board of Health.

REPORT OF THE SECRETARY.

I.

PROGRESS AND PROBLEMS.

The biennial period, July 1, 1920, to June 30, 1922, has brought not only a greatly increased interest in community health, but this period has also been productive of outstanding and far-reaching results in the establishment of new machinery for the promotion of public health throughout California. There have been brought about marked further reductions in the morbidity and mortality for various communicable diseases, particularly tuberculosis and typhoid fever. The reduction in the infant mortality rate has placed California among those states, few in number, which have exceptionally low death rates for children under one year of age. On the other hand, many problems connected with the control of communicable diseases have become particularly aggravating during the past two years. Diphtheria and smallpox have shown a marked increase. Fortunately, the type of smallpox that has prevailed in California during this period has been very mild and there have been very few deaths from this disease, considering its wide prevalence. The fact that smallpox, in virulent form, is appearing in other states, makes it imperative that the disease be kept under control in California. The more extended use of the Schick test and active immunization through toxin-antitoxin of children whose lack of immunity has been demonstrated through the Schick test, marks the beginning of an active campaign against diphtheria in this state. The general death rates for the calendar years 1920 and 1921 are exceptionally low, and indicate that general health conditions in California are very satisfactory.

It is necessary to emphasize the importance of cooperation of physicians and public officials in further combating communicable disease, and thereby reduce the mortality rate in California, and also to emphasize this possibility by calling attention to what has already been done during the last few years.

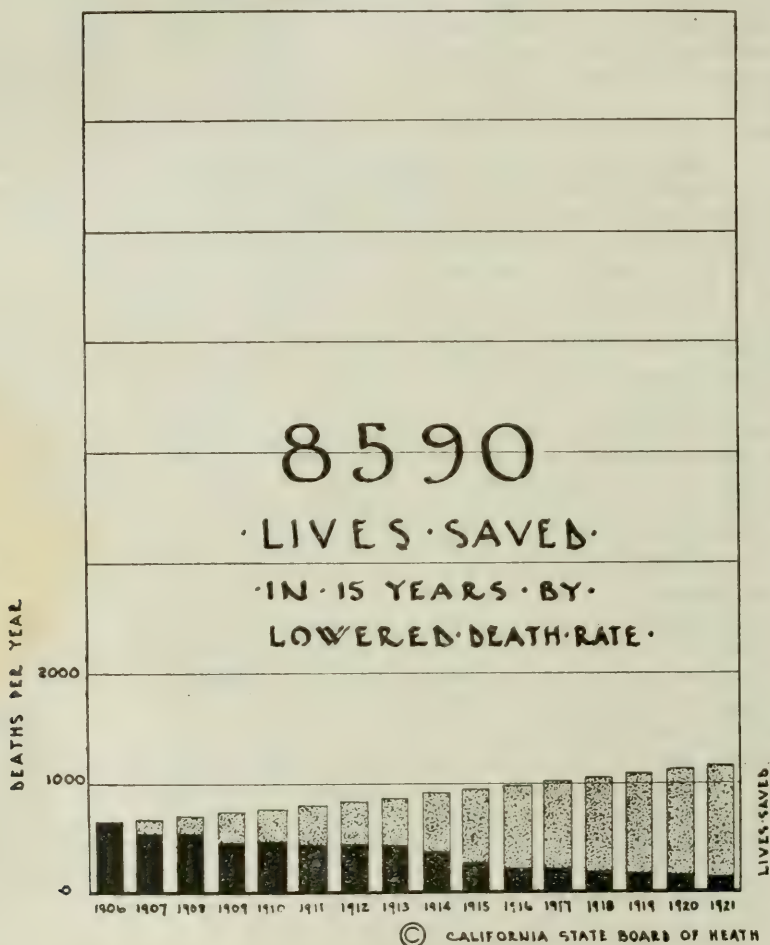
Definite progress in California's public health is fully established in the spectacular reduction in the typhoid, tuberculosis and infant mortality rates, in the remarkable extension of longevity and in the tremendously increased interest of the general public in health subjects, which has followed in the wake of the war and which amounts to a veritable renaissance in public health.

TYPHOID.

The reduction in the typhoid mortality rate is a matter of common knowledge. In fact, typhoid has become so rare that the American Medical Association has frequently referred to it as a vanishing disease and so seldom has it occurred in some sections of California that no inconsiderable number of practitioners have ever been afforded the opportunity of seeing cases of typhoid in their practices. The various public health factors that have brought about the decrease in typhoid

are two numerous and too well known to be recounted here. I desire to emphasize the fact, however, that if the same typhoid fever death rate that prevailed in California in 1906 had prevailed in 1921 there would have been 1159 deaths from this disease, instead of the 147 that actually occurred. The reduction in the mortality rate for this single disease represents a saving of no less than 8590 lives in California since

REDUCTION IN TYPHOID FEVER MORTALITY
IN CALIFORNIA, 1906 - 1921.



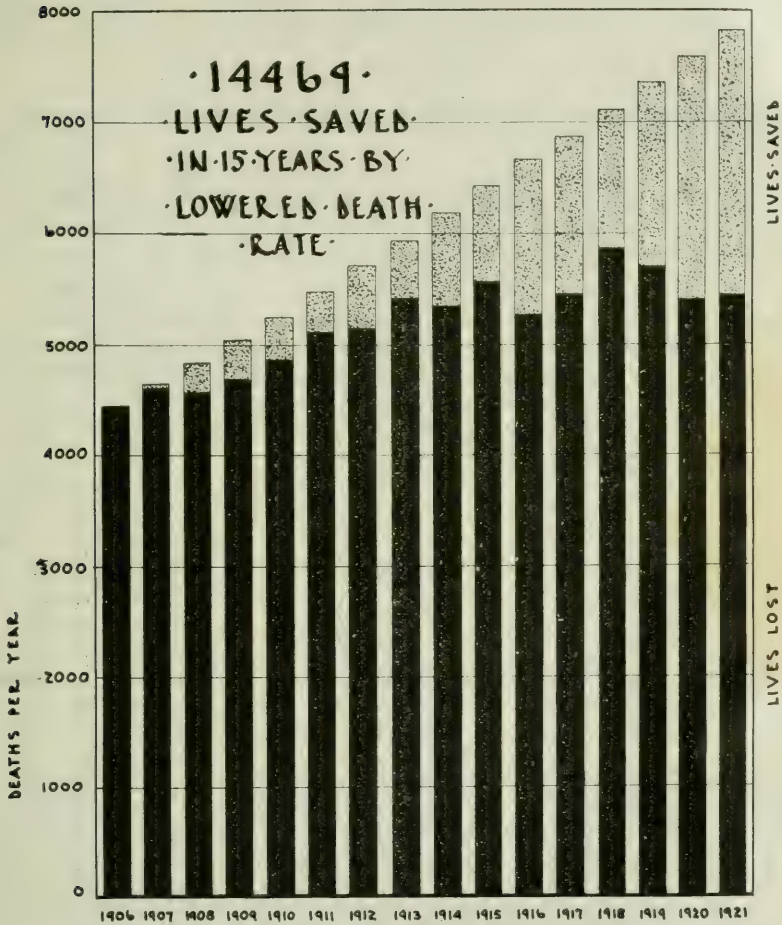
1906. Notwithstanding the fact that this state has vastly greater difficulty in providing pure water for the use of its citizens, there are but three other states in the Union having lower typhoid fever mortality rates.

TUBERCULOSIS.

In spite of the continued and persistent migration of tuberculosis patients to California, the death rate from this disease has been reduced

from 216 per hundred thousand in 1906 to 150 per hundred thousand in 1921. This represents a saving of no less than 14,469 lives during this period. Our statistics show that more than 10 per cent of all deaths from tuberculosis in California were in persons who had lived in the state less than one year, and 17 per cent of all deaths from tuberculosis occurring in southern California were in persons who had lived in that section of the state less than one year. Aside from these

REDUCTION IN TUBERCULOSIS MORTALITY IN CALIFORNIA, 1906-1921.



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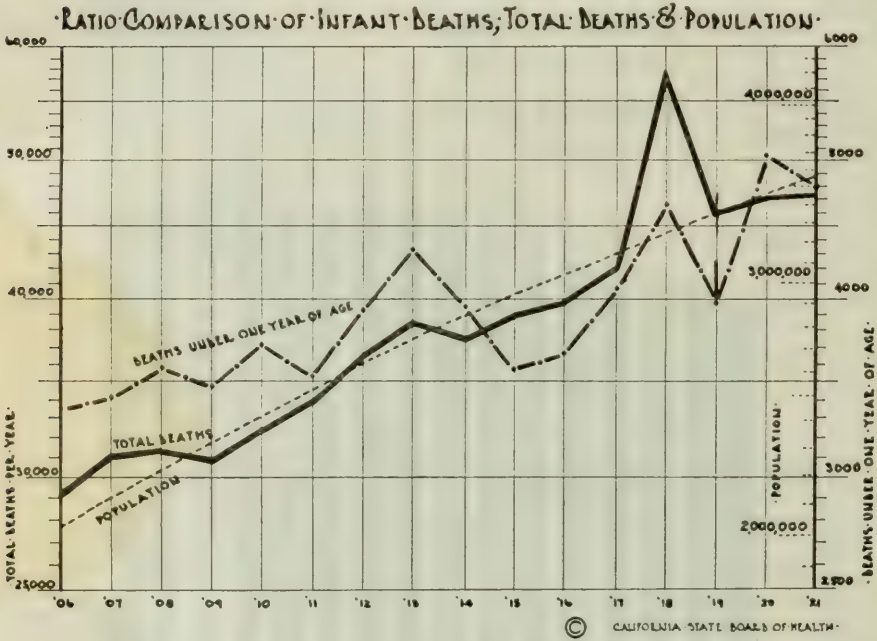
facts, which constitute no inconsiderable handicap in bringing about reduced mortality rates, this excellent record has been achieved. This reflects greatly to the credit of the citizens of the southern part of the state, for they have supported the establishment of sanatoria and improved institutions for the care of the tuberculous, thereby removing infectious cases from the various communities and providing these patients with necessary hospital care. While it is true that there are

many other factors which have brought this marked improvement, none is more important than the active cooperation of the supervisors of the various counties and other official organizations which are zealously engaged in the persistent fight against this stubborn disease.

INFANT MORTALITY.

In 1906 the state's infant mortality rate was 160.0. In 1921 the same rate was 66.8 or 66 deaths of infants under one year of age occurred to every 1000 live births. This reduced infant mortality rate has placed California in a most enviable position. With the exception of the State of Washington, no other state in the Union has a lower

CALIFORNIA INFANT MORTALITY, 1906-1921.



infant mortality rate. This low rate is not due to any single factor. It must be ascribed to a multitude of conditions. The California climate, which permits of living in the open for the better part of the year, is one of the factors which must be taken into consideration, and, aside from this fact, there are a multitude of conditions and activities to be considered, none of which are more effective than the provision of pure milk under the jurisdiction of milk commissions, as well as under the State Milk Law, and the more extended application of scientific principles of feeding under medical supervision.

EXTENDED LONGEVITY.

The lengthening of human life is a valuable index to general health conditions in any state, and the fact that the average human life in California has definitely lengthened during the past decade indicates that public health conditions throughout California have improved

greatly during recent years. The extension in longevity for California in 1921, in fact, is considerably greater than is the extension in longevity for the United States in 1910. Computations made by the California State Board of Health, and pictured in the graph that accompanies this article, show that California's gain over the United States in longevity is greater for the period under 20 years of age and over 60 years of age. Favorable climatic conditions, stability of temperature and humidity, good social conditions, comparative absence of the first generation of the foreign-born, the infrequent occurrence of severe summer diseases of children, and the immense amount of work leading to the conservation of child life accomplished recently in California, are, no doubt, the chief factors that have to do with the gain that has been made in California for the age period under 20 years. The gain in the period over 60 years, very probably, is the result of migration into California of large numbers of healthy individuals past middle life. Thousands of independent, able-bodied individuals, who come from good race stocks, journey to California to spend in comfortable surroundings the latter part of their lives in this state. The number of such persons is sufficiently great to determine the gain in longevity in California for the age period over 60 years.

The news columns are constantly carrying stories of centenarians, who are invariably asked for information concerning the factors to which they attribute their longevity. The reasons given represent a wide variety of inconsistencies. One centenarian attributes his long life to the use of tobacco and alcoholic beverages, while another attributes the long years of life to the fact that he has never used tobacco or alcohol. Another centenarian says that he has lived long because he has always worked hard and has had continuous worries in the struggle for existence. His claims are repudiated by others who have lived to a ripe old age, and who claim that ease and comfort have enabled them to pass the century mark. All such cases are exceptions rather than rules.

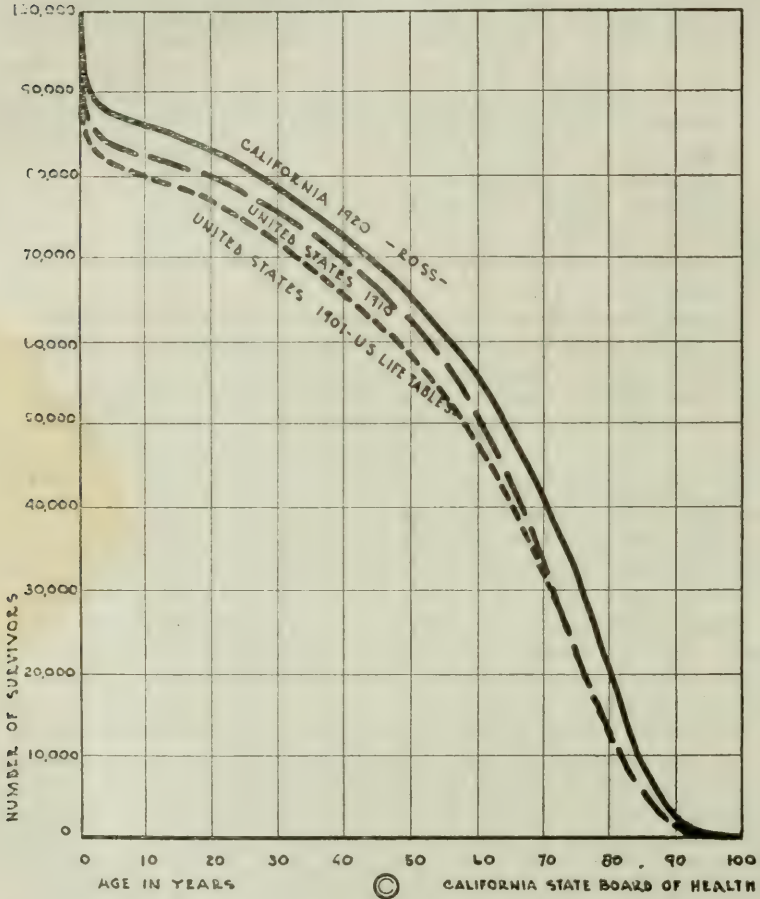
It is the extension in longevity for large groups of people only that counts. For an occasional individual, here and there, to live past the century mark is to be expected. How much more important it is for thousands of individuals to live ten years or more beyond the average age of death. Public health in California is responsible largely for the fact that Californians are living longer lives than are the residents of most other states. The provision of more extensive preventive measures against communicable diseases, the improvement of living conditions, and the forces that have to do with the provision of better facilities for the care of the sick and for more extensive research into the causes of disease, have all contributed to longer life in California.

The chances of dying are much greater during infancy and during old age than in any other periods of life. The fact that such remarkable gains have been made at these two extremes of human life in California speaks well for the agencies that have brought about these gains. There is still much important work to be done in the prevention of deaths during early adult life. Cancer and nephritis are taking greater tolls of lives each year. The tuberculosis death rate, while it has been lowered greatly, is still much too high. The migration to California of persons suffering from tuberculosis in an advanced stage is the greatest factor in bringing about a high death rate for this disease

in California. There are many other problems connected with the conservation of life during the early adult stage, and it is among persons of this age group that public health authorities are briefly concerned at the present time.

Comparing longevity for the United States with that of other countries shows results very favorable toward the United States. Residents

NUMBER OF SURVIVORS OUT OF EVERY
100,000 BORN ALIVE, U. S. A., 1901 AND 1910.
CALIFORNIA, 1920.

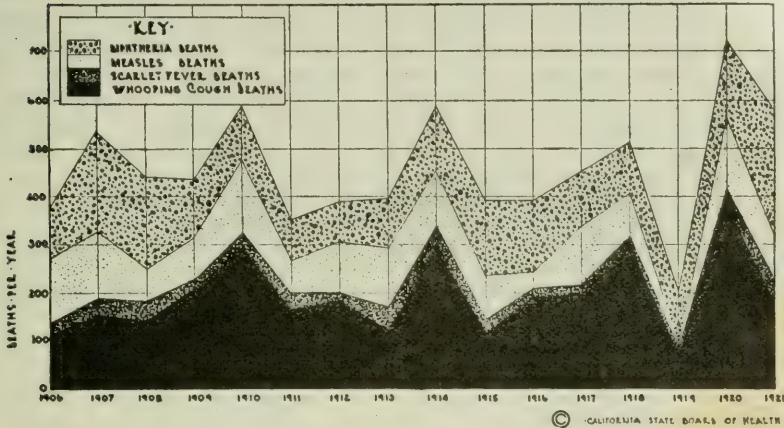


of Australia and Sweden, however, have far greater chances of living to a ripe old age than have the residents of any other countries. In Australia there are more people alive up to about 68 years of age, and in Sweden over 68 years of age, than in any other of the countries shown. Expectancy of life is much less in India than for any other country. In India, for every hundred thousand born alive, nearly one-half have died before reaching 10 years of age. While in the United States, 81,900 out of every 100,000 born alive are still living at this age (10 years), meaning that 18,100 children under 10 years of age have

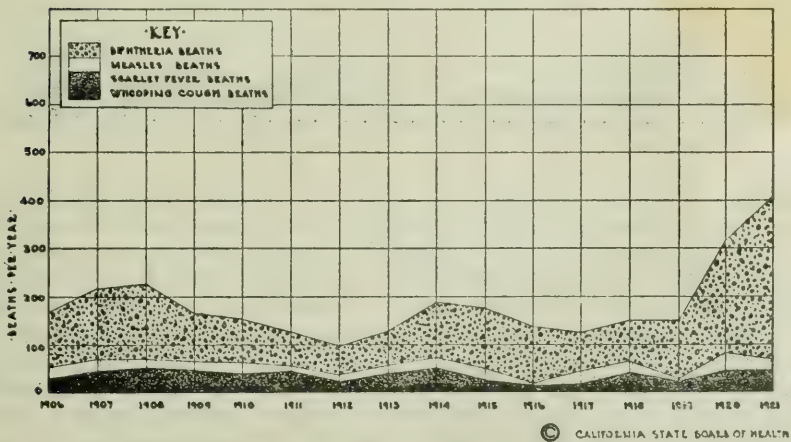
died, while in Australia there have been only 12,500 such deaths. The chances of persons living to reach 10 years of age, therefore, are about 51 to 49 in India; about 72 to 28 in Italy; 82 to 18 in the United States, and about 87½ to 12½ in Australia.

Death is inevitable and must come eventually to every living thing. Longevity means merely the postponement of death. The postpone-

DEATHS FROM DIPHTHERIA, SCARLET FEVER, MEASLES AND WHOOPING COUGH AMONG PERSONS UNDER FIVE YEARS OF AGE IN CALIFORNIA, 1906-1921.



DEATHS FROM DIPHTHERIA, SCARLET FEVER, MEASLES AND WHOOPING COUGH AMONG PERSONS FIVE TO FIFTEEN YEARS OF AGE IN CALIFORNIA, 1906-1921.



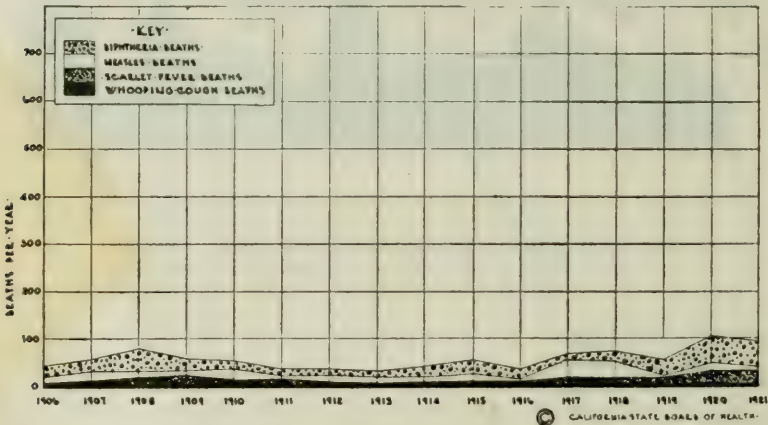
ment of death, through the prevention of disease, is the chief aim of all public health work. That public health authorities have been successful in their work is shown not only in the reduced death rates for the various communicable diseases, but also in the resultant extension of human life in California. It is certain that the prevention of communicable diseases in early life is one of the greatest factors in preventing the development of other diseases in adult life, and there is

substantial evidence at hand to show that through the prevention of communicable diseases, years may be added to the average human life. There is much to be done in the control of these diseases, and it is only through continuous earnest effort upon the part of health authorities in cooperation with the general public that longer, happier lives may come to all individuals within the state.

PUBLIC HEALTH INTEREST.

An awakened interest dates from the time of the first draft, when it was made apparent that a large percentage of the young men of the country were unfit for service, due to numerous physical defects. Health organizations, both official and unofficial, sprung up everywhere during the war, and have continued without abatement. Whole communities have organized to emphasize the value and importance of health. The enthusiasm with which subjects pertaining to child health

DEATHS FROM DIPHTHERIA, SCARLET FEVER, MEASLES
AND WHOOPING COUGH AMONG PERSONS FIFTEEN
YEARS OF AGE AND OVER, IN CALIFORNIA, 1906-1921.



and welfare are received gives evidence of the interest in this branch of public health work. Not only is there an interest in child welfare, but men who have heretofore given little heed to their physical condition are now securing, voluntarily, complete physical examination. Clinics and health centers have been established and normal classes for the teaching of nutrition are being conducted in the large centers of population, and the graduates have gone forth to preach the gospel of health to children; free lunches are provided in many schools; the drinking of milk is being encouraged; dental hygiene is being taught; games are played under the supervision of expert; personal hygiene is dramatized, filmed, and presented to the children in every conceivable form, in order to further their interest in matters pertaining to health, and it would seem to the casual observer that California is doing all that need be done to conserve the lives of its children.

Important as it is that children should be weighed and measured; that sermons on nutrition should be preached; that it is important to know that sufficient vitamins are present in children's food; that free

lunches shall be provided where necessary, and that the importance of milk in the child's dietary shall be taught—that all of these valuable contributions shall be made toward the well-being of the child—nevertheless, those of us who are versed in the science of medicine, know that this is but a part of a health program. And this brings us to the need for a frank discussion of the vital but unrecognized present-day public health problems, of which none are more important than those concerned with the control of communicable diseases in early child life and the prevention of the harmful after-effects that manifest themselves in later life—"The weak spots in the ship that show up in the storm" and which are not now receiving proper consideration.

The accompanying table shows that there were 9448 cases of diphtheria with 644 deaths reported in California during 1921. The presence of 14,131 cases of measles with 129 deaths; 5570 cases of scarlet fever with 117 deaths; 2805 cases of whooping cough with 191 deaths, indicates the widespread prevalence of these diseases—diphtheria scarlet fever, measles and whooping cough—reported last year, although the number of cases that actually occurred is, without doubt, twice as great. The 1081 deaths from these four diseases are relatively insignificant in comparison with the 65,000 cases which will probably be the principal factor in the production of many thousands of physically handicapped adults each year during the next decade. Vaughan, in his recent work on epidemiology, says, "It is not oversanguine to claim that if measles, whooping cough, diphtheria and scarlet fever could be entirely suppressed, the average length of life would be increased by at least ten years."

AFTER EFFECTS ARE SERIOUS.

In a paper read before the annual meeting of the American Medical Association at Boston last year, Isaac A. Abt discussed "The sequelæ of the communicable diseases of childhood as a public health problem." He showed that injuries inflicted on the kidneys, the nervous system, the cardio-vascular system and the pulmonary system by the communicable diseases of early life are usually permanent. Injured tissues show no evidence of regeneration, repair occurring for the most part by the replacement with fibrous tissue, and, although eventually restored functions are apparently brought about, injury, more or less permanent, nevertheless remains. In considering the relationship to the vital statistics, he says, "The acute contagious diseases present a veritable mortality rate during the primary stages. It should be mentioned that frequently sequelæ incapacitate physically as well as mentally: they tend to establish a mortality rate which is difficult to state in tables of vital statistics, and which, therefore, constitute an unaccounted for death rate as the result of the remote defects of communicable diseases. In the death certificate these patients are reported to have died from heart, kidney, pulmonary or cerebral lesions, whereas the exciting cause of death is most frequently lost sight of. It is possible, too, that the health officer is interested in the sequelæ of disease, because whatever tends to the production of county invalidism, whatever deteriorates the health of citizens or incapacitates them for their normal occupation, may affect the physical, moral or mental status of the people and may become an economic, a social and a state problem which would call for the most thoughtful consideration of public health officials."

Williams Ophuls' work on arteriosclerosis and cardio-vascular disease shows through the results of 500 consecutive complete necropses a close relationship to the infectious diseases. He states: "The injury to the arteries usually occurs early in life and the anatomic lesions seem to develop very slowly and progressively even after the original infection has become extinct."

PROBLEMS PECULIAR TO STATE.

California, because of its unique geographical position, has many public health problems which are essentially peculiar to the state and which require continual alertness upon the part of the local, state and federal authorities. Among these are the tremendous flow of tuberculous persons into the state; chronic plague in rodents; typhus fever, ever present on our southern border; and the potential danger in other highly dangerous diseases from Oriental sources. With all of these dangers continually before us there still remains this most important problem of all—the prevention of an excessive communicable disease prevalence and the far-reaching and ravaging end-results of these diseases. The public wants to know not only why so many physical defects are found in young adults, but it also wants to know what is the cause of these conditions and why they are not corrected. The physician is nearest to this problem, and it is through him that a solution must come. In the words of Boyd, in the introduction of his "Practical Preventive Medicine," this situation is very clearly set forth—"The medical profession can play an important role in the field of preventive medicine and public health. At present physicians are neglecting their opportunity. If this neglect continues, the opportunity will lessen and the field will be taken from the physicians."

Many agencies, both official and unofficial, are actively engaged in the furthering of child health and welfare, and are stressing the importance of physical perfection, although it is known and appreciated that building strong bodies has in all probability great influence in the reduction of the number of deaths and prevention of harmful sequelæ of these diseases, it must not be forgotten that influenza, apparently, took gruesome delight in selecting its victims from among the most robust.

Health departments can point with pride to their accomplishments in the prevention and control of communicable diseases through the removal of environmental causative factors. The victory over typhoid and the winning fight being waged against malaria are matters of common knowledge to every school boy. These results have been accomplished by health authorities purely through the control of environmental conditions, in the accomplishment of which the services of the medical profession have not been required.

PUBLIC WANTS TO KNOW.

The general public now wants to know how all communicable diseases are controlled. It wants to know why the diphtheria death rate continues high in spite of antitoxin. It wants to know why measles and scarlet fever are of such common occurrence. It wants to know why so many children die of whooping cough. The demand for such information is continuous. The medical profession must give closer cooperation in the control of these and all other contact diseases. It must

give careful attention to the regulations for their control. Without such cooperation, public health authorities are helpless in reducing the prevalence of these communicable diseases that have so much to do with diseases of adult life. Unless the medical profession unites wholeheartedly in the performance of this civic duty, results that may be exceedingly disastrous not only to the prestige of the profession but also destructive to the health and welfare of the Nation's children and its future citizens are sure to follow. With the full support and unreversed interest of the profession it is possible to obtain results that will reflect not only to the honor of medicine, but which will also go far in maintaining our children's health and in making of them strong, sturdy, healthy citizens.

II.

INFLUENZA.

The last of the important waves of influenza was noted in California during 1920, with a slight recurring rise in 1921. The numbers of cases and deaths from this disease for the past four years are as follows:

Year	Cases	Deaths
1918 -----	230,845	13,340
1919 -----	82,682	4,746
1920 -----	66,183	2,715
1921 -----	2,565	339

SMALLPOX.

The increased prevalence of smallpox is due, largely, to the fact that a considerable portion of the population of California has not been vaccinated against this disease. It is probable, also, that many cases of a more severe type of the disease have been imported from Mexico, causing a higher mortality for this disease during 1921.

The control of smallpox in California has been particularly difficult, because of the cumbersome and awkward vaccination act of 1911, which was repealed in the legislature of 1921. In the ten years of its operation, this law brought only discord and lack of harmony. Most of its measures were never enforced by school and health officials. Its provision for the exclusion of all unvaccinated persons in attendance upon the schools whenever smallpox existed within the district led to situations difficult to control. Under the act of 1921, the control of this disease is placed under the regulation of the State Board of Health—local school and health authorities being forbidden to pass any regulations or orders for its control.

The numbers of cases and deaths from smallpox reported during the past four years are as follows:

Year	Cases	Deaths
1918 -----	1,016	3
1919 -----	2,002	5
1920 -----	4,497	7
1921 -----	5,579	21

DIPHTHERIA.

The increase in diphtheria morbidity and mortality is not confined to California, alone. The other states have shown the same increases, and the problems connected with the control of this disease are the

same in this state as in other states. It is only through the immediate administration of anitoxin in all cases that may be suspicious of diphtheria, and in the immunization of children who do not possess immunity against diphtheria, that this disease can be brought under active control. The cooperation of physicians is a matter of absolute necessity in the control of diphtheria. The general public to be sure, must be further informed in order that every sore throat may be regarded seriously, but the prompt administration of public health control measures depends largely upon the support and cooperation of practitioners. Cases and deaths from diphtheria during the past four years are as follows:

Year	Cases	Deaths
1918 -----	3,090	213
1919 -----	3,037	266
1920 -----	5,793	451
1921 -----	9,464	644

TYPHOID FEVER.

The year 1921 brought the lowest typhoid fever death rate in the history of California. The provision of pure water supply, the prevention of stream pollution, safer camping facilities, the compliance of the general public with sanitary regulations, the provision of pasteurized milk through California's model milk law, and several other important factors, have brought about this good record. Cases, deaths and rates per hundred thousand population for typhoid fever in California during the past four years are as follows:

Year	Cases	Deaths	Rate per hundred thousand population
1918-----	1,055	197	6.0
1919-----	960	185	5.4
1920-----	1,137	172	4.8
1921-----	953	147	4.1

It is remarkable that California is able to keep its typhoid fever death rate so low when it is considered that most community water supplies find their sources in surface streams. It speaks well for the control and treatment of municipal water supplies in this state. The only states achieving better records in typhoid control are the New England states of Massachusetts, Rhode Island, New Jersey, New Hampshire, New York and Connecticut. Minnesota, however, a middle west state, active in efficient public health administration, and Wisconsin, similarly active, are close contenders with Massachusetts for first place in this roll of honor. Nebraska, admitted to the United States Registration Area only recently, in 1920, had a lower typhoid fever death rate than any of our Pacific Coast states. The possibilities for almost eradicating typhoid fever are very great. If the rural districts in this state were as well organized, from a public health standpoint, as are most of its large cities, the state's typhoid fever death rate might be made to approach the vanishing point. The remarkable reductions in typhoid could not have been made possible without the work of the strong public health organizations in the larger cities.

TABLE A—TYPHOID FEVER IN REGISTRATION STATES, 1916 to 1921.
Deaths per 100,000 population.

	1920	1919	1918	1917	1916					
1.	Massachusetts.....	2.5	Massachusetts.....	2.7	Minnesota.....	3.7	Minnesota.....	4.3	Massachusetts.....	4.7
2.	Wisconsin.....	2.8	Vermont.....	3.1	Wisconsin.....	3.8	Massachusetts.....	4.9	New Hampshire.....	5.0
3.	Rhode Island.....	3.0	Wisconsin.....	3.2	Massachusetts.....	4.1	Wisconsin.....	5.2	Minnesota.....	5.5
4.	Minnesota.....	3.3	New Jersey.....	3.3	Massachusetts.....	4.5	Rhode Island.....	5.8	New York.....	6.2
5.	New Jersey.....	3.6	Minnesota.....	3.3	New Hampshire.....	5.4	New York.....	5.9	Washington.....	6.5
6.	New York.....	4.1	Rhode Island.....	3.4	Connecticut.....	5.5	New York.....	6.1	Vermont.....	6.9
7.	Connecticut.....	4.5	New Hampshire.....	3.6	Rhode Island.....	5.7	New Hampshire.....	6.7	California.....	7.1
8.	Nebraska.....	4.5	New York.....	4.0	New York.....	6.0	New Jersey.....	6.7	New Jersey.....	7.1
9.	Montana.....	4.8	Connecticut.....	4.2	California.....	6.0	California.....	6.9	Connecticut.....	7.2
10.	California.....	4.9	Washington.....	4.2	Washington.....	7.4	Rhode Island.....	7.1	Rhode Island.....	7.2
11.	Oregon.....	5.0	Oregon.....	4.9	Washington.....	7.7	Wisconsin.....	7.1	Wisconsin.....	7.9
12.	Washington.....	5.6	California.....	5.4	Maine.....	7.7	Connecticut.....	9.0	Utah.....	10.7
13.	Pennsylvania.....	5.7	Maine.....	5.7	Illinois.....	8.2	Washington.....	9.4	Utah.....	10.7
14.	Illinois.....	5.8	Illinois.....	5.9	Vermont.....	8.5	Colorado.....	10.3	Montana.....	10.9
15.	New Hampshire.....	6.8	Illinois.....	5.9	Utah.....	8.5	Colorado.....	10.3	Maine.....	11.3
16.	Utah.....	6.9	Pennsylvania.....	7.1	Michigan.....	9.4	Pennsylvania.....	10.7	Michigan.....	12.8
17.	Maryland.....	6.9	Montana.....	7.2	Oregon.....	9.5	Maine.....	10.8	Colorado.....	13.2
18.	Reg. s. 1916.....	7.0	Kansas.....	7.3	Montana.....	10.1	Michigan.....	11.3	Reg. s. 1916.....	13.3
19.	Ohio.....	7.5	Michigan.....	7.6	Pennsylvania.....	10.9	Reg. s. 1916.....	12.5	Pennsylvania.....	13.9
20.	Reg. a. 1920.....	7.8	Ohio.....	8.0	Reg. s. 1916.....	11.3	Ohio.....	12.6	Ohio.....	14.2
21.	Michigan.....	7.9	Reg. s. 1916.....	8.1	Reg. a. 1920.....	12.6	Reg. a. 1920.....	13.5	Kansas.....	14.9
22.	Kansas.....	8.0	Colorado.....	8.5	Ohio.....	13.6	Utah.....	13.7	Maryland.....	19.0
23.	Maine.....	9.0	Reg. a. 1920.....	9.2	Indiana.....	13.8	Montana.....	15.7	Missouri.....	19.5
24.	Colorado.....	9.2	Utah.....	9.4	Colorado.....	15.4	Indiana.....	17.2	Indiana.....	21.2
25.	Indiana.....	9.7	Indiana.....	11.4	Kansas.....	16.6	Maryland.....	18.2	Virginia.....	24.8
26.	Missouri.....	10.0	Maryland.....	11.8	Maryland.....	17.0	Kansas.....	18.8	North Carolina.....	28.5
27.	Vermont.....	10.5	Missouri.....	12.5	Virginia.....	17.9	Virginia.....	20.8	Kentucky.....	31.1
28.	Virginia.....	11.2	Virginia.....	15.5	Missouri.....	19.6	North Carolina.....	29.5	North Carolina.....	34.2
29.	Delaware.....	11.2	North Carolina.....	17.5	North Carolina.....	22.8	South Carolina.....	31.9	South Carolina.....	35.1
30.	North Carolina.....	12.5	Delaware.....	17.6	Kentucky.....	30.2	Kentucky.....	35.1	Kentucky.....	35.1
31.	Florida.....	14.6	Florida.....	18.3	Tennessee.....	35.3	Tennessee.....	38.3	Tennessee.....	38.3
32.	Louisiana.....	15.5	Louisiana.....	20.3	South Carolina.....	35.9	South Carolina.....	38.3	South Carolina.....	38.3
33.	Mississippi.....	18.6	Mississippi.....	22.8	Louisiana.....	39.9	Louisiana.....	39.9	Louisiana.....	39.9
34.	Kentucky.....	20.2	Louisiana.....	26.3	South Carolina.....	26.3	South Carolina.....	26.3	South Carolina.....	26.3
35.	South Carolina.....	22.4	Kentucky.....	28.0	Tennessee.....	28.0	Tennessee.....	28.0	Tennessee.....	28.0

PLAGUE.

For many years bubonic plague has been endemic among rodents in certain counties of California, principally those in the San Francisco Bay region. The United States Public Health Service is still active in the control of the disease in this state. The campaigns conducted by the service, varying with intensity, depended upon the amount of money available for the purpose. During 1920 the service was able to resume work in seven counties from which it withdrew in 1917. The increased activity has enabled the service to gather useful information relative to the continuation of plague infection in these counties, and by supplying a reliable index of the status of plague in ground squirrels at the present time. The examination of squirrels in the laboratory during 1920 showed the presence of infected rodents in Alameda, Contra Costa, Merced, Monterey, San Benito, San Joaquin, Santa Clara, Santa Cruz and San Mateo counties. Senior Surgeon J. C. Perry of the United States Public Health Service, in charge of its San Francisco office, states that as the conditions are favorable for a perpetuation of this disease in these counties, it is safe to predict that plague exists today in these localities. This has been still further proven by the occurrence of two human cases of plague in San Benito County in 1921, one case in Alameda County and one in Santa Cruz County in 1922. Plague undoubtedly exists in ground squirrels over a wide area, and as the work it was possible to accomplish from 1909 to 1917 under large appropriations and when the danger was fresh in the minds of the people, did not eradicate but only controlled the disease, the outlook for the future is not bright. Wherever the plague carrying rodent and its flea can live the disease is almost sure to spread, and this problem is today fraught with danger not only to communities in which endemic foci exist, but also to large centers of population and the state as well.

The question may arise why there are so few cases of human plague when there are so many endemic foci of squirrel infection and the probable answer is that where the squirrels are most numerous there are few residents. These rodents are most numerous on grazing lands because difficulty has been experienced in having anti-squirrel operations carried out on these larger areas on account of the expense and the low monetary return from this type of land. It is very important, however, that these areas should receive careful treatment, especially by poisoning operations, for the destruction of squirrels, as these animals migrate to a new territory and establish new plague foci. Where land comes under intensive cultivation, especially on small holdings, there are few squirrels, because they do not like constant disturbance of their colony and besides the farmer carries out active destructive measures from an economic view.

Surgeon Perry summarizes the plague situation in California as follows:

"1. At the present time plague infection in ground squirrels exists in ten counties, embracing a wide area.

2. As long as endemic foci of plague exist there is danger to the community, either by an outbreak of human cases primarily or secondary to infection of rates in contiguous territory.

3. The measures it has been possible to carry out against squirrels to date have only resulted in nominal control and not eradication.

4. Efforts are now concentrated, with promising results, in the four bay counties for the purpose of creating a squirrel-free zone around populous centers.

5. Active measures should be carried out for the destruction of both squirrels and rats in contiguous territory in order to eliminate points of contact and the danger of plague transference.

6. Ground squirrels can only be eradicated or sufficiently controlled for safety and endemic plague foci eliminated by an intensive coordinated campaign extending over at least three years.

7. Much can be accomplished and greater safety assured by destruction of squirrels around towns, villages and rural habitations.

8. Squirrel eradivative work in any area to be effective must be followed up. The treatment of a place one year and then neglecting it for two or three years will not produce permanent results, as the squirrels rapidly increase from those left or those that migrate into it.

9. Measures against rats to render that area less susceptible to plague invasion is strongly urged, and the periodical examination of rats at danger points is of prime importance."

TYPHUS FEVER.

It is not likely that typhus fever will become epidemic in California so long as our people maintain the strict standards of cleanliness, both personal and public, that now prevail quite generally. Nevertheless,



Typhus in California generally occurs among Mexican laborers and their families. The disease is endemic in Mexico and therefore presents a constant menace to the public health of California.

more cases of this disease are occurring now in California than ever before. This is undoubtedly due to the fact that the disease is endemic in Mexico, where it has been widely prevalent for many years. Nearly

all of the cases of typhus now appearing in California are in the southern part of the state. The importance of safeguarding the general public against this disease must not be minimized, and health officers must, of necessity, be extremely alert in detecting cases. Along with this alertness there must be continued activity in the destruction of vermin, and special attention must be paid to factors that have to do with bringing in the disease from other countries.

In 1918 there were no cases or deaths from typhus in California; in 1919 there were two cases and one death; in 1920 there were three cases with two deaths, and in 1921 there were six cases with two deaths.

CLONORCHIASIS.

In December of 1921, 32 Chinese suffering with clonorchiasis were released through the port of San Francisco for transportation to various cities throughout the United States. Fifty-five other Chinese, also suffering from the disease, were about to be released, when upon protest from the San Francisco health officer, the State Board of Health interceded, with the result that the patients were not permitted to land.

A certain fresh water mollusc that is found only in the Orient is the intermediate host for this disease. This mollusc is not known to exist upon the North American Continent. The parasite makes its habitat in the human liver. It may not reproduce itself within the body, but lays its eggs which are passed off in the feces. These eggs must pollute water and then be eaten by this certain type of mollusc. The mollusc is eaten by a fish, in which it becomes encysted, and when eaten raw or improperly cooked, by a human being, the infection may occur. In spite of the fact that the parasites must depend for their spread upon soil or water pollution, and that the disease is uncommon in civilized communities, the California State Board of Health is convinced that it is highly undesirable to have persons suffering from clonorchiasis enter California without any restrictions whatever.

LEPROSY.

Dr. Geo. E. Ebbright, President of the California State Board of Health, in 1914, reported to the board his findings relative to the leprosy problem in this state, suggesting that the board take steps that might lead to the establishment of a federal leprosarium. This led to active work with other state health departments and with representatives in Congress, and in 1917 a bill providing for a federal leprosarium was signed by the President. After unavoidable delays, this institution was established in 1921 at Carrville, La., and early in 1922, all lepers held in quarantine by the various countries of California were removed to the federal institution. The California State Board of Health takes justifiable pride in this solution of the acute problems relating to the care of lepers by counties—a problem that has been a source of aggravation and great expense to many California counties, as well as to those of many other states.

MALARIA.

Malaria, which is endemic in California only in the upper Sacramento and San Joaquin Valleys, has been reduced considerably in its prevalence during the past four years. The reduction is more appar-

ent than real, however, as most cases are not seen by physicians and not reported officially.

The efforts of many mosquito abatement districts of the interior valleys of this state have produced results where intensive work in mosquito control has been energetically conducted. The value of such work is greatly lessened, however, due to the fact that territory lying adjacent to the districts, in which no control work is undertaken, constitutes a perpetual menace to the district that is undertaking effective control work. The State Board of Health believes, however, that if large areas of land could be freed from malarial-bearing mosquitos, making large territories of fertile land habitable, that much can be accomplished in removing the menace that malaria presents to the state.

The International Health Board lent the services of Mr. Louva G. Lenert of its engineering staff, to the State Board of Health. Mr. Lenert has been conducting surveys of the various malaria-infected districts of California, and has prepared accurate assessments of the cost of drainage and other control measures. It is certain that through the expansion of the mosquito abatement district idea, and through the provision of more adequate funds for the control of the disease, that California may finally be freed from this menace to the development of its agriculture and the health and welfare of its people.

BOTULISM.

During this biennial period, outbreaks of botulism in Orange County, Riverside County, Oakland, San Jacinto, San Benito, Santa Barbara, Los Angeles, San Jose and Sawtelle were investigated by the State



A typical California olive orchard.

Board of Health. In 1920 there were sixteen cases of this disease with six deaths, and in 1921 there were four cases with two deaths reported. All of these cases were due to the use of infected home canned products. It is believed that the research work undertaken by the National Canners' Association in cooperation with the California State Board of Health, together with the work of the State Olive Growers' Association, has resulted in the complete removal of any possibility of the contraction of botulism through the use of commercially-canned products. The regulations of the California State Board of Health for the sterilization of commercially-packed ripe olives are being rigidly enforced throughout the state. The strict compliance with these regulations has



Picking olives in a California orchard.

produced excellent results, since no new cases of the disease due to this source have been reported anywhere in the United States during the past two years.

RABIES.

Rabies began to increase in prevalence during the calendar years 1920 and 1921. During this biennial period there were nearly three hundred reported cases of the disease in animals, and there were nine human deaths. The resources of the State Hygienic Laboratory in the manufacture of anti-rabic virus have been very severely taxed. In some communities of the state where the disease is widely prevalent there is neither initiative nor cooperation in the control of the disease, through the enforcement of measures restricting the running at large of dogs. In several instances the state has made use of the rabies quarantine act of 1913. There are many problems connected with the control of rabies, however, one of the chief of which lies in informing the public regarding the seriousness of the disease and the necessity for keeping it constantly under control.

III.

INFANT MORTALITY.

The California infant mortality rate is lower than similar rates for most other states. Washington and Oregon have lower rates than California. The various cities of California, however, have absolutely the lowest rates for any cities in the United States. This is shown conclusively in the accompanying table compiled from data issued by the American Child Hygiene Association.

For three consecutive years, Seattle, San Francisco and Portland have had the lowest infant mortality rates for cities of the United States having populations over 250,000. Oakland and Spokane, during the same period of time, have had the lowest rates for all cities having populations of 50,000 to 100,000. The California cities of Pasadena, Santa Cruz and Richmond, as well as Astoria, Oregon, and Aberdeen, Washington, have all made records for having the lowest infant mortality rates among cities whose populations are between 25,000 and 50,000, and among those having populations of 10,000 to 25,000. What are the factors that have brought about these remarkable records? Of first importance, perhaps, is the absence of the severe diarrhoeas and enteritis which exact such high tolls during the summer months in eastern states and cities which do not possess the advantages of our Pacific climate. The stability of our climate, alone, the absence of extremes in temperature and humidity constitute another factor in bringing about these low rates; better social conditions, absence of over-crowding, the ready availability of pure milk supplies, the comparative scarcity of the first generation of the foreign-born, and the resultant higher education of our people, our social conscience, each and all, are factors in the saving of infant lives on the Pacific Coast. If it were possible to transport to Washington, Oregon and California, during the first year of life, all babies and their mothers in other states, the lives of thousands upon thousands of American children could be saved. If all children born could be born in the states of the Pacific Coast, their chances of growing into adult life would be vastly greater than they would be by selecting other territory within which to be born.

In reducing infant mortality, we again find the large cities of the Pacific Coast setting the pace. Machinery for maternal and child care is provided in every city of any size, while in the rural districts little or more is available. Through newly launched activities in maternal and child welfare, however, this state of affairs should soon be remedied. All of this work in the promotion of rural public health, however, needs the stimulus of an active state organization.

IV.

DISTRICT HEALTH OFFICERS.

The State District Health Officers, Dr. Allen F. Gillihan, with headquarters in Sacramento, and Dr. Gavin J. Telfer, with headquarters in Los Angeles, have rendered invaluable service to many health officers in communities in the state in advising and assisting local officials and organizations in the solution of public health problems. Valuable assistance to physicians in making diagnoses in cases of communicable diseases has also been given by these state officials. Dr. Gillihan's knowledge of smallpox and his skill in diagnosing this disease has made his services especially valuable during the past two years, when smallpox has been increasing in prevalence.

DENTAL HYGIENE.

With the cooperation of the dentists of California, a Division of Dental Hygiene in the State Board of Health was created by act of the 1921 legislature. Exhibits, lectures, demonstrations and field work, in cooperation with local health centers and other organizations, has contributed largely in making the program of the division. The activities of the division have been confined chiefly to children of the pre-school and school age.

FULL-TIME HEALTH DEPARTMENTS.

During the biennium, several counties of California took steps leading to the formation of full-time health departments. There is a great need for full-time health work in the state and the Board of Health is doing all that may be possible to stimulate activities along these lines.

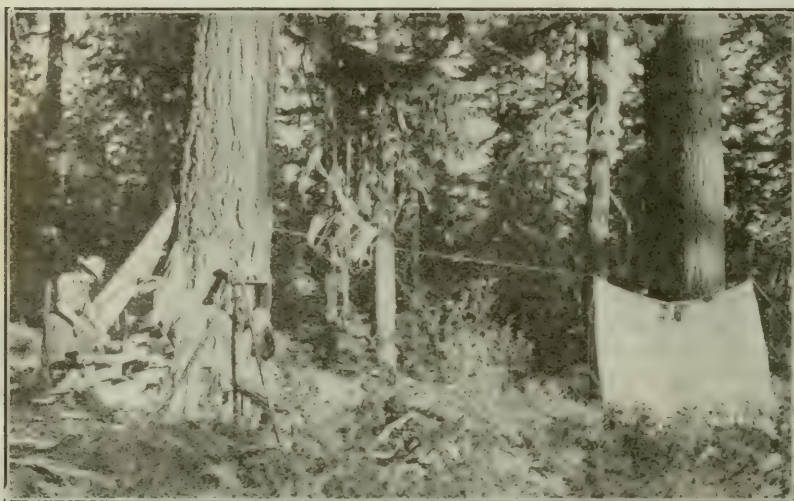
The minimum unit for a full-time county health department in California consists of a full-time physician as health officer; a public health nurse; a sanitary inspector and an office clerk—all of whom shall devote full time to the duties of their office. A minimum of \$10,000 per annum is required in the proposed county budgets. In most counties it is proposed that the health officer shall have complete jurisdiction over all rural and urban territory within the county. With the development of the full-time health department idea, there is growing a spirit of community responsibility in the safeguarding of community health. The state is stimulating the cultivation of a spirit of local independence and is encouraging every local health department to stand upon its own feet. The state is advising, assisting, stimulating, and providing expert counsel in the encouragement of all local activities for the promotion of local public health. Modern conditions must be met with by the use of modern methods. The increased opportunity for the spread of contact diseases has grown tremendously since modern methods of transportation have done away with the isolation of remote communities. The opportunities for the spread of contact diseases are vastly greater today than they were ten years ago. With a full-time health officer, a public health nurse and a sanitary inspector, constituting a flying squadron, a large amount of preliminary epidemiological work can be accomplished before calling upon state or federal health authorities for assistance. The development of full-time health units attracts a higher grade of public health official.

There is no reason why an outbreak of the more common communicable diseases cannot be brought under control through the investigations and supervision of the local department. The state, under the ideal plan, should contribute only expert technical assistance that the local community is not able to provide.

No organization can possibly be stronger than its weakest link. California, Washington and Oregon are now engaged in forging strong chains in their public health organizations. With the natural advantages, such as have been enumerated, the possibilities for making life longer and happier on the Pacific Coast are very great. Public opinion is supporting the development of the idea with full cooperation; and there is every reason to believe that other states must look to their laurels if they are to compete with these young Western states in the promotion of longer, happier lives for their people.

MOUNTAIN SANITATION.

In cooperation with the United States Forest Service, much has been accomplished during the biennial period in the promotion of sanitation in the forests and mountain playgrounds of California.



More than 1,500,000 people visit the National Forests of California every year. Maintenance of good sanitation in mountain playgrounds is of importance in keeping Californians healthy.

Forest officers have been deputized as sanitary inspectors of the State Board of Health, having full power to enforce the state sanitary laws. Circular letters, pamphlets, bulletins and other literature pertaining to the construction and maintenance of sanitary devices have been supplied by the State Board of Health to forest officers. In addition, the sanitary inspectors on the staff of the State Board of Health have visited large numbers of forest camps, and have conferred and advised with forest officers relative to the maintenance of such camps. Under this cooperative arrangement with the Forest Service, there has developed a marked improvement in mountain sanitation. There is

great need for more work of this character, in order that vacationists may not only receive more ample health protection for themselves, but also in order that the various communities of California may be amply protected against stream pollution and similar offenses.

California, because of its scenic marvels, rendered so easily accessible by good roads and extensive camping facilities, attracts many thousands of tourists from outside of the state. More than a million and a half people, according to the Forest Service, visit the national forests of California every year. Fully 80 per cent of these visitors are campers. There are not nearly enough camps to provide for this tourist army, and there should be at least 300 more improved camps for



Pollution of mountain streams is illegal and the camping public has been cautioned against violation of this law by means of warning signs posted along much-frequented streams.

the accommodation of vacationists who travel by automobile, many of whom come not alone from Pacific Coast states, but from all parts of the United States. The public health problems associated with the seasonal movements of these large groups of individuals are acute. The protection of water supplies, the detection of typhoid convalescents and carriers, the maintenance of strict sanitation in supervised camps and the curbing of promiscuous camping, are but a few of these problems that are only partially solved. The need for more intensive sanitary inspection service in most of the summer resort districts and in the national parks of California, is becoming apparent to these million and a half tourists. Their demands for improved camping facilities should be instrumental in bringing about better sanitation throughout California's playgrounds.

THE MENACE OF MALARIA.

Malaria is widely prevalent in some of the most extensive agricultural districts of California, and these districts, at the present time, present a most serious menace to the development of agriculture and to the sale of agricultural lands in some of the most remarkably fertile regions of the state. The expenditure of relatively small sums of money can completely remove this menace to the state's financial development and to the health and happiness of the residents of these important districts. Unless definite steps are taken in the removal of this menace to the state's development, growth and reputation, California will suffer financially and in the further sacrifice of the health of a large portion of its agricultural population. The possession of fertile lands avail little when the people, through ill health, are unable to develop these rich agricultural resources.

COMMUNITY RESPONSIBILITY.

One of the most encouraging advances in public health in California lies in the development of full-time county health departments. Four California counties have already established such departments and every possible encouragement should be given to extending this spirit of local independence in public health administration. The California State Board of Health feels that every community should stand upon its own feet in the general administration of its public health. The state should supply only technical expert assistance to such communities. The cultivation of a spirit of responsibility upon the part of a community is greatly to be desired. That there is a growth in this independent spirit is shown through the establishment of the four full-time health departments, already referred to. Other counties must be encouraged in the establishment of such departments in order that the state may be relieved, in a large measure, of rapidly increasing financial burdens incidental to the protection of public health in local communities.

BUREAU ACTIVITIES.

The activities of the eight bureaus operating in the organization of the California State Board of Health are outlined in the bureau reports which are printed in this volume. These reports are worthy of careful reading, and indicate clearly the scope and volume of the work of the board during the past biennium.

CONCLUSION.

"The health of the people is the wealth of the state."

"Public health is the foundation upon which rests the happiness of the people and the welfare of the state."

"Public health is purchasable. Within natural limitations any community can determine its own death rate."

The above quotations are axiomatic. Unless the people of California shall have health they can in no sense enjoy material riches that may come to them through the unlimited resources of this remarkable state. That health is the greatest of riches is a trite saying, but nevertheless, there is no greater truth than that expressed in those few words. The definite standards that have been established in public health in Cali-

fornia must be maintained. There can be no backward step in any state activity that has to do with the promotion of the health of Californians. The responsibility for the maintenance of those functions that have to do with keeping people of California in health and happiness is very great. To curtail machinery for the promotion of public health is actually to shorten the lives of Californians and to add untold misery to their lives. The abolishment of suffering, the addition of happy years to the average life, are the highest goals that can possibly be attained.

If the state continues to prosper in the promotion of the health of its people as it has during the past few years, the health factor will become the greatest of all in bringing more people and more capital to this state. Happiness, enjoyment of life to the full, work, industry and commerce are all dependent upon our public health. With the cooperation of all branches of state and local government the coming biennium can be made better and healthier than the past two years. Surely, there can be no work more important than this of keeping our people well.

WALTER M. DICKIE, M.D.
Secretary.

REPORT OF EXPENDITURES.

Seventy-second and seventy-third fiscal years, July 1, 1920, to June 30, 1922.

C. M. Christianson, Financial Clerk.

Expended from appropriation for	Seventy-first fiscal year	Seventy-second fiscal year	Total
Child hygiene	\$12,136 64	\$14,010 36	\$26,147 00
Contagious diseases	27,870 51	17,514 00	45,384 51
District health officers	12,780 61	12,498 38	25,278 99
Hygienic laboratory	25,812 54	41,303 83	67,116 37
Printing	4,058 89		4,058 89
Pure food and drugs	37,359 20	36,263 50	73,622 70
Sanitary engineering	26,289 68	26,846 62	53,136 30
Social hygiene	27,228 15	21,356 15	48,584 30
Traveling and contingent	26,548 79	27,974 23	54,523 02
Tuberculosis office	20,729 04	24,520 83	45,249 87
Tuberculosis subsidies	106,699 27	150,456 92	257,156 19
Statutory salaries	23,344 06	23,252 46	46,596 52
Dental hygiene		4,933 88	4,933 88
Malaria control		1,371 40	1,371 40
Plague-parasitology		2,486 63	2,486 63
Public health nurses		2,992 23	2,992 23
Sanitary inspectors		14,969 66	14,969 66
Vital statistics		18,078 15	18,078 15
Totals	\$350,857 38	\$440,829 23	\$791,686 61
Expended from funds:			
Nurses' registration	11,705 61	14,726 81	26,432 42
Grand total	\$362,562 99	\$455,556 04	\$818,119 03

DIVISION OF EPIDEMIOLOGY.

FRANK L. KELLY, M.D., Epidemiologist.

During this biennial period the morbidity reports and statistics became a part of the Division of Epidemiology. Through this change an attempt has been made to build the field work in epidemiology upon the information sent in as morbidity reports by the local health officers. Our knowledge of the incidence of communicable diseases depends upon those reports which the health officers send to us. In order that we may impress the physicians and the health officers with the necessity of reporting all of these cases, we must use the information which they give us in that form, and lend assistance for the solution of their problems which arise. It is certain that they will supply us with the data they have if we can prove to them that we use it. Research evolving methods of control for the future is guided by the incidence of the different communicable diseases, the sex and age distribution, the geographic distribution, the epidemic and endemic proportions as well as by the death rate. Therefore, not only does the completeness of present day methods of communicable disease control depend very largely upon intelligent handling and collecting of morbidity reports but also the efficiency of future methods developed.

In our epidemiological work for these last two years we have concentrated, to a very great extent, upon smallpox, typhoid fever, poliomyelitis, epidemic encephalitis and upon diphtheria, which is on the increase throughout the United States.

Smallpox.

During 1920 and 1921 smallpox continued to increase, 4497 cases with 7 deaths being reported in 1920 and 5579 cases with 27 deaths during 1921. In 1922 virulent smallpox imported from Mexico made its appearance in the southern part of the State and was only stamped out by the prompt action of the State Board of Health and the United States Public Health Service.

Typhoid Fever.

During 1920 and 1921 the typhoid fever death rate continued to drop; in 1919 it had been 5.5 per 100,000 and in 1920 4.8, while in 1921 the rate was 4.13.

We have on record for this biennial period three water borne epidemics, of 36, 18 and 13 cases respectively; three milk borne epidemics, of 65, 26 and 11 cases; and two carrier outbreaks, of 9 and 5 cases, the carriers have been identified in each of these two instances.

A great proportion of our typhoid comes from two sources, namely, camping trips and from the delta region of the San Joaquin and Sacramento rivers. Every year thousands of people visit the mountains and seashore, camping and drinking water from unprotected supplies. Even with placarding known polluted streams and warning persons of the danger, a large number of people contract infection this way. The delta region presents a peculiar problem in that each small community of from 10 to 50 persons is located on an island with no available water supply other than the heavily polluted rivers. At present the State Board of Health is endeavoring to devise some system whereby these

people can be furnished a safe drinking water. Until this is done this district will continue to supply a large proportion of our typhoid fever.

Poliomyelitis.

Poliomyelitis showed a higher incidence in 1921 than during any year since the epidemic of 1912, when 501 cases were reported. During 1921, 282 cases were brought to our attention; most of these were sporadic and scattered throughout the state but there were definite outbreaks in epidemic form in San Joaquin and Sacramento counties and small groups of cases in Alameda and San Francisco counties.

Epidemic Encephalitis.

Epidemic encephalitis, which appeared in California in the spring of 1919, was made reportable in March of that year. During 1919, 78 cases were reported, in 1920, 94 cases and in 1921, 159 cases. While the disease shows an unquestionable increase this is somewhat accounted for by more accurate diagnosis. There were small outbreaks throughout the state, in Napa and Sonoma counties especially.

Infectious Jaundice.

In the fall of 1921 infectious jaundice appeared in California, but was not declared reportable until July, 1922. So far the disease has not become at all prevalent but small outbreaks occurred in several communities during the spring of 1922.

DIAGNOSTIC INVESTIGATIONS.

The following investigations were made to confirm or establish diagnoses:

1920—After July 1.

Smallpox: Port Costa, Mountain View, Hayward, Pasadena, Oakland, Stanislaus County, Piedmont, Santa Monica, San Luis Obispo, Susanville, Hollister, San Leandro, Richmond, Arcadia, Berkeley, Hemet, Lompoc, Artesia, Pinole, Sierra Madre, Hercules, Fullerton, Downey.

Typhoid Fever: Felton.

Leprosy: Oxnard, Modesto, Alameda County, Santa Paula.

Poliomyelitis: Chico.

Suspected Plague: Berkeley.

Rabies: French Camp, San Joaquin County (2).

Scarlet Fever: Pasadena, Tulare County, Monterey Park.

Encephalitis, lethargic: Modesto.

1921.

Smallpox: Berkeley, Oakland, Fresno, Riverside, Alhambra, El Cerrito, Calexico, Winchester, Santa Barbara, Richmond, San Jose, Redwood City, Albany, Crockett, Petaluma, San Gabriel, Riverside County, Santa Paula, Glendale, Santa Ana, Corte Madera, Piedmont, Pasadena, Huntington Park, Redding, Mill Valley, Salinas, Santa Clara County, Bakersfield, Salida, Modesto, San Leandro, Esparto, Riverbank, San Luis Obispo, Selma, Hughson, King City, Merced County, Irvington, Sacramento, Morgan Hill.

Leprosy: San Diego, Hayward, Sacramento.

Poliomyelitis: Concord, Modesto, Oakland, Lytton, Sonoma County, Palo Alto, Butte County, Folsom, Stockton.

Epidemic Encephalitis: Santa Rosa, Oakland, Alameda, Stockton, Napa, Pinole, St. Helena, Sacramento.

Suspected Plague: Hollister, positive; Oakland, negative (2).

Rabies: Sacramento (2), Los Angeles, Contra Costa County.

Scarlet Fever: El Cerrito, Delano, Berkeley, Santa Maria, Arroyo Grande.

Typhus Fever: Sierra Madre, Pasadena, Los Angeles.

Botulism: Orange County, Sherman Institute, Oakland, San Jacinto, San Bernardino, Santa Barbara.

Diphtheria: Bartlett Springs.

Miscellaneous: Riverside, suspected Malta fever; San Jose, chickenpox; Modoc County, trachoma; Oakland, chickenpox; Sacramento, dengue.

1922 to July 1.

Smallpox: Oakland, Salinas, South Pasadena, Hollister, Modesto, Santa Monica, Davis, Ripon, Jackson, Long Beach, Artesia, Banning, Glendale, Exeter.

Leprosy: Orange County, Corona.

Epidemic Encephalitis: Berkeley.

Plague: Alameda County.

Rabies: Los Angeles.

Typhus Fever: Oakland, negative; Los Angeles, positive.

Botulism: Los Angeles, San Jose, Sawtelle.

Typhoid Fever: Atwater, Culver City, Riverside, Sebastopol.

Infectious Jaundice: Nevada City, Berkeley.

Miscellaneous: El Cerrito, chickenpox; San Jose, anthrax; Los Angeles, anthrax; Sausalito, chickenpox; Alameda, peculiar skin eruption.

Epidemiological Investigations, With Cases Seen.

1920—After July 1.

Smallpox:

Hayward	5 cases	Arroyo Grande.....	8 cases
San Luis Obispo.....	8 cases	Lompoc.....	20 cases
Lodi.....	64 cases	Berkeley.....	6 cases
Escondido.....	25 cases	Carpinteria.....	8 cases
Richmond.....	6 cases	Sierra Madre.....	4 cases
Pomona.....	8 cases	Cucamonga.....	38 cases

1921.

Merced.....	7 cases	Orange.....	4 cases
El Cajon.....	50 cases	Santa Paula.....	4 cases
Sausalito.....	35 cases	Gridley.....	5 cases
Berkeley.....	General epidemic	Rialto.....	5 cases
Oakland.....	General epidemic	Richmond.....	6 cases
Hemet.....	General epidemic	Chico.....	5 cases
San Jacinto.....	General epidemic	Alhambra.....	3 cases
Bakersfield.....	116 cases	Capistrano.....	Several
Fresno.....	6 cases	Dixon.....	17 cases
Monterey.....	37 cases	Coachella.....	6 cases
Turlock.....	General epidemic	Valley View.....	5 cases
Heber.....	7 cases	Riverside.....	12 cases
Morgan Hill.....	6 cases	Atascadero.....	Several
Stanislaus County.....	General epidemic		

1922 to July 1.

Santa Clara County.....	200 cases	San Diego.....	5 cases
Calexico.....	32 cases	Imperial County.....	4 cases
Beaumont.....	5 cases	Livermore.....	50 cases
Monterey County.....	24 cases		

1920—After July 1.

Typhoid Fever:

July—		Chico..... (One carrier)	7 cases
Verona, Sutter County.....	2 cases	Fair Oaks.....	4 cases
August—		Redding.....	9 cases
Redlands.....	11 cases	Mendocino County.....	3 cases
Santa Paula.....	2 cases	Susanville.....	26 cases
September—		November—	
Scotia.....	2 cases	Tulare County.....	Increased incidence
Bishop.....	65 cases	December—	
October—		Santa Paula.....	1 case
Whittier.....	6 cases		

1921.

March—		July—	
Glendale	2 cases	San Bernardino.....	4 cases
Walnut Creek.....	2 cases	Avon	1 case
May—		August—	
Brawley	18 cases	El Verano.....	6 cases
Coachella Valley.....	5 cases	San Benito County.....	4 cases
Holtville	4 cases	Guerneville	36 cases
El Centro.....	1 case	October—	
June—		Ontario	Several
Dinuba	1 case	Santa Clara County.....	2 cases
Collinsville	13 cases	Aromas	3 cases
San Lorenzo.....	8 cases	Centerville	3 cases
		Youngstown... (One carrier)	9 cases

1922 to July 1.

February—		June—	
Atwater	6 cases	Hemet	3 cases
April—		January to June—	
Engelmine	3 cases	Sacramento County.....	21 cases
May—		San Joaquin County.....	44 cases
San Benito County.....	1 case		
Coachella Valley.....	6 cases		

1920—After July 1.

<i>Diphtheria:</i>		October—Lodi
September—Scotia		December—Oxnard

1921.

January—Cambria		Olinda Park, Venice
March—Colton		November—Lodi, Escalon, San Joaquin
April—Olinda, Orange County		County, Hughson, Venice, South
May—San Jose, Ross		Pasadena, Long Beach, Pasadena,
June—Los Altos, Ross		Sierra Madre, Eagle Rock
July—San Jose		December—Orange County, Corona,
October—Benicia, Sierra Madre, Los		Lodi, Rio Vista
Altos, Lodi, Pasadena, Santa Ana,		

1922.

January—Santa Clara County, Poinoie,		February—Fort Bragg, San Jose.
Tracy, Orange		April—Azusa

1920.

<i>Botulism:</i>	
October—	
Oakland	6 cases

1921.

July—		November—	
San Jacinto.....	1 case	San Bernardino....	No cases proven

1922.

May—		Pleasanton	1 case
Glendale	In chickens only	Watsonville	2 cases
June—		Templeton	1 case

1920.

<i>Rabies:</i>		Stanislaus County
San Joaquin County		

1921.

Sacramento		Modesto
Glendale		Contra Costa County

1922.

Los Angeles County	|	Corona
Riverside County	|	Pomona
Orange County	|	Los Angeles

1920.

None.

1921.

<i>Poliomylitis:</i>		Vallejo	4 cases
April—		October—	
San Fernando	6 cases	Concord	2 cases
August—		Stockton	13 cases
Concord	3 cases	December—	
September—		Chico	6 cases
Sacramento	25 cases		

1920.

None.

1921.

<i>Encephalitis:</i>		October—	
July—		Napa	8 cases
Pinole	4 cases	Pinole	1 case
September—		St. Helena	4 cases
Lytton	3 cases		

1920.

Bacillary Dysentery:
September—Marin County

1921.

May—		Tuolumne Co.	General epidemic
Indio	Several cases	August—	
June—		Berkeley	2 cases
Tracy	8 cases	October—	
July—		Oceanside	26 cases
Oakland Recreation Camp.		Chico	6 cases

1922.

May—		June—	
Oakland	5 cases	East San Diego	22 cases

Plague:

1920.

None.

1921.

Hollister (bubonic) 1 case

1922.

Oakland (bubonic) 1 case

Miscellaneous:

1920.

Scarlet fever, Lodi

1921.

Typhus fever, Sierra Madre	|	Trachoma, Fort Bidwell, Modoc Co.
Typhus fever, Los Angeles City and Vernon	|	Trichinosis, Napa and Middletown
Food poisoning, Santa Barbara	|	Trichinosis, Martinez
Food poisoning, Alhambra	|	Yellow fever, Los Angeles
Food poisoning, French Camp	|	Scarlet fever, Delano
Suspected Malta fever, Riverside	|	Malaria, Durham

1922.

Trichinosis, Mendocino County	|	Scarlet fever, Fairfield
Infectious jaundice, Nevada City	|	Food poisoning, Los Gatos
Infectious jaundice, Berkeley	|	Food poisoning, Lakeport
Scarlet fever, Lakeport	|	Paratyphoid fever, Santa Rosa

REPORT OF THE STATE BOARD OF HEALTH.

Cases and Deaths from the Reportable Diseases: 1920 and 1921.

Diseases	Cases		Deaths	
	1920	1921	1920	1921
Anthrax	9	7	1	1
Beri-beri	4	3	2	2
Botulism	16	4	6	2
Cerebrospinal meningitis	188	171	55	63
Chickenpox	6,263	6,419	*	9
Cholera				
Dengue		1		
Diphtheria	5,793	9,464	451	644
Dysentery (amoebic)	157	210	80	101
Dysentery (bacillary)				
Epidemic encephalitis	94	159	59	84
Erysipelas	528	708	93	106
German measles	301	234	**	
Glanders		1		1
Gonorrhoea	5,306	4,709	13	22
Hookworm	3	3		
Influenza	66,183	2,565	2,715	339
Leprosy	20	27	4	6
Malaria	484	269	34	43
Measles	17,030	14,246	195	127
Mumps	5,852	7,943	**	
Ophthalmia neonatorum	19	28	**	
Paratyphoid	21	35	**	**
Pellagra	16	21	13	14
Plague	1	2	1	1
Pneumonia (broncho and lobar)	*2,744	3,811	*3,556	3,216
Polioomyelitis	73	282	30	49
Rabies	4	5	4	5
Rocky Mountain spotted fever	1	11	**	
Scarlet fever	4,117	5,557	90	117
Smallpox	4,497	5,579	7	21
Syphilis	4,498	4,220	382	420
Tetanus	40	46	33	49
Trachoma	125	246	**	
Trichinosis	2	11	**	**
Tuberculosis	8,523	7,945	5,397	5,427
Typhoid fever	1,137	953	172	147
Typhus fever	1	6	***2	2
Whooping cough	4,653	2,805	401	191
Yellow fever		1		1
Other epidemic diseases			13	13
Totals	138,703	78,707	13,809	11,223

*Deaths for 1920 include lobar and broncho pneumonia. Cases for 1920 include only lobar pneumonia.

**Included in deaths from other "epidemic diseases."

***Other case had been reported October, 1919, as a case—death occurring three months later in January, 1920.

Record of Human Deaths from Rabies in California.

Counties	1899	1909	1910	1911	1912	1913	1914	1915	1916	1920	1921	Total
Alameda							1	2				3
Contra Costa											1	1
Fresno										1		1
Imperial		1										1
Kings							1					1
Lassen									1			1
Lcs Angeles	1		3	2	1			1			1	9
Orange							1					1
Placer						2						2
Sacramento					1						2	3
San Bernardino						1						1
San Francisco					6	3						9
San Joaquin										3		3
Santa Barbara					1							1
Santa Cruz								2				2
Sonoma						1						1
Tulare				1							1	2
Ventura						1						1
Totals	1	1	3	3	9	8	3	5	1	4	5	43

Reports of Cases of Rabies in Animals.

Counties	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Total
Alameda			13	48	69	7	1	2	3		5	3	151
Alpine				3									0
Amador			1	3				1					5
Butte				5	2								8
Calaveras				3	1								4
Colusa				1									1
Contra Costa	1		6	10	8	5			1	2	11	3	47
Del Norte				4									0
El Dorado				1									4
Fresno		18	26	25	16	3	2	3	12	25	12	3	145
Glenn													0
Humboldt													0
Imperial	1		1	3	3	3	3	2					16
Inyo													0
Kern		8	2	3	1					1	4		19
Kings		14	10	9	8	2	3	1	2	18	14	1	82
Lake													0
Lassen						4	53	7		3	1		68
Los Angeles	3		1	5	2	1				1	1	67	81
Madera		1	2	1	1		4	1	1	2	3		15
Marin			17	3	1							1	22
Mariposa													0
Mendocino													0
Merced		3	4	7	1			1	4		2	2	24
Modoc						18	94	6		4	5	3	130
Mono								1					1
Monterey												5	5
Napa			7	5	2		1				1	1	17
Nevada			1	9	2		2	1		1	5	1	22
Orange				1								1	2
Placer			5	28	2						1		36
Plumas							4	1					5
Riverside	7	9	3	1	1		3				1	1	26
Sacramento			18	14	2			1			19	5	59
San Benito			1		3	1	2						7
San Bernardino	6	4	1	4	9	1	2	2	1				30
San Diego				4	4		1		1				11
San Francisco		1	13	5		1	1			2	1		23
San Joaquin		1	18	23	8			1	1	2	65	6	125
San Luis Obispo			4	2					1				7
San Mateo			36	26	9		1						72
Santa Barbara			2	1									3
Santa Clara			5	40	27	2	2			1	1	1	79
Santa Cruz			2		6	4			2		1		15
Shasta					2	5		4					11
Sierra								4		1			6
Siskiyou			2		2		3	5			1	4	17
Solano			2	3								1	6
Sonoma			1	10	3		1				1		16
Stanislaus			12	8	7			1			6	11	45
Sutter													0
Tehama				1	2								3
Trinity								1					1
Tulare		7	20	11	5	4	2	2		9	15	3	78
Tuolumne			3		2	2	2						9
Ventura				1								1	2
Yolo			5	2									7
Yuba							1						1
Totals	18	66	244	327	212	63	196	41	29	73	176	124	1,569

Summary of Reportable Diseases—Cases and Deaths: 1920.

Reportable Diseases	January		February		March		April		May		June		July		August		September		October		November		December		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Andrax	1	1	1	1	2	2			2									2		2	1			9	1	
Beri-beri			2																					4	2	
Botulism	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Epidemic cerebro-spinal meningitis	16	5	20	8	13	3	16	11	10	4	14	5	16	2	14	4	8	3	13	2	6	5	27	6	188	55
Chickenspox	1422		984		877		569		595		259		170		98		114		215		661		328		6263	0
Cholera (Asiatic)																										
Diphtheria	685	28	479	39	519	30	387	31	542	39	363	32	210	27	200	23	368	33	477	48	582	63	881	58	5793	451
Dysentery	3	6	5	3	3	3	2	5	3	26	7	10	11	11	20	12	11	4	10	12	48	5	15	8	157	80
Epidemic lincophallitis	16	11	6	4	6	4	5	5	12	3	11	10	7	7	6	3	6	4	1	1	4	1	8	3	94	59
Erysipelas	110	19	85	12	70	13	46	9	54	5	37	6	29	5	20	3	24	8	27	4	26	2	18	7	608	93
German measles	57		50		50		18		45		25		7		4		7		9		12		18		301	*
Glanders																										
Gonorrhoea	572		379	1	655		440		449	3	396	441			311	1	452	2	424	3	281		495	3	5306	13
Hookworm																										
Influenza	10732	289	46497	1633	7944	492	457	94	175	47	15	34	28	23	24	9	54	21	73	17	48	20	136	36	60183	2715
Measles	1	1	2	1	1	1	3	1	2	2	1	1	1	1	3	3	1	1	3							
Malaria	20	3	21	1	41	2	27	1	38	1	13	1	80	4	33	7	61	8	80	4	36	2	25	4	484	34
Mumps	4371	27	3865	37	2263	30	1389	24	1830	18	1003	11	488	21	160	16	141	3	191	2	307	2	1022	4	17080	195
Nitrus	825		732		987		595		639		276		162		129		183		205		417		642		5852	
Opthalmia neonatorum	3		2		2		2		1		3		1		2		2		2		2		3		19	*
Relapsing fever	1		2		1		1		3		3		1		2		2		2		2		3		16	13
Rabies	549	562	694	602	323	390	173	275	169	243	108	196	84	154	61	144	91	150	98	200	144	265	250	366	2744	3556
Eucnemonia (lobar)	4		2		3		1		4		6		4		2		10		4		13		6		73	30
Poliomylitis																										
Rocky Mountain spotted fever																										
Scarlet fever	618	10	446	12	369	8	246	6	348	9	179	4	157	4	125	2	205	2	374	10	474	11	576	14	4117	90
Smallpox	458	1	483	1	489	30	267	2	306	306	225	2	227	2	144	180	1	180	1	388	588	742	2	4497	7	
Syphilis	548	27	398	24	588	30	337	45	443	26	337	29	325	35	298	27	317	34	270	36	237	35	400	34	4498	382
Tetanus	3		1		6		3		4		4		4		4		4		3		3		4		30	35
Tuberculosis	1009	525	488	517	972	523	736	473	585	456	649	423	802	445	583	390	538	383	525	413	615	413	721	436	8523	5397
Typhoid fever	57	11	19	7	48	9	32	5	66	9	18	10	163	18	129	29	171	20	130	28	68	13	13	13	1137	172
Trachoma	5		6		9		15		10		6		5		5		10		27		16		11		125	*
Typhus fever																										
Whooping cough	360	22	418	32	755	53	754	55	603	59	518	55	390	59	215	34	213	16	143	15	122	8	162	13	4655	401
Yellow fever																										
Totals	22455	1551	50991	2942	17007	1588	6523	1048	7284	946	4657	827	3914	821	2601	715	3175	700	3706	801	4378	857	6969	1012	138760	13798

*Listed under other communicable diseases.
 **Death from typhus in January was reported as case in October, 1919.

DIVISION OF EPIDEMIOLOGY.

Summary of Reportable Diseases—Cases and Deaths: 1921.

Reportable Diseases	January		February		March		April		May		June		July		August		September		October		November		December		Total			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths		
Anthrax																												
Beriberi																												
Bubonic																												
Epidemic cerebro-spinal meningitis	12	3	11	5	19	7	21	9	7	5	19	7	13	6	19	5	11	5	14	4	16	6	355	1	171	63		
Chickenpox	812	2	861	2	1177	1	736	1	789	1	722	1	185	1	108	1	121	154	399	9	355	1	6419	9	0	0	0	
Cholera (Asiatic)																												
Dengue																												
Diphtheria	610	62	518	42	675	44	615	46	576	46	661	43	398	44	592	44	523	38	1046	69	1344	98	9454	644	210	101	0	
Dysentery	11	5	13	8	9	4	15	7	16	5	19	8	9	18	27	5	15	9	52	16	12	5	159	84	5	210	101	
Epidemic encephalitis	0	3	13	8	20	12	11	15	6	3	11	7	12	5	27	4	5	5	23	10	17	9	8	3	159	84	5	
Erysipelas	80	14	74	6	119	9	78	11	53	10	62	6	32	11	30	2	30	7	31	5	52	9	67	16	708	106	**	
German measles	31	39	39	39	36	15	15	15	18	18	14	14	6	6	5	3	7	11	11	16	16	16	231	**	28	284	**	
Glanders																												
Gonorrhoea	418	1	315	1	447	2	303	1	377	5	333	1	336	1	425	1	476	5	360	3	517	2	382	4709	22	0	0	
Hookworm	147	25	612	50	847	50	382	52	137	31	87	30	29	14	61	4	38	18	69	14	80	21	76	30	2565	339	0	
Influenza	1	1	5	1	4	1	4	1	3	1	3	3	2	2	33	5	47	5	21	7	28	3	9	4	269	45	0	
Leprosy	7	3	13	19	19	4	12	5	17	2	23	3	24	5	33	5	47	5	21	7	28	3	9	4	269	45	0	
Malaria	1629	8	3144	19	3560	29	2259	17	1796	27	1287	14	266	8	51	3	49	1	51	1	71	1	73	241	14246	127	0	
Measles	1045	8	1274	1385	939	5	939	3	859	155	633	155	2	2	5	5	153	153	223	406	406	241	241	7493	127	0	0	
Ophthalmia neonatorum	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pellagra																												
Plague																												
Pneumonia	452	435	464	385	433	344	354	300	240	238	249	173	186	147	214	142	188	164	187	180	391	308	453	400	3811	3216	2	1
Poliomyelitis	3	2	2	2	5	1	4	4	8	2	13	3	23	3	43	5	62	10	57	13	46	10	16	2	282	49	5	
Rabies																												
Rocky Mountain spotted fever	527	15	586	16	598	12	486	13	465	8	408	16	191	2	193	7	236	3	385	5	847	5	635	15	5557	117	11	
Scarlet fever	919	3	1038	2	746	1	487	1	426	2	412	2	188	152	1	237	1	237	1	288	3	288	3	539	7	5379	21	
Smallpox	277	36	363	34	384	32	246	29	319	33	361	33	309	33	458	40	402	33	324	34	397	34	370	49	4220	420	0	
Syphilis	***6	3	3	3	3	3	2	4	5	3	5	5	2	4	3	3	8	8	3	3	3	3	3	3	4	46	49	
Tetanus	11	12	12	13	13	11	11	107	8	107	8	8	8	8	12	16	17	17	17	33	33	33	33	33	246	46	**	
Trachoma	688	485	697	491	883	514	656	540	636	494	728	420	600	405	697	428	561	377	584	405	704	429	511	439	7945	5427	0	
Tuberculosis	31	11	29	2	80	9	69	8	47	11	94	17	107	15	173	12	115	18	112	20	75	13	51	11	953	147	6	
Typhoid fever	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Typhus fever	303	14	207	6	275	2	314	35	306	23	342	24	195	16	216	16	148	9	165	8	149	11	135	7	2805	191	1	
Whooping cough																												
Yellow fever																												
Totals from other reportable diseases	8025	1132	10289	1080	11781	1104	7996	1094	7226	949	6583	813	3295	742	3701	728	3363	720	4143	801	6484	950	5325	1098	78211	11211	13	
Total																												11224

**Figures not available—included in "Deaths from other reportable diseases."

***Evidently contracted in year 1920.

Summary of Diphtheria by Counties: 1920 and 1921

Counties	January		February		March		April		May		June		July		August		September		October		November		December		Totals	
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921
	Alameda.....	42	38	37	36	33	39	44	38	43	41	26	44	33	40	27	52	47	20	57	71	60	185	57	139	508	743
Alpine.....																										
Amador.....	1								1		1										1	1	1	1	10	19
Butte.....	2								3	2	2										1	1	3	1	5	4
Calaveras.....																										
Colusa.....	2								1		7		5								1					18
Contra Costa.....	4	9	7	7	2	10	3	13	9	10	2	17	4	6	4	10	18	7	18	11	9	30	3	15	76	145
Del Norte.....																										
El Dorado.....																										
Fresno.....	12	33	11	36	13	27	7	12	16	15	8	22	15	13	10	17	7	21	19	76	22	110	44	47	184	429
Glenn.....																										
Humboldt.....	20	2	7	7	2	3	3	2	16	2	4	1	1	1	3	5	3	3	9	3	7	5	4	4	79	37
Imperial.....	2	4	1	3	2	3	3	2																		25
Inyo.....	7	15	2	3	2	7		8	3	8	11	3	3	3	14	7	9	7	6	6	22	7	49	12	122	
Kern.....																										1
Kings.....																										13
Lake.....																										67
Lassen.....																										0
Los Angeles.....	329	217	226	179	276	241	199	176	268	219	175	237	140	134	80	187	134	164	171	301	245	531	314	436	2557	3022
Madera.....																										14
Marin.....																										32
Mariposa.....	2																									23
Mendocino.....	1																									91
Merced.....																										1
Middle.....																										2
Mono.....																										2
Monterey.....	5	8	3	1																						2
Napa.....	2																									0
Nevada.....	5																									14
Orange.....	4	7	2	1	2	15	4	65	1	4	6	6	4	3	6	9	6	8	2	16	3	55	3	24	41	
Placer.....																										197
Plumas.....	4																									6
Riverside.....	22	13	12	4	5	2	4	9	15	3	23	4	3	2	4	26	1	6	2	19	7	20	15	31	113	139

Sacramento.....	12	31	6	39	4	19	2	14	12	17	4	28	2	22	1	16	12	15	10	55	15	69	34	50	113	375	
San Benito.....	4	5	4	5	8	9	5	3	9	4	11	3	9	4	2	5	2	2	3	10	5	5	3	18	10	119	
San Bernardino.....	7	8	9	9	6	9	3	11	13	8	4	9	4	4	4	4	4	4	3	10	21	40	23	18	101	169	
San Diego.....	115	105	119	100	116	145	79	129	86	122	42	124	41	80	98	120	65	114	70	182	72	271	331	233	115	184	
San Francisco.....	3	14	5	6	6	12	7	8	7	22	3	16	5	5	3	38	13	51	15	93	10	270	21	285	973	1726	
San Joaquin.....	1	1	1	1	1	1	1	1	7	7	4	5	4	4	3	7	1	2	2	3	1	1	7	11	84	97	
San Luis Obispo.....	4	12	1	2	1	10	1	11	2	7	12	13	3	7	4	3	7	1	2	3	1	15	8	26	112	33	
San Mateo.....	1	1	2	5	4	4	3	8	1	2	3	3	3	7	1	4	1	3	4	4	3	12	7	3	26	45	
Santa Barbara.....	13	17	4	27	5	43	3	37	11	36	12	44	9	23	10	19	15	29	18	47	17	34	28	62	145	438	
Santa Clara.....	14	1	15	2	2	4	2	2	4	3	14	2	8	1	2	4	6	4	5	6	9	6	9	---	---	90	35
Santa Cruz.....	4	4	---	---	---	---	---	---	---	---	---	3	3	---	1	1	1	1	1	1	---	---	---	---	---	1	9
Shasta.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	1	1	1	---	---	---	---	---	---	0
Sierra.....	1	2	2	---	---	---	---	---	---	---	---	---	---	---	---	2	2	1	1	6	6	5	---	---	---	2	23
Siskiyou.....	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Solano.....	---	---	---	---	7	4	8	2	6	1	3	---	1	4	2	2	1	5	3	19	---	34	1	19	71	90	
Sonoma.....	3	7	1	11	---	---	---	23	---	7	1	5	7	4	2	4	1	15	4	13	5	16	10	10	31	152	
Stanislaus.....	---	---	---	---	2	3	1	10	1	9	1	12	---	4	1	4	5	3	6	11	2	5	6	4	27	73	
Sutter.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tehama.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Trinity.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tulare.....	7	13	2	5	4	2	2	2	2	11	---	6	---	5	3	6	3	10	1	29	11	41	20	13	53	143	
Tuolumne.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ventura.....	2	1	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yolo.....	5	1	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yuba.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Totals.....	685	610	479	518	519	675	387	615	542	576	363	661	310	398	200	592	368	523	477	1046	582	1906	881	1344	5793	9464	

REPORT OF THE STATE BOARD OF HEALTH.

Summary of Smallpox by Counties: 1920 and 1921

Counties	January		February		March		April		May		June		July		August		September		October		November		December		Totals		
	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	
	Alameda	37	75	13	103	19	55	6	57	10	51	6	28	28	14	25	10	38	13	44	38	51	17	44	21	321	482
Alpine																											
Amador	1	1	1	21	6	27	7	26	1	5	1	18			1	1					13	2	5		19	9	
Butte	16	9	24	3		1	5				4														76	113	
Calaveras	1	3	3	4		10																			17	8	
Columbia	5	30	12	26	3	23	1	5	2	13	3	3		2	2		6	3	7	2	1	1	1	1	3	21	
Contra Costa																										111	108
Del Norte																										0	0
El Dorado	6	22	11	41	6	22	3	14	1	4	4	3	11	1	3	2	1	1	34	1	1	8	2	6	2	113	115
Fresno	5		1	1																						6	3
Glenn	11		2	5	5	4																				19	5
Humboldt	6	13	53	8	15	1	5				7	1														98	50
Imperial																											0
Inyo																											312
Kern	16		2	7	8	29	3	38	1	16	3	9	6	13	1	3	2	6								133	52
Kings																											116
Lake	3		11		40	4	8	9	18	12	16	6	7	5	3	9	3	8	5	10	1	17	1	16	1	0	0
Lassen																											12
Los Angeles	122	72	124	77	153	66	68	42	110	61	60	53	64	28	34	24	18	18	17	29	36	21	44	11	850	502	
Madera																											5
Marin																											2
Mariposa																											73
Matthew																											8
Mendocino	6																										7
Merced	1	18		12		11																					68
Modoc																											9
Monterey																											0
Monterey	4	43	1	4		4	1	16	1	9	3	2															90
Napa	29		1	2		2					2																0
Nevada																											1
Nevada	4	49	3	33	8	55	14	16	5	29	9	31	23	10	5	5	10									3	14
Orange																											176
Placer	4	1	2	1		1																					4
Plumas	2																										19
Riverside	30	49	37	42	43	28	18	29	6	29	9	72	7	9	12	1	4	10	9	7	19	6	32	6	235	288	

Sacramento.....	8	51	2	1	1	39	4	23	2	12	7	5	3	12	9	1	10	4	9	3	2	2	28	56	5	140	155	
San Benito.....	21	9	4	11	3	14	37	12	4	12	4	2	2	11	8	2	2	7	3	3	4	1	7	35	1	149	5	
San Bernardino.....	1	52	7	7	9	4	5	6	15	5	6	15	1	11	3	24	2	7	7	2	4	5	79	48	1	171	70	
San Diego.....	33	203	44	304	33	185	21	93	17	93	16	59	9	58	16	27	2	19	11	11	46	7	42	131	14	405	994	
San Francisco.....	16	8	8	10	25	11	12	3	18	2	10	2	10	4	7	1	15	1	8	4	33	1	12	38	17	202	74	
San Joaquin.....	13	5	10	2	1	2	1	1	2	1	2	1	1	2	1	2	1	1	1	29	7	34	5	2	2	99	57	
San Luis Obispo.....	2	1	67	6	52	1	2	1	2	1	1	5	6	1	1	2	1	1	1	3	6	5	49	24	9	14	52	
San Mateo.....	19	1	10	40	3	34	3	26	10	21	10	21	11	27	6	13	8	24	3	3	20	7	34	13	10	182	98	
Santa Barbara.....	14	21	10	4	1	3	9	3	3	3	3	1	5	2	2	4	1	2	1	5	2	4	8	6	3	1	38	
Santa Clara.....	1	60	16	1	6	6	6	2	1	2	3	1	5	2	2	4	1	3	3	1	5	1	8	6	3	2	6	
Santa Cruz.....	1	60	16	1	6	6	6	2	1	2	3	1	5	2	2	4	1	3	3	1	5	1	8	6	3	2	6	
Shasta.....	1	60	16	1	6	6	6	2	1	2	3	1	5	2	2	4	1	3	3	1	5	1	8	6	3	2	6	
Sierra.....	1	60	16	1	6	6	6	2	1	2	3	1	5	2	2	4	1	3	3	1	5	1	8	6	3	2	6	
Siskiyou.....	5	3	3	3	4	4	4	3	3	3	3	3	2	2	2	4	1	1	1	1	5	5	2	4	5	0	12	
Solano.....	27	8	8	2	4	5	5	4	2	4	2	23	1	2	1	1	1	1	1	1	5	5	2	4	4	21	13	
Sonoma.....	3	4	5	1	1	1	1	4	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	4	52	26	
Stanislaus.....	1	25	3	111	1	27	6	6	7	6	4	6	4	11	2	2	1	5	1	3	16	46	20	17	52	12	20	
Sutter.....	1	4	7	2	2	2	2	2	2	2	2	1	3	3	3	10	1	8	1	3	16	46	20	17	52	53	312	
Tehama.....	1	4	7	2	2	2	2	2	2	2	2	1	3	3	3	10	1	8	1	3	16	46	20	17	52	53	312	
Trinity.....	1	4	7	2	2	2	2	2	2	2	2	1	3	3	3	10	1	8	1	3	16	46	20	17	52	53	312	
Tulare.....	6	2	5	8	2	11	8	9	16	5	16	5	10	6	10	4	4	4	18	18	0	0	0	6	6	3	88	45
Tuolumne.....	5	5	6	6	8	8	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	20	21
Ventura.....	10	2	5	15	7	9	2	3	1	23	1	23	1	2	3	7	1	1	1	2	2	2	2	1	7	13	38	92
Yolo.....	5	2	4	11	3	3	3	3	4	4	4	4	1	1	1	1	1	2	2	2	50	2	40	2	4	11	97	32
Yuba.....	5	4	11	23	23	23	23	3	4	4	4	4	1	1	1	1	1	2	2	2	8	8	6	4	7	1	28	48
Totals.....	458	919	483	1038	489	746	267	487	306	426	225	412	227	188	144	152	180	147	388	237	588	288	742	539	4497	5579		

Sacramento.....	3	2	2	1	4	3	5	1	4	4	11	5	9	6	7	13	8	4	8	11	3	10	2	66	
San Benito.....	1	1	1	5	1	3	4	1	1	1	1	4	15	7	2	2	5	5	1	2	2	9	6	1	40
San Bernardino.....	1	1	1	2	1	1	2	1	1	1	1	2	1	1	1	1	2	2	3	3	3	4	3	4	39
San Diego.....	10	3	2	8	7	4	5	12	10	10	4	17	12	11	7	29	16	9	5	8	8	8	4	5	15
San Francisco.....	1	1	2	1	1	2	3	2	3	3	2	6	6	3	7	2	2	2	2	3	9	1	1	5	79
San Joaquin.....	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	23	144
San Luis Obispo.....	1	1	2	2	1	2	2	2	2	2	2	1	1	1	3	6	2	1	1	1	1	1	1	3	4
San Mateo.....	1	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	4	8
Santa Barbara.....	1	2	2	1	1	1	6	1	1	1	1	2	6	1	2	3	1	1	5	4	2	1	3	1	8
Santa Clara.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	2	2	1	10
Santa Cruz.....	1	1	1	1	1	2	3	1	1	2	2	3	1	1	4	4	2	1	1	1	1	1	1	1	18
Shasta.....	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	17
Sierra.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
Siskiyou.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	4	1	2	3	2	2	0	0
Solano.....	3	1	1	1	1	1	1	2	1	1	1	8	1	1	4	3	2	2	4	4	1	1	2	5	11
Sonoma.....	1	1	1	1	1	1	1	1	1	1	1	1	2	5	1	1	1	2	2	4	1	1	1	8	17
Stanislaus.....	1	1	1	1	1	1	1	1	1	1	1	3	14	2	1	1	1	2	1	4	1	2	1	6	11
Sutter.....	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	10	23
Tehama.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	1	3	1	2	1	0	2
Trinity.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
Tulare.....	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5	9	4	2	2	2	2	2	1	1	16
Tuolumne.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
Ventura.....	1	1	1	1	1	1	1	1	1	1	1	1	7	1	2	1	1	1	5	5	1	2	1	15	2
Yolo.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	3
Yuba.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	4
Totals.....	57	31	19	29	48	80	32	39	66	47	181	94	163	107	129	173	171	115	130	112	68	75	51	1137	953

SUMMARY OF REPORTABLE DISEASES FOR 1918—Cases and Deaths.

Reportable diseases	January		February		March		April		May		June		July		August		September		October		November		December		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Anthrax	4	*		*		*		*		*		*		*		*		*		*		*		*		*
Bert. ber.		*		*		*		*		*		*		*		*		*		*		*		*		*
Epid. Cer. Sp. meningitis	27	*	24	*	32	*	26	*	21	*	10	*	17	*	17	*	19	*	12	*	6	*	12	*	236	*
Chickenpox	840	*	904	*	727	*	562	*	601	**	397	*	164	*	61	*	109	*	119	*	46	*	51	*	4611	*
Cholera (Asiatic)		*		*		*		*		*		*		*		*		*		*		*		*		*
Dengue		*		*		*		*		*		*		*		*		*		*		*		*		*
Diphtheria	340	*	262	*	295	*	283	*	289	*	248	*	222	*	187	*	179	*	388	*	177	*	220	*	3090	*
Dysentery (amoebic and bacillary)	2	*	2	*	3	*	5	*	10	*	7	*	18	*	8	*	7	*	8	*	1	*	3	*	74	*
Erysipelas	60	*	66	*	63	*	52	*	60	*	35	*	30	*	21	*	14	*	14	*	12	*	22	*	449	*
German measles	981	*	1389	*	2105	*	1277	*	641	*	224	*	54	*	11	*	15	*	17	*	12	*	1	*	6331	*
Glanders		*		*		*		*		*		*		*		*		*		*		*		*		*
Hookworm	11	*		*	6	*	26	*	23	*	1	*		*		*	2	*	11	*		*		*	89	*
Influenza		*		*		*		*		*		*		*		*		*		*		*		*		*
Leptosy	2	*	1	*	4	*	2	*	5	*	7	*	2	*	2	*	126	*	122457	*		*		*	49301	*
Leprosy	21	*	11	*	21	*	28	*	53	*	75	*	147	*	80	*	117	*	74	*	6	*	2	*	20	*
Malaria	2561	*	5299	*	5273	*	3599	*	2963	*	1471	*	694	*	229	*	316	*	495	*	57	*	6	*	637	*
Measles	476	*	877	*	1252	*	1231	*	986	*	514	*	428	*	463	*	699	*	566	*	213	*	271	*	23018	*
Mumps	2	*	5	*	2	*	3	*	3	*	3	*	3	*	2	*	1	*	1	*	1	*	3	*	18	*
Ophthalmia neonatorum	1	*	3	*	2	*	5	*	3	*	2	*	3	*	2	*	2	*	4	*		*		*	28	*
Pellagra		*		*		*		*		*		*		*		*		*		*		*		*		*
Plague	432	*	277	*	363	*	320	*	319	*	190	*	185	*	139	*	133	*	1710	*	184	*	249	*	4501	*
Pneumonia (lobar)		*		*		*		*		*		*		*		*		*		*		*		*		*
Poliomyelitis	9	*	1	*	4	*	6	*	7	*	6	*	5	*	10	*	5	*	7	*	6	*	3	*	69	*
Rabies		*		*		*		*		*		*		*		*		*		*		*		*		*
Rocky Mt. spotted fever	559	*	407	*	379	*	285	*	438	*	236	*	136	*	136	*	124	*	192	*	122	*	126	*	3140	*
Scarlet fever	42	*	74	*	107	*	72	*	102	*	102	*	97	*	46	*	52	*	105	*	45	*	45	*	1016	*
Smallpox	211	*	223	*	352	*	292	*	498	*	391	*	703	*	566	*	436	*	458	*	181	*	201	*	4506	*
Gonorrhoea	224	*	197	*	319	*	227	*	247	*	191	*	400	*	290	*	420	*	257	*	99	*	202	*	3073	*
Syphilis	2	*	2	*	2	*	5	*	2	*	1	*	4	*	3	*	3	*	5	*	3	*	1	*	23	*
Tetanus	2	*	2	*	2	*	5	*	2	*	2	*	2	*	3	*	2	*	5	*	3	*	3	*	74	*
Trachoma	10	*	8	*	12	*	8	*	8	*	5	*	5	*	4	*	2	*	757	*	448	*	442	*	7471	*
Tuberculosis	616	*	638	*	579	*	563	*	810	*	622	*	716	*	698	*	582	*	112	*	103	*	36	*	10655	*
Typhoid fever	81	*	53	*	62	*	65	*	118	*	104	*	168	*	127	*	112	*	103	*	26	*	36	*	10655	*
Typhus		*		*		*		*		*		*		*		*		*		*		*		*		*
Whooping cough	470	*	343	*	489	*	664	*	718	*	472	*	300	*	203	*	78	*	128	*	85	*	24	*	3974	*
Yellow fever		*		*		*		*		*		*		*		*		*		*		*		*		*
Totals	7584	*	11066	*	12453	*	9639	*	9028	*	5309	*	4503	*	3238	*	3472	*	127893	*	60748	*	51250	*	306183	*

*Analysis by months not available.
 **Listed under "other epidemic diseases."

DIVISION OF EPIDEMIOLOGY.

SUMMARY OF REPORTABLE DISEASES FOR 1919—Cases and Deaths.

Reportable diseases.	January		February		March		April		May		June		July		August		September		October		November		December		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Anthrax																										
Beri beri			2						3	1	1	1									3		1		14	1
Epidemic cerebro spinal meningitis	14		9	1	15	1	11		11	1	5	4								10		5		103	4	
Chickpox	63		99		284		427		526		637									299		729		632		*
Cholera (Asiatic)																										0
Dengue																										0
Diphtheria	208	25	156	14	209	28	243	15	151	21	195	20	259	25	149	13	195	13	424	22	423	33	425	37	3,037	266
Dysentery (amoebic)	1	1	1	1	2	1	1	4	3	6	17	7	26	7	9	6	7	2	10	13	7	11	11	3	94	62
Dysentery (bacillary)	35	9	28	9	33	3	24	4	21	4	24	11	21	2	18	5	16	2	29	6	29	10	46	13	324	78
Erysipelas	14		8		7		11		4		5		5		7		9		17		9		17		113	*
German measles																										0
Handkerchiefs	281	1	270	1	274	1	416	1	344	1	389		576		420		431		478		305		368		4,552	11
Hemorrhage																										0
Hookworm	69,053	3,553	3,144	392	3,126	210	4,914	266	1,247	162	313	48	248	12	63	11	169	24	197	26	106	25	111	17	82,682	4,746
Influenza	2		2		2		2		4	1	2	1	2	1	2	2	4	1	4		4		4		36	1
Leptospirosis	4	1	10	2	18	2	18	1	23	1	56	2	170	1	135	2	258	3	258	8	111	4	17	3	1,054	28
Malaria	79		60		71		90		94		85		92		71		169		572		828		1,741		3,967	14
Measles	227		131		95		187		202		210		131		114		130		288		419		434		2,508	*
Mumps			3		2		2		3		3		3		2		2		3		2		2		19	21
Optithadina neomatorum	1	1	1	1	3	3	3	2	1	3	4	3	4	3	2	2	2	2	2	2	1	26	1	25	21	
Pellagra																										13
Plague	700	351	87	123	116	163	166	136	71	109	76	75	54	60	56	63	114	64	137	94	144	114	257	199	1,978	1,583
Pneumonia (lobar)			1				2				1		5		4		4		3		2		1		27	*
Poliomyelitis																										0
Rabies																										0
Rocky Mountain spotted fever																										1
Scarlet fever	219	4	139	6	220	5	238	2	144	1	187	3	148	1	118	1	155	4	313	9	497	4	492	15	2,870	55
Smallpox	169	2	160		196		164		123		153		146		131		126		149		290		342		2,002	5
Syphilis	230	28	202	26	245	23	383	22	300	15	338	21	467	27	426	17	364	22	500	31	306	22	325	32	4,086	296
Tetanus	1	1	2	1	2	1	2	2	3	1	7	6	5	4	2	2	2	2	5	4	2	5	3	2	34	39
Tuberculosis	643	637	476	493	462	580	1,409	523	1,851	512	571	469	587	438	502	377	543	364	638	381	495	426	664	478	8,861	5,678
Typhoid fever	33	13	52	8	41	7	57	9	52	8	102	15	161	24	94	23	118	22	139	26	72	25	39	11	960	185
Trachoma	2		2		5		7		7		5		20		5		15		13		11		6		111	*
Typhus fever																										2
Whooping cough	23	5	7	2	34	1	22	5	84	3	109	5	77	8	76	7	101	8	103	8	97	10	160	9	893	71
Yellow fever																										0
Totals.	71,944	4,631	5,056	1,077	5,446	1,036	8,821	992	5,275	859	3,485	686	3,473	614	2,530	530	3,096	535	4,624	629	4,811	738	6,415	833	124,476	13,160

*Listed under "other epidemic diseases."

CASES AND DEATHS FROM THE REPORTABLE DISEASES: 1918 and 1919.

Diseases	Cases		Deaths	
	1918	1919	1918	1919
Anthrax	19	14	*	1
Beri Beri	4	4	*	4
Cerebro spinal meningitis	226	103	325	77
Chickenpox	4,611	4,532	*	*
Cholera (Asiatic)	0	0	*	0
Dengue	1	0	*	*
Diphtheria	3,090	3,037	213	266
Dysentery	74	84	80	62
Dysentery (bacillary)				
Encephalitis, epidemic		†178		
Erysipelas	449	324	*	78
German measles	6,331	113	*	*
Glanders	1	0	*	0
Hookworm	80	9	*	0
Influenza	230,845	82,682	13,340	4,746
Leprosy	20	39	*	4
Malaria	637	1,056	55	28
Measles	23,018	3,967	154	14
Mumps	7,826	2,568	*	*
Ophthalmia neonatorum	18	19	*	*
Paratyphoid	10	16	*	**
Pellagra	28	25	*	21
Plague	0	13	*	12
Pneumonia (lobar)	4,501	1,978	†5,285	†1,583
Poliomyelitis	69	27	*	*
Rabies	0	0	*	0
Rocky Mountain spotted fever	3	1	*	*
Scarlet fever	3,140	2,870	54	55
Smallpox	1,016	2,002	3	5
Gonorrhoea	4,506	4,552	317	11
Syphilis	3,073	4,095	*	296
Tetanus	23	34	*	39
Trachoma	74	111	*	*
Trichinosis	1	7	*	*
Tuberculosis	7,471	8,861	5,888	5,078
Typhoid fever	1,055	960	197	185
Typhus fever	0	2	*	1
Whooping cough	3,974	893	314	71
Yellow fever	0	0	*	0
Other epidemic diseases			64	***
Totals	306,194	124,998	26,289	13,237

*Listed under "other epidemic diseases."

**Included with typhoid.

***Total not available.

†Lobar and broncho pneumonia.

††Not reportable until March, 1919.

REPORT OF THE DIVISION OF SANITATION.
FOR BIENNIAL PERIOD 1920-1922.

EDWARD T. ROSS, Chief Sanitary Inspector.

At the 1921 session of the legislature, funds were made available for the employment of two additional sanitary inspectors in the Division of Sanitation. On June 1, 1921, the State Board of Health appointed W. O. Deal as inspector in this division, and on July 1, 1921, Frank G. Veatch was appointed to a similar position. Inspector Veatch was detailed to the southern part of the state with headquarters at Los Angeles, and Inspector Deal was detailed to the northern part of the state with headquarters at Sacramento.

During the biennial period preliminary sanitary surveys were made of a number of cities located in various parts of the state. These surveys cover the inspection of food supply places, resaturants, meat markets, slaughterhouses, dairies, packing plants, canneries, factories, school buildings, theaters, etc. In many instances the water supplies, sewerage and garbage systems were inspected. A large number of summer resorts, automobile camp grounds, Japanese farms and other miscellaneous premises were inspected, and several hundred complaints relative to alleged insanitary conditions in various localities were investigated. Six campaigns for the control of rabies and typhoid fever were organized and supervised by the chief inspector. Regulations governing the construction and maintenance of slaughterhouses and sanitation of fair grounds were formulated by the chief inspector and adopted by the board. The board also adopted regulations governing the sanitation of automobile camp grounds.

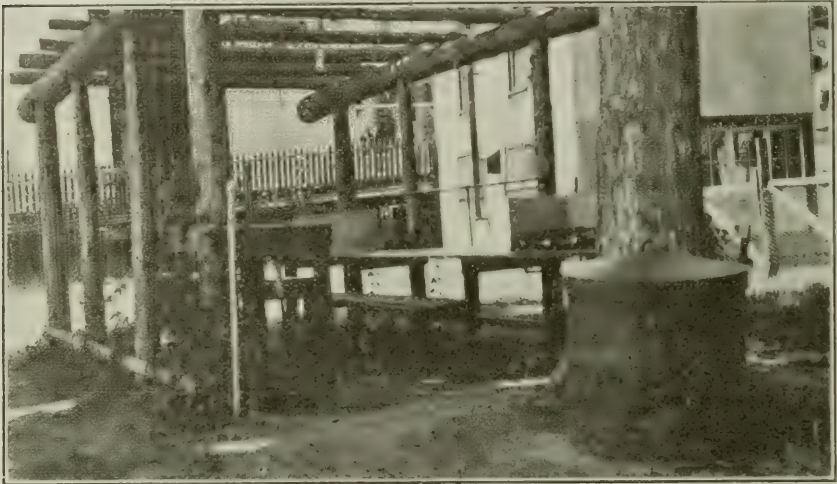
In February, 1922, the chief sanitary inspector was detailed to assist Louva G. Lenert, sanitary engineer of the International Health Board, in making anti-malarial surveys throughout the state. Since then almost the entire attention of the chief inspector has been given to this work. Preliminary studies have been made in a number of localities, and in several of the organized mosquito abatement districts complete studies, involving the study of drainage courses, ditches and ponds have been made.

Because of an outbreak of typhoid fever in Susanville in October, 1920, the chief inspector, cooperating with the director of the division of epidemiology, made a sanitary survey of all food supply places, soft drink stands, pool halls, rooming houses, hotels and many of the private premises. Numerous insanitary conditions were noted, especially in the food supply places. The owners of all such places were notified to make immediate improvements, and without exception promised to do so. A later inspection showed that many of the improvements had been made or arrangements had been made to start the work at an early date. The owners of soft drink places installed facilities for the sterilization of glassware at once. All dairies supplying milk in the city were inspected, and arrangements were made by the various owners to make the improvements recommended. A number of food supply establishments located outside the incorporated limits of the city were also inspected. Insanitary conditions were found in several of these places. The owners, upon being interviewed, promised to make the improve-

ments recommended without delay. The plant of the Lassen Box Company was also inspected. The sewage at this plant is disposed of in two cesspools. These were overflowing and forming stagnant pools of filth in close proximity to the mill and one of the boarding houses. The manager of the plant, on being interviewed, promised to have improvements made to the sewer system, also to have all dwellings cleaned and to provide covered metal garbage containers for all refuse.

Following an outbreak of typhoid fever in Pittsburg and at the request of the health officer, a representative from the Division of Sanitation made a sanitary survey of all food supply places, soft drink stands, hotels, etc., in the city. In many of the places visited insanitary conditions were found. The making of needed improvements was taken up with the various owners of such places, who willingly agreed to make the changes recommended.

In November, 1921, the secretary of the State Board of Health detailed the chief sanitary inspector to make a sanitary survey of the Lake



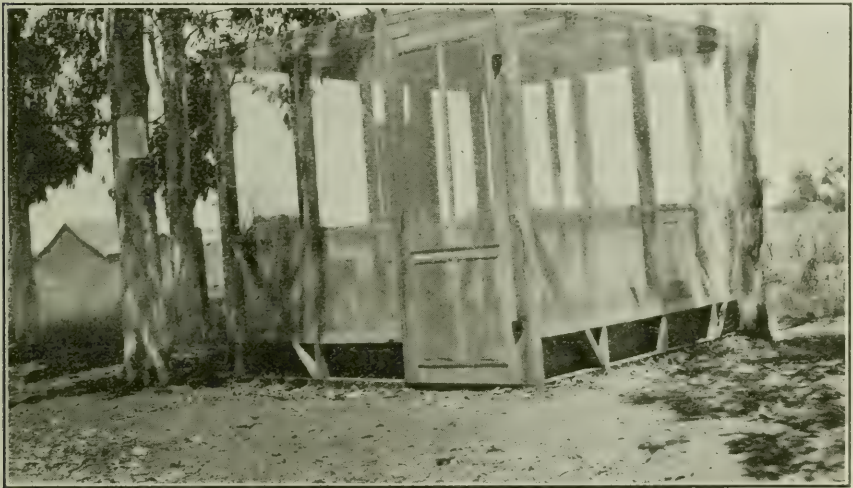
Grass Valley provides every convenience for automobile campers.

Hodges water supply, San Diego. This survey was started on November 28th and completed December 6th. The territory covered extended from the San Dieguito Reservoir to the extreme upper end of Lake Hodges. A careful investigation was made of this territory and all conditions which might be considered possible sources for contamination of the water were noted. Several minor objectionable features with reference to sewage disposal and promiscuous camping about the lake were found to exist. The matter of improving these conditions was taken up with the officials of the Water Company, who arranged to have all recommended improvements made at once. The major portion of this work had been done before the investigation was completed. In order to determine the fitness of the Lake Hodges water for drinking purposes after passing through the company's system and before entering the city main, a number of samples were collected from the company's main line pipe near the city meter. Each day for six consecutive days four

samples were collected and one each of the samples sent to the following laboratories for examination :

Laboratory of the Health Department, Los Angeles ;
Department of Public Works, Los Angeles ;
State Board of Health Laboratory, Los Angeles, and
Laboratory of the San Diego Health Department.

The laboratories' findings, with the exception of one sample, failed to show the presence of B. Coli, thus indicating the water to be excellent for drinking purposes. A number of samples of water were also collected in La Jolla after the water had passed through the city main ; analysis of these samples failed to show the presence of B. Coli, indicating a safe drinking water.



Corning provides screened kitchens for automobile tourists.

RABIES.

Fresno County.

The campaign against rabies which was begun in Fresno County in May, 1920, under state quarantine, was continued throughout the months of July, August and September. As the epidemic had practically subsided by the middle of October, the quarantine was lifted on the fifteenth of that month. During the time this quarantine was in operation, from May 26, 1920, to October 15, 1920, 4080 stray and uncontrolled dogs were killed by the deputies employed by the county to enforce the provisions of the quarantine, and it is estimated that at least 1500 additional dogs were killed either by their owners, peace officers, or others. Over 12,000 individual premises were visited, 1500 quarantine notices were posted throughout the county, 5000 small notices were distributed and sixteen meetings were held for the purpose of explaining the provisions of the quarantine. The enforcement of the state quarantine in this county was under the supervision of the county health officer, Dr. G. L. Long, cooperating with the State Board of

Health. W. M. Scales, county sanitary inspector, was in direct charge of all operations, and much credit is due these officers for their splendid work in promptly suppressing the outbreak. Preliminary to the lifting of the quarantine, the board of supervisors, as a precautionary measure, passed an ordinance requiring a license to be paid on all dogs kept in the county outside of incorporated cities. Two deputies to work under the supervision of the county tax collector were employed to enforce the provision of the ordinance. These deputies are still actively on duty, collecting the county license and taking up all dogs found at large unlicensed.

Kings County.

The campaign in this county, which was started in June, 1920, under the county muzzling ordinance, was continued until the latter part of October, 1920, at which time the rigid enforcement of the ordinance was suspended. During the time the campaign was in operation, 1980 stray and unmuzzled dogs were killed by the county officials who were enforcing the muzzling ordinance, and it is estimated that at least 350 additional dogs were destroyed by others throughout the county. Approximately 800 premises were visited, 500 notices were posted throughout the county, and seven meetings were held for the purpose of explaining the provisions of the ordinance. The enforcement of the county ordinance was under the county health officer and the county live stock inspector, cooperating with the State Board of Health. Dr. Frank Griffith, county live stock inspector, was in direct charge of the campaign and had as assistants the county traffic officers and others employed by the county for this work. Due to the energetic efforts of Dr. Griffith, rabies was soon brought under control in this county.

Stanislaus County.

Because of the prevalence of rabies in this county during the months of December, 1920, and January, 1921, and on recommendations made by the State Board of Health, the board of supervisors on February 14, 1921, passed a dog muzzling ordinance for the control of dogs within the county outside incorporated cities. The officials of the various incorporated cities in the county adopted the same type of ordinance. The enforcement of the county ordinance was under the county health officer and county veterinarian. Dr. Haney, county veterinarian, was in direct charge of the work and had as assistants the county traffic officers. The rigid enforcement of the ordinances in the county and incorporated cities was continued from the dates of their passage to May 1, 1921, at which time enforcement was suspended. During the period the ordinances were in force over 300 stray and unmuzzled dogs were killed by the county and city officials, and it is estimated that at least 100 additional dogs were destroyed by their owners. Over 760 premises were visited, approximately 300 notices were posted, and 49 persons were arrested for failure to comply with the provisions of the ordinances. Dog licensing ordinances adopted by the various cities in the county are still in force. In the city of Modesto in the past few months over 360 licenses were collected and a large number of stray and unlicensed dogs were disposed of.

San Joaquin County.

In May, 1920, the matter of dog control was taken up with the board of supervisors, who passed an ordinance requiring all dogs to be muzzled when running at large in the county outside incorporated cities. At the request of the State Board of Health all of the incorporated cities in the county adopted the same type of ordinance. The ordinances were rigidly enforced throughout the county and incorporated cities from May, 1920, to May, 1921, at which time rigid enforcement was suspended. During the time the ordinances were enforced 4421 dogs were killed by the county deputies and peace officers. Approximately 2900 premises were visited, 2068 persons were spoken to personally regarding the requirements of the ordinances, and 68 talks were given in public schools regarding the proper care of dogs; 58 persons who failed to comply with the provisions of the ordinances were arrested. Of these 32 were tried, convicted and fined, the fine imposed ranging from \$25 to \$100. The other 26 cases were still pending at the time the campaign closed. In addition over 1000 placards were posted throughout the county. The enforcement of the county ordinance was under the direct supervision of the county health officer, Dr. A. Cavagnaro, co-operating with the State Board of Health, and assisted by six county deputies appointed for this work. Due credit should be given Dr. Cavagnaro for his earnest efforts in the control of rabies in the county.

Contra Costa County.

Because of the prevalence of rabies in Contra Costa County, the board of supervisors on March 7, 1921, at the request of the county health officer, Dr. Charles R. Blake, passed a dog muzzling and licensing ordinance. The enforcement of this ordinance was under the supervision of the county health officer, and due to his energetic efforts the spread of the disease was quickly checked.

Southern California.

Because of the prevalence of rabies in various localities in the southern part of the state, the chief sanitary inspector and the director of the division of epidemiology the latter part of April, 1922, visited the southern part of the state for the purpose of getting control measures adopted. Conferences were held with the health officer and the board of supervisors of Los Angeles County, also with the health officer and officials of Los Angeles. As a result, Los Angeles County and the city of Los Angeles adopted control measures. A number of other cities in the southern part of the state, which were visited, also adopted control measures. At the request of the county health officer of Riverside County and the health officer of the city of Riverside, a state quarantine was placed on all dogs in a specified area in the county. All control measures instituted in the southern part of the state are still in operation.

MOUNTAIN SANITATION.**Summer Resorts.**

More than 390 summer resorts were inspected. In a large majority of the places visited insanitary conditions were found, due chiefly to improper methods used in the disposal of sewage, garbage and other

waste matter. In many instances it was found that sewage was being discharged into lakes and mountain streams, and that garbage and rubbish of all sorts were permitted to accumulate about the premises. The matter of improving sanitary conditions in such places was taken up with the owners thereof, who, without exception, promised to make the needed improvements. Reinspections made of a large number of summer resorts showed that in the majority of cases the board's recommendations had been complied with. Sanitary plumbing facilities had been provided, also septic tanks or covered cesspools for the disposal of sewage; food supply rooms had been screened; proper metal receptacles for keeping garbage provided, and much general cleaning had been done. As a result of this work, a marked improvement in the sanitary condition of the state's summer resorts has been secured.

Automobile Camp Grounds.

Automobile parties have reached beyond the most visionary expectation, until now one notes on the highways of the state actually thousands of autos, each carrying its camping equipment. It would not be an exaggerated statement to say that in the course of a day's travel over one of the state's main highways at least one out of every three autos carries a camping party. In order to protect the health and comfort of the traveler, as well as of the communities through which he may pass, the State Board of Health adopted rules and regulations for the sanitary control of automobile camps. During the past two years more than 440 automobile camps were inspected. In many of the camps visited a number of insanitary conditions were found, due in many cases to lack of proper supervision in keeping the grounds in clean condition, also to lack of plumbing and other facilities for the disposal of sewage, garbage, etc. Reinspections made of a number of the camps showed that in the majority of cases the board's regulations had been complied with. The State Board of Health's regulations have been posted in practically all of the camp grounds throughout the state. Following are the board's regulations governing camp ground sanitation:

REGULATIONS
GOVERNING
CAMP-GROUND SANITATION

ADOPTED DECEMBER 4, 1920.

The following regulations shall apply to any city, county, city and county, village, community, institution, person, firm or corporation, operating, maintaining or offering for public use within the State of California any tract of land on which persons may camp or picnic either free of charge or by payment of a fee.

Section 1. A water supply of sanitary quality shall be provided in ample quantity to meet all requirements of the maximum number of persons using such a tract at any time. Said water supply shall be easily obtainable from its source or from faucets on a pipe distributing system within a distance of not more than 300 feet of any camp or picnic spot within such tract.

Section 2. Any water considered unsafe for human consumption in the vicinity of such tract of land, to which campers or picnickers on said tract may have access, shall be either eliminated or purified, or shall be kept posted with placards definitely warning persons against its use.

Section 3. Fly-tight privies or water-flushed toilets shall be provided and shall be maintained in a clean and sanitary condition. Separate toilets for men and women shall be provided, one for each 50 men, and one for each 50 women, or fraction thereof, of the maximum number of persons occupying such tract at any time. No camp or picnic spot within such tract shall be at a greater distance than 400 feet from both a men's and a women's toilet. The location of all toilets shall be plainly indicated by signs.

Section 4. Supervision and equipment sufficient to prevent littering of the ground with rubbish, garbage or other refuse shall be provided and maintained. Fly-tight depositories for such materials shall be provided and conspicuously located. Each and every camp or picnic spot on said tract shall be within a distance of not over 200 feet of such a depository. These depositories shall not be permitted to become foul-smelling or unsightly or breeding places for flies.

Section 5. The method of final sewage or refuse disposal utilized in connection with the operation of any camp or picnic ground shall be such as to create no nuisance.

Section 6. At least one caretaker shall be employed by the management to visit said tract every day that campers or picnickers occupy said tract. Such caretaker shall do whatever may be necessary to keep said tract and its equipment in a clean and sanitary condition.

Section 7. The management of every public camp or picnic ground shall assume responsibility for maintaining in good repair all sanitary appliances on said ground, and shall promptly bring such action as is necessary to prosecute or eject from such ground any person that wilfully or maliciously damages such appliances or any person that in any other way fails to comply with these regulations.

Section 8. Each and every owner and lessee of any public camp or picnic ground shall be held responsible for full and literal compliance with these regulations.

Section 9. Failure on the part of the owner or management of any camping ground to comply with the foregoing regulations shall be deemed sufficient cause for declaring the premises a public nuisance under the provisions of Section 370 of the Penal Code of California.

Section 10. These regulations shall be printed and kept posted in conspicuous places on every public camp or picnic ground by the management of such ground.



Roadside Camps.

Besides auto camp grounds maintained by municipalities or private owners where camping parties may camp free or upon payment of a nominal fee, there are actually thousands of other camping places throughout the state situated along streams or other places where wood and water are available. These places occupied by an individual party for but one night are nearly all in practically continuous occupation by different parties during the whole camping season, which extends from April to late in October. Such places are even more difficult of supervision than are the auto camp grounds, the latter always having some person who is responsible for their maintenance, while the former have no such control. There is considerable danger to the traveling public stopping in such places, due to human pollution of the lakes, streams or springs, the water from which is used for drinking purposes, as well as the human pollution of the camp grounds. Because of this promiscuous camping, considerable danger of forest fires arises, which is augmented by the accumulation of rubbish, etc., left by the campers. This promiscuous camping is certain to increase in the future. It would seem that the only solution at this time would be the establishment of more camp sites where wood and safe water supplies are obtainable, and toilet and garbage facilities provided; also the interdiction of camping elsewhere. During the biennial period more than 1900 of these camps have been inspected. The State Board of Health, in its endeavor to keep such camping places in sanitary condition, has had thousands of placards posted. As a result of this work, many of these camping places were found, on reinspection, to be in clean condition. The following forms were used:

BEWARE OF ARREST.

COMMIT NO NUISANCE.

This Camping Place Must Be Kept Clean.

Bury all Waste, Garbage and other Refuse.

Report all Insanitary Conditions to State Board of Health,
Sacramento.**WARNING.**

COMMIT NO NUISANCE.

It is Unlawful to Pollute Streams, Lakes or Watersheds.
Bury all waste, garbage and other refuse away from streams
or lakes. Violators will be prosecuted under state law.

CALIFORNIA STATE BOARD OF HEALTH.

Report all Insanitary Conditions to State Board of Health,
Sacramento.

JAPANESE FARMS.

Because of the prevalence of typhoid fever on a number of Japanese farms and owing to numerous complaints having been received relative to alleged insanitary conditions existing on these places, the State Board of Health started an active campaign for the improvement of sanitary conditions of all oriental and similar farm settlements in the state. To date over 580 of these farms have been inspected. Almost without exception the places inspected were found to be maintaining conditions in flagrant violation of vitally important sanitary requirements, such as dilapidated vault toilets, open cesspools, lack of plumbing facilities and general uncleanness. The matter of improving sanitary conditions on these farms was taken up with the various owners, the Japanese tenants and the secretaries of the respective Japanese associations, all of whom expressed a desire to cooperate in this important work. In the majority of cases the owners of the land are supplying the material and the tenants are performing the necessary labor in the installation of the new sanitary equipment. Reinspections made of over 450 of the farms previously visited showed that in the majority of cases the improvements recommended had been made. The Japanese associations have given this matter considerable attention and have appealed to the farmers through the Japanese newspapers to cooperate with the State Board of Health in placing their farms in sanitary condition.

FAIR GROUNDS.

At the request of the secretary of the State Agricultural Association, a representative from the division of sanitation supervised sanitary conditions in the State Fair Grounds at Sacramento during the past two years. A high standard of sanitation was maintained throughout the fair grounds; all soft drinks were kept in covered containers; paper cups were used in dispensing drinks which were drawn from containers through spigots; drinks peddled on the grounds were served only in original bottles; ice cream cones were dispensed on the grand stands and throughout the grounds in covered wooden portable containers; all restaurants, hot dog stands, etc., were screened against flies and other insects; an ample water supply, sinks and containers for waste were provided in all restaurants. Covered metal waste containers were also distributed throughout the grounds, all refuse being collected several times daily and removed from the grounds. A sufficient number of toilets for men and women, as well as women's rest rooms, were provided in permanent buildings. This has been accomplished only through the full support and active cooperation of the concessionaires, directors of the fair, and the secretary, Mr. Charles W. Paine.

A number of county fair grounds were inspected during the past two years. In most of the places visited it was found that little or no attention had been paid to sanitation. The matter of making sanitary improvements was taken up with the various executive officers, who willingly agreed to make all needed improvements. In order that uniform measures should be enforced in all fair grounds throughout the state, the State Board of Health adopted the following regulations:

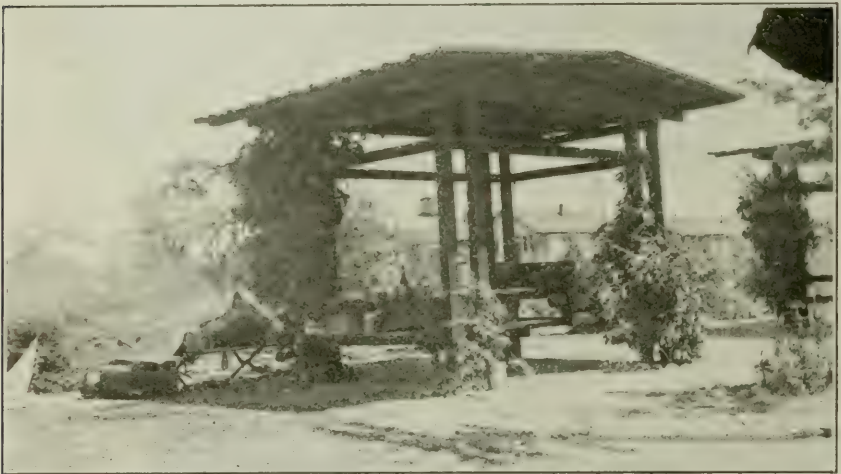
Regulations for the Sanitation of Fair Grounds.

Rule I. A water supply of sanitary quality shall be provided in ample quantity to meet all requirements of the maximum number of persons using or attending any public fair ground in California. Said water supply shall be easily obtainable from its source or from faucets on a pipe distributing system within the grounds.

Rule II. Fly-tight privies, water-flushed toilets or other toilets shall be provided and shall be maintained in a clean and sanitary condition. Separate installations for men and for women shall be provided and they shall be adequate for the accommodation of all persons attending or using the fair grounds.

Rule III. Supervision and equipment sufficient to prevent littering of the ground with rubbish, garbage or other refuse shall be provided and maintained. Fly-tight depositories for such materials shall be provided and conspicuously located. These depositories shall not be permitted to become foul smelling, or unsightly, or breeding places for flies. Contents must be removed at least every 24 hours.

Rule IV. All places where foodstuffs are sold or exposed for sale must be made fly tight by screening all openings with wire screening of not less than 14 mesh. Adequate facilities for the proper washing of dishes must be provided in all such places. The term "foodstuffs" includes both raw and cooked food, candy and any other food not sold in single service containers.



Marysville's artistic shelter booths attract many tourists.

Rule V. Drinking utensils, unless individual paper cups are used, must be sterilized in accordance with Chapter 744, Acts of 1917. The following methods may be used:

(a) Sterilization by steam in an apparatus acceptable to the State Board of Health.

(b) Immersion for fully five minutes in boiling water. (To avoid unnecessary breakage it is advised that glasses be placed in cold water and then container heated until the water boils.)

(c) Immersion in 5 per cent solution of lye or caustic soda, preferably hot, but not necessarily boiling. To accomplish this a solution of lye is made of a strength of one pound of lye to two and a half gallons of water. Because this solution is irritating to the skin the receptacle should be placed in a wire basket, immersed in the solution for five minutes, then the basket carried over to a water bath to remove the lye solution.

Rule VI. All cold drinks must be kept in fly-tight containers, from which the liquid may be removed only by faucets.

SLAUGHTERHOUSES.

During the past two years a number of slaughterhouses were inspected. In the majority of the places visited many insanitary condi-

tions were found. The owners of such places willingly agreed to make the necessary improvements. In order that satisfactory conditions might be secured in all slaughterhouses, the State Board of Health adopted regulations governing a minimum standard of sanitation for the construction and operation of such places. Since the adoption of these regulations, by act of the legislature, the sanitation of slaughterhouses other than those in municipalities maintaining their own meat inspection has been placed under the supervision of the State Department of Agriculture, leaving under the supervision of the State Board of Health only such slaughterhouses as are located in cities maintaining their own meat inspection.

The regulations adopted and enforced by the State Board of Health regarding the slaughterhouses under its control are as follows:



Marysville provides campers with a social hall, reading room and shower baths.

Regulations Governing the Construction and Maintenance of Slaughterhouses.

I. Location of Slaughterhouses.

All slaughterhouses shall be located:

1. Where an adequate supply of pure water is available,
2. Where proper drainage is obtainable, and
3. Where proper disposal of all wastes can be accomplished without creating a nuisance.

II. General Construction.

All slaughterhouses must be enclosed on all sides, and all walls, ceilings, roofs, floors, doors, fly screens, drains, sewers, etc., must be kept in good repair.

III. General Cleanliness.

The whole premises, that is, the building, together with its contents, the yard, pens, etc., must be kept in clean condition at all times. Rubbish must not be allowed to accumulate, and adequate measures must be taken to prevent the harboring and breeding of rats on the premises.

IV. Light and Ventilation.

All rooms must have ample light and ventilation directly to the outside air. All doorways must be fitted with tightly fitting doors, either screen or solid, which must

be kept closed at all times except when in actual use. All other openings must be covered with metal fly screen of not less than 14 mesh.

V. Floors.

Floors of all rooms where killing, handling, preparing or storing is done must be impervious and must be constructed of concrete, asphalt, or other non-absorbent material. All such floors must be coved and carried up the face of the wall to a sufficient height to prevent seepage under the floor. Also all such floors must be made with a pitch or fall of not less than one-fourth inch to the foot, and be directly connected with gutters of the same material, which discharge through properly constructed traps into drain pipes leading to the sewer system or septic tank.

VI. Sewage Disposal.

The premises must be connected with a municipal, or other public, sewer system, if the same is available; otherwise a proper septic tank must be provided of such size as to hold at least two days' sewage. The effluent from this septic tank must be discharged either into properly constructed and tightly covered cesspool or cesspools or into a subsurface irrigation system. The cesspools or subsurface system must be of such capacity that no effluent is ever exposed above the ground or otherwise creates a nuisance.



A clean camp.



A dirty camp.

VII. Disposal of By-Products.

Tanking, cooking, preparing or storing of material not intended for human food shall not be done in the same room where killing, preparing, handling, storing or cooking of material for human food is carried on. Exhaust pipes from cooking tanks must be so arranged as to efficiently dispose of all odors from same.

Paunch contents shall be finally disposed of at least every 24 hours either for fertilizer by being spread over the ground in a layer not over four inches thick as far distant from human habitation and from the slaughterhouse as possible, or by being buried or burned.

Entrails, hoofs, heads and other waste must be disposed of within 24 hours after slaughter. If used for hog feed this material must be cooked. Otherwise, it must be disposed of within this time by being tanked, burned or buried in such manner as not to create a nuisance.

However, bones, hoofs, horns and heads, after being cooked and cleaned, may be dried and stored in a compartment separate and apart from any place where edible products are manufactured, prepared and stored. If dried in the open, they must be stored not less than 50 feet away from the slaughterhouse.

Hides must be removed from the premises or salted down in the hide room within 24 hours after skinning.

VIII. Keeping of Animals.

Hogs must not be kept, fed or permitted to roam within 100 feet of the slaughterhouse.

IX. Toilet and Washing Facilities.

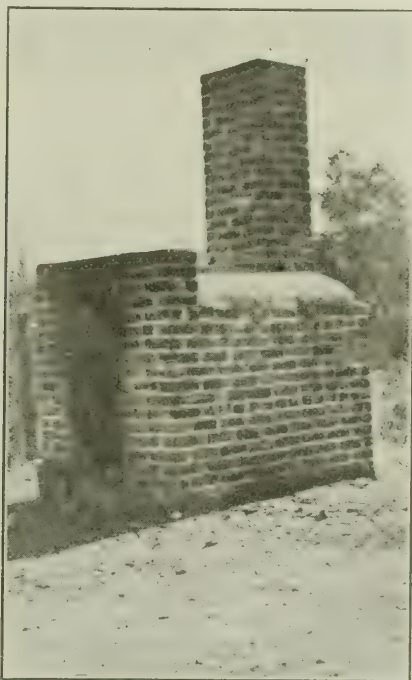
Each slaughterhouse must be provided with a toilet and with apartments for dressing and washing. All changing of clothing must be done in the apartments provided for that purpose, and under no circumstances may clothes be changed, hung or stored elsewhere in the slaughterhouse.

Apartments as provided in this section shall be separate from rooms where killing, handling, cooking, preparing or storing are carried on. Necessary plumbing therein must be provided and must be connected with the sewer system or septic tank.

Where a vault toilet is the only available accommodation, it must be located at least 50 feet from the slaughterhouse, and the vault and building must each be fly tight.

X. Killing Room.

Side walls must be covered with galvanized iron, cement or other non-absorbent material, to a height of not less than five feet above the floor; above this height the walls and ceiling must be of smooth construction and shall be painted or lime washed.



Type of refuse incinerator in Yreka municipal camp.

An adequate supply of pure clean water shall be provided in this room. Paunches, entrails and their contents upon removal from each carcass must be placed in covered metal or metal-lined receptacles, and the floor shall be kept as clean as possible during slaughtering. Hides, heads, hoofs, etc., must be removed from the killing room at the end of each day's slaughtering.

Carcasses of animals and parts therefrom intended for human food must not be allowed to come in contact with the floor.

Carcasses of animals intended for human food must be either removed from the premises or placed in a cooling room within one-half hour after being dressed.

Condemned parts of carcasses must be removed from the killing room at once and tanned or burned within the next 48 hours, and all tools, utensils, containers, floors, hands, etc., which may have come in contact with the diseased parts must be thoroughly washed, cleaned and sterilized before the next animal is slaughtered.

All tools, utensils, blocks, containers, walls and floors must be thoroughly washed and cleaned after each day's work.

The use of the killing room for any purpose other than for the slaughtering of beeves, sheep, calves, goats and hogs intended for human food will not be permitted.

Scalding of hogs is permissible in the killing room, provided that the water heating apparatus is located outside of said room. In rooms used exclusively for the slaughter of hogs the water heating apparatus may be located in the same room.

Where hog sticking platforms are used the same shall be constructed of non-absorbent material, properly drained and connected with the sewer system.

XI. COOLING ROOM.

The walls and ceiling of the cooling room must be smooth and of tight construction and must be painted or oiled. This room must be entirely separated from all other rooms in the slaughterhouse except for doorways leading to a shipping platform and to the killing room. These doorways must be fitted with solid tightly fitting doors, which must be kept closed at all times except when in actual use. Where no artificial refrigeration is provided the walls shall be made fly tight and all ventilators shall be properly screened with wire screen of not less than 14 mesh.

The walls, ceiling, floor, doors, hooks, etc., in this room must be kept in clean condition and the use of this room for any purpose other than for the temporary storage of dressed carcasses intended for human food is prohibited.

XII. Hide Room.

The hide room must be tightly partitioned off from the other rooms of the slaughterhouse, except there may be doorways to a shipping platform and to the killing room. These doorways must be fitted with solid, tight-fitting doors, which must be kept closed at all times except when in actual use. The floors and walls of this room, up to a height of at least six inches above the maximum pile of hides, must be solid concrete construction. The floor must be sloped and connected with the sewer system or septic tank.

XIII. Corrals and Hog Pens.

Water troughs must be so built or arranged as to permit of no overflow in corrals.

A tight-floored feeding platform, preferably of concrete, must be provided in the hog pens. Pens and corrals must be so drained that no accumulation of water may occur therein.

RODENT CONTROL OPERATIONS.

Because of the marked increase in the rat population of the cities in the San Francisco Bay region, the State Board of Health directed that an intensive campaign for the destruction of these rodents and against ground squirrels as well be instituted, such a campaign being necessary in order that plague in these rodents be kept in check, thereby protecting the human population from the devastating effects of an outbreak of this disease. The chief sanitary inspector, in cooperation with the U. S. Public Health Service, conferred with the health officers of Oakland, Berkeley, Piedmont, Alameda and Richmond. As a result of the conferences, thousands of pounds of poisoned grain for killing ground squirrels were provided and distributed in the ground squirrel invested areas adjacent to these cities. Authorization for the purchase of supplies of rat poison was obtained in Oakland, Alameda, Berkeley, and Richmond. Special attention was paid to the extermination of rats along the water front of these cities. The city of Berkeley authorized the employment of four men to trap and poison rats. The general campaign was carried on for several months, and splendid results were obtained in reducing the number of these pests. However, rats and ground squirrels, besides being destructive to food supplies and property to the extent of many thousands of dollars each year in this district, represent an ever present menace to the community from a plague point of view, and this work should be carried on continuously and not

spasmodically; continued effort will not only be more effective but less expensive on the whole than occasional campaigns.

MALARIA SURVEYS.

In February, 1922, the chief sanitary inspector was detailed to assist Louva G. Lenert, sanitary engineer, International Health Board, in making an anti-malarial survey in the mosquito infested areas of the state. A preliminary study has been made in the following locations: Fair Oaks, Durham, Los Molinos, Oroville, Cottonwood, Anderson, Redding, Clear Creek, Churn Creek, Three Cities, Pulgas, Matadero, Hayward, San Leandro, Merced, and Visalia. During the months of April, May and June a complete study was made of Fair Oaks, Anderson, Redding, Merced and Visalia and territories adjacent thereto, involving a survey of all drainage courses, ditches and ponds. This work is to be continued until all mosquito infested areas have been covered.

MISCELLANEOUS INVESTIGATIONS AND OPERATIONS.

During the past two-year period more than 7800 miscellaneous premises were inspected. Reinspections made of a large number of these places showed that in the majority of cases the board's recommendations had been complied with. In addition 549 miscellaneous complaints relative to alleged insanitary conditions in various localities throughout the state were investigated and steps taken to abate the conditions complained of. A number of special investigations, involving the survey of water supplies and garbage and sewage disposal systems, as well as the general sanitation of a number of cities, were also undertaken.

In carrying on the work of the division of sanitation practically every county in the state was visited.

Summary of Operations.

<i>Robics.</i>	1921	1922	Total
Fresno County:			
Premises inspected (approximately).....	12,000	-----	12,000
Notices posted.....	1,500	-----	1,500
Notices distributed.....	5,000	-----	5,000
Meetings attended.....	16	-----	16
Dogs killed by county officials.....	4,080	-----	4,080
Dogs killed by peace officers and others (approximately).....	1,500	-----	1,500
Kings County:			
Premises inspected.....	860	-----	860
Notices posted (approximately).....	360	-----	360
Meetings attended.....	7	-----	7
Dogs killed (approximately).....	1,980	-----	1,980
Dogs killed by peace officers and others (approximately).....	200	-----	200
Stanislaus County:			
Premises inspected.....	763	-----	763
Notices posted.....	250	-----	250
Notices distributed.....	500	-----	500
Meetings attended.....	7	-----	7
Arrests made—violators of ordinances.....	49	-----	49
Dogs killed by county and city officials (approx.).....	300	-----	300
Dogs killed by owners and others (approximately).....	100	-----	100

San Joaquin County:

<i>Rabies—Continued.</i>	1921	1922	Total
Premises inspected	2,980	-----	2,980
Persons spoken to personally.....	2,658	-----	2,658
Notices posted	1,000	-----	1,000
Notices distributed.....	1,500	-----	1,500
Meetings attended.....	26	-----	26
Talks given in schools regarding care of dogs.....	68	-----	68
Arrests made—violators of ordinances.....	58	-----	58
Dogs killed by county and city officials.....	1,121	-----	1,121
Dogs killed by owners and others (approximately).....	306	-----	306
Cats killed (approximately).....	258	-----	258
<i>Sanitation.</i>			
Summer resorts:			
Inspected	57	334	391
Reinspected	36	160	196
Complied with regulations.....	21	139	160
Water supplies improved.....	6	21	27
Toilets, water-flush, provided.....	11	274	285
Septic tanks provided.....	16	44	60
Covered cesspools provided.....	19	151	170
Toilets, vault type, provided.....	15	37	52
Toilets demolished	11	19	30
Toilets made fly tight.....	27	112	139
Washing facilities provided, sinks, baths, etc.....	37	189	226
Kitchens screened.....	20	190	210
Covered metal garbage cans provided.....	190	570	760
Resorts, buildings, yards, etc., cleaned.....	36	111	177
Swimming pools improved.....	3	10	13
Nuisances abated.....	390	567	957
Automobile camp grounds.			
Inspected	88	360	448
Reinspected	26	204	230
Complied with regulations.....	24	161	185
Vacated and closed.....	2	9	11
Water supplies improved.....	4	29	33
Toilets, water-flush, provided.....	30	229	259
Septic tanks provided.....	3	30	33
Covered cesspools provided.....	9	68	77
Toilets, vault type, provided.....	12	162	174
Toilets, vault type, demolished.....	9	39	48
Toilets made fly tight.....	40	256	296
Covered garbage cans provided.....	267	760	1,027
Covered garbage pits provided.....	4	15	19
Washing facilities, sinks, showers, etc., provided.....	29	260	289
Camp grounds cleaned.....	29	211	240
Roadside camps inspected.....	373	1,566	1,939
Miscellaneous camp notices and regulations posted.....	4,169	7,506	11,675
Miscellaneous camp notices distributed to health officers and others.....	4,994	1,417	6,411
Nuisances abated	311	980	1,291
Japanese farms:			
Inspected	-----	581	581
Reinspected	-----	460	460
General conditions improved.....	-----	416	416
Old cesspools filled in.....	-----	294	294
New cesspools provided.....	-----	322	322
Sinks provided (wood).....	-----	283	283
Sinks provided (metal).....	-----	37	37
Toilets, water-flush, provided.....	-----	9	9
Toilets, vault type, provided.....	-----	87	87
Toilets, vault type, demolished.....	-----	81	81
Toilets made fly tight.....	-----	249	249
Covered metal garbage cans provided.....	-----	36	36
Covered garbage pits provided.....	-----	55	55

Japanese farms—Continued.		1921	1922	Total
Dwellings cleaned.....	-----		255	255
Kitchens screened.....	-----		137	137
Yards cleaned, rubbish, etc., removed.....	-----		449	449
Fair grounds:				
Inspections made on state fair grounds.....	-----	170	220	390
County fair grounds inspected.....	-----	2	7	9
Slaughterhouses:				
Inspected.....	-----	30	27	57
Reinspected.....	-----	11	11	25
Complied with regulations.....	-----	7	11	18
<i>Rodent Control Operations.</i>				
Berkeley:				
Rats trapped.....	-----		3,000	3,000
Mice trapped.....	-----		317	317
Squirrel poison placed (pounds).....	-----		2,000	2,000
Richmond:				
Rat poison placed (pieces).....	-----		10,000	10,000
Squirrel poison placed (pounds).....	-----		2,000	2,000
Oakland:				
Rat poison placed (approximate pieces).....	-----		50,000	50,000
Squirrel poison placed (pounds).....	-----		3,200	3,200
Alameda:				
Rat poison placed (approximate pieces).....	-----		2,500	2,500
<i>Malaria Surveys (cooperating with International Health Board).</i>				
Preliminary studies, localities visited.....	-----		16	16
Complete studies, localities visited.....	-----		5	5
<i>Investigations and Inspections.</i>				
Rabies.....	-----	19	35	54
Prevalence of rodents.....	-----	27	52	79
Prevalence of mosquitoes.....	-----	9	32	41
Typhoid fever (cooperation with Division of Epidemiology).....				
-----	-----	6	9	15
Sewer systems.....	-----	17	44	61
Stream pollution.....	-----	9	14	23
Water supplies.....	-----	7	52	59
Water supplies—railway trains.....	-----	5	2	7
Water samples collected.....	-----	48	43	91
Garbage disposal systems.....	-----	5	32	37
Miscellaneous complaints.....	-----	119	430	549
Miscellaneous complaints reinvestigated and found O. K.....	-----	49	126	175
Complaints, request of health officers.....	-----	27	94	121
Towns inspected, general conditions.....	-----	5	9	14
Railway stations inspected.....	-----	7	119	126
Roadhouses inspected.....	-----	11	125	136
Roadhouses reinspected, found O. K.....	-----	7	32	39
Dairies and creameries inspected.....	-----	15	27	42
Packing houses inspected.....	-----	14	36	50
Hog ranches inspected.....	-----	8	17	25
Reduction plants inspected.....	-----	5	4	9
Lodging houses inspected.....	-----	19	3	22
House-boats inspected.....	-----	9	3	12
Ferry and river steamers inspected.....	-----	12	7	19
Open-air camps for children inspected.....	-----	3	2	5
Miscellaneous premises inspected.....	-----	1,675	6,140	7,815
Miscellaneous premises reinspected.....	-----	319	1,367	1,686
Miscellaneous premises reinspected—improvements made.....	-----	210	794	1,004
Health conferences attended.....	-----	14	72	86
Literature distributed (pieces).....	-----	418	2,428	2,846
Covered metal garbage cans procured.....	-----	370	424	796
Sanitary reports submitted.....	-----	127	669	826
Nuisances abated.....	-----	414	3,983	4,397

DIVISION OF DENTAL HYGIENE.

CHARLOTTE S. GREENHOOD, Supervisor.

The Division of Dental Hygiene was created May 25, 1921, by a special act of the legislature (Senate Bill No. 222), with an appropriation of \$15,000.00 for the biennium, with powers as described in section 2, of chapter 412, as follows:

"Sec. 2. This Division shall have the power under the direction and supervision of the State Board of Health to investigate conditions of dental hygiene affecting the health of the children of this state and to disseminate educational information relating thereto; provided, however, that nothing in this act shall be construed as giving the said Division of Dental Hygiene the power to force compulsory dental examination of children. * * *

The staff consists of a full-time salaried supervisor and a half-time stenographer. The supervisor was appointed officially on September 6, 1921.

The Division of Dental Hygiene was established through the efforts of the dental profession and the leading social and welfare organizations throughout the state.

The Educational Committee of the California State Dental Association, which ceased its activities when this division was established, willed its equipment to this new department. This consisted of their files and a limited amount of exhibit material, as well as a supply of desk-copy literature.

As intended by the law, which dictates the functions of the division, the program of the past year has been based upon an educational plan, involving particularly the welfare of the child. The problem dealt with is the prevention of dental diseases, which are more prevalent than any other known disease, and which, as we all know, interfere with the health and normal development of children. The prevention of mouth diseases requires a thorough, adequate and persistent educational program.

The past year has been devoted, not only to the organization and creative work, from headquarters, but also to the educational work in the field. Therefore, the division has concerned itself in the dissemination of educational and instructive material on the prevention of mouth disease, to the great numbers of school children in California, upon whom the whole health movement is focused, and has also worked with that large group of persons and organizations, professional and otherwise, upon whom we most depend for authority, cooperation and support, namely, the parents and school officials (teachers, principals, superintendents, boards, etc.), the health officials, the dental, medical and nursing professions, the parent-teacher organizations, Red Cross, tubercular associations, mothers clubs, Rotarians, etc.

As in all new projects undertaken, much pioneer work was necessary. Although this division has been functioning but ten months, we have been able to reach about 27,000 school children and adults by oral instruction and lectures.

A great part of the field work has been done in response to the large number of requests that have been received from all parts of California. These requests come mainly from public health and school nurses—and the nature of the requests vary from an invitation to lecture on dental

hygiene, and to investigate dental clinics, to appeals for advice, direction and assistance. There may be a need to create an interest in the community in favor of a school dental clinic and to assist in selecting the proper equipment for such, or the request may be to guide enthusiasm and interest in the establishment of dental hygiene programs in the schools. Not a few times this division has been called upon to act as arbitrator between two or more factions working in favor of a dental clinic or a program, but where harmony and cooperation were lacking.

All requests that have been sent to this office within a reasonable time before the Supervisor has visited the territory, have been fulfilled. Lectures have been given and visits have been made in widely distributed parts of the state, including the following counties: Shasta, Stanislaus, San Benito, Sacramento, Sonoma, Santa Clara, San Francisco, Los Angeles, San Diego, Orange, Riverside, San Bernardino, Fresno, Contra Costa, San Mateo and Alameda.

Through the cooperation of the Educational Committee, the supervisor was loaned to the State Board of Health last year, before this division was functioning, and visits were made to the following counties, thus permitting the supervisor to survey the territory and make contacts which have been most valuable in the work this year: Siskiyou, Modoc, Trinity, Lassen, Tehama, Butte, Glenn, Colusa, Nevada, Placer, El Dorado and Amador.

Oral Hygiene Week.

In several counties oral hygiene programs were held. The first county in the state to conduct such a program was Contra Costa, where excellent cooperation was extended by the dental profession there, as well as the county nurses and school officials. The program occupied about nine days, and celebrations and campaigns were carried on in every community of any size in the county. Contra Costa County goes on record as having supplied every school child with a tooth brush and with a knowledge of its proper use. During oral hygiene week, nineteen dentists who are members of the Contra Costa Dental Society, volunteered their services to examine the school children of one district, and practically every school child enrolled was examined. Since this campaign, Contra Costa County has been able to convince authorities of the necessity of a dental hygienist, and one has been appointed for the next school term. A traveling prophylactic dental clinic is already established, and the dentists of the county are giving their services.

A similar campaign was carried on in Fresno County, where excellent cooperation was extended by the preventive section of the San Joaquin district dental society.

Oral hygiene week programs have become popular throughout the state since the demonstration in Fresno and Contra Costa counties, and many are being planned for the next school term.

Literature.

In March, 1922, the first bulletin of the division was published. This pamphlet on "The Care of the Teeth" has been widely distributed all over the state, and at the present writing our third order for 5000 pamphlets is at the state printing office. The distribution of these pamphlets has proven a great aid to the communities, since it is almost

impossible for a community to publish its own educational literature. Thus, through the distribution of our pamphlets, this Division has been able to reach thousands of children and adults who would otherwise receive no instruction on the proper mouth hygiene as a preventive for mouth disease. The federal government has been very liberal in assisting this division in the distribution of literature by supplying three very excellent pamphlets dealing with the subject of the care of the teeth.

Motion Pictures and Exhibits.

Three films, two of which were purchased by this division, and one willed to it by the Educational Committee of the California State Dental Association, have been in almost constant use throughout the past year. These have been seen by thousands of school children and adults over the state. Our motion pictures are sent out in response to requests without expense to the communities.

Exhibits, instructive in nature, are in very great demand, especially in the rural districts where the public health nurse or school officials have difficulty in securing educational material. It has been thought worth while, therefore, to encourage the rural districts in their eagerness to make available to their school children and the parents this knowledge, and practical and simple instruction in the form of an exhibit on dental hygiene has been provided. These exhibits are portable in nature, and consist of a small screen upon which are pictures describing the proper technique of brushing the teeth, and the progress of dental decay and other defects. In addition, there is a large demonstration model and tooth brush, which the instructor can use in talking to groups. Stereopticon slides and pamphlets are also included. All of this material can be shipped in a small-size suitcase, within short notice. At least three hundred requests for exhibit material, posters, literature, motion pictures, etc., have been filled since the first of the year.

An endeavor is made to place exhibits on mouth hygiene at the County Fairs, certain state and municipal functions, and at all important social and welfare conventions. In the past year, exhibits have been displayed at the following places: Health Officers' Convention, Santa Monica; Southern California State Fair at Riverside; Social Agencies Conference, San Diego; National Dental Association meeting at Los Angeles, and several others.

Recently the division has added to its equipment a portable dental chair and engine. Throughout the year many requests are received from isolated districts for portable dental units. These districts have no way of demonstrating the value of a dental clinic without securing such equipment from outside sources. In the short time that this equipment has been in use, it has been instrumental in assisting several communities in establishing traveling dental clinics for next year.

Questionnaire.

Three sets of questionnaires have been issued by the division this year. One has been sent to every county in the state to determine the existence of operating school dental clinics. Another has been sent to all accredited hospitals in the state, to determine whether instruction is being given to nurses on dental hygiene, and if a dentist, resident or consulting, is on the staff of the hospital. A third questionnaire has

been sent to all child-caring institutions in the state, to determine whether these institutions are providing dental service for their inmates.

The results of these questionnaires show that while there is much interest evidenced in favor of mouth hygiene, many communities are helpless, and petition this division for guidance and assistance in what many declare one of their most difficult health problems.

The surveys and observations of the division during the past year have emphasized again certain facts, which, although apparent to some who are struggling with the problem of dental disease, do not seem to be recognized fully by many who are confronted with the prevention of dental disease and upon whom we are dependent for successful health programs.

First: Mouth diseases are probably not more prevalent today than before we began aggressive health educational programs. That they are thought to be more prevalent and that the problem of relief seems more acute, is due to the closer observation given the child of today by the dentist and public health nurse.

Second: There is a serious lack of dental service of any kind available to the child, no matter whether he is "rich" or "poor." The ratio of population to dental practitioner increases as years go on, so that the future holds no very definite relief as far as more plentiful dental service is concerned.

Third: While the corrective dental clinic is necessary for the relief of pain and for the restoration of lost dental tissue, it has not proven itself efficient in the control or the prevention of mouth diseases.

Fourth: The preventive dental program is not understood, and its value is therefore underestimated by educators and health officials. There is more effort being spent in establishing clinics to fill teeth than in encouraging prophylactic clinics, which will eliminate fillings by preventing the decay in the first place.

Fifth: The rural districts present the greatest difficulty. Where the public health nurse has the cooperation of the dentists and organized women, she is meeting the dental problem in part, but the nurse who has no dentist in the territory for miles around, and lacks perhaps the interest and cooperation of both the parents and the teachers, presents a problem so acute that it is almost pitiful. To this nurse, who has been brave enough to accept the responsibility given her, we owe not only our support but some definite means of relief.

In order to fulfill the purpose for which the Division of Dental Hygiene was created, and to merit the confidence placed in us by the great numbers of workers cooperating with us, it will be necessary to enlarge upon those plans and policies already begun. Our problem will, therefore, be:

(1) To provide more assistance in the field. To meet the ever increasing demands, the staff of this division will have to be increased. More lecturers and organizers, and a full-time stenographer will be needed.

(2) To continue to cooperate with and stimulate greater interest among the dental profession, upon whom communities must depend for service, advice and cooperation, personal contact and visits to district dental societies are being planned.

(3) To inform qualified young women of the possibilities of the dental hygienist profession and to encourage them to enter the public health field in order to meet the problem of the prevention of mouth disease.

(4) To encourage counties and municipalities to focus attention on preventive programs of their own, thus relieving the state, in time, of this responsibility.

(5) To cooperate with women's organizations and to stimulate their interest and support.

(6) To investigate and make plans for the industrial dental clinics program.

(7) To increase literature and exhibit material for child and adult instruction.

The state has assumed a responsibility in creating the Division of Dental Hygiene. While it might encourage correction of oral disorders as means of alleviation of pain of the present generation, its greatest function is not that alone. The corrective dental clinic can only partially relieve the thousands of aching teeth today. Education can prevent this suffering among thousands of children of tomorrow.

To be scavengers of disease and waste should *not* be our purpose, but rather to be protectors of health and happiness and progress.

Oral diseases *can* be prevented, and it is the policy of this division to assist in making this possible.

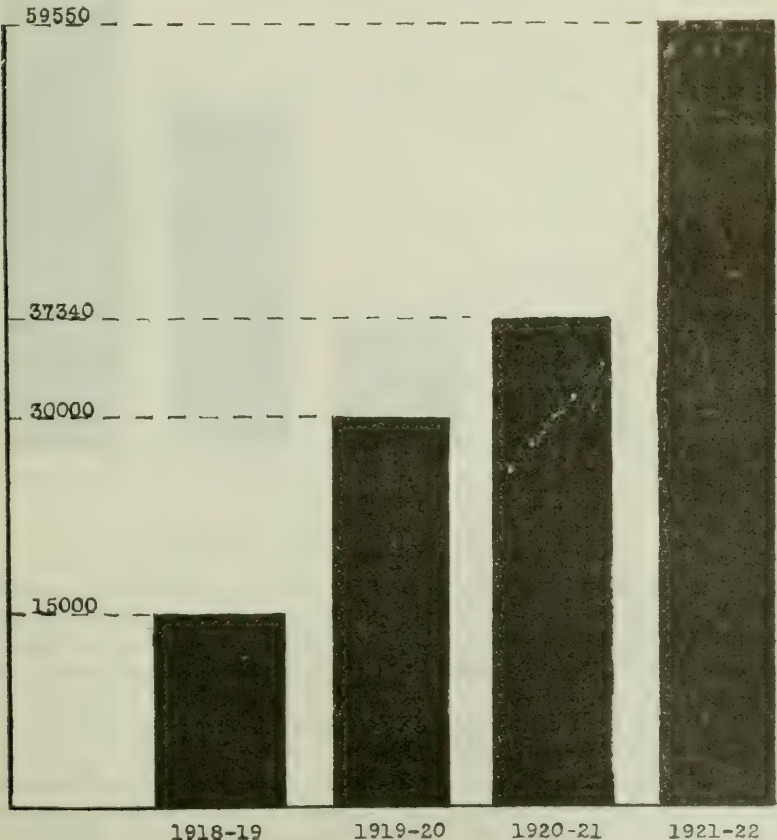
REPORT OF THE STATE HYGIENIC LABORATORY.
FOR THE BIENNIAL PERIOD, 1920-1922.

W. H. KELLOGG, M.D., Director. •

Laboratory and Clerical Staff.

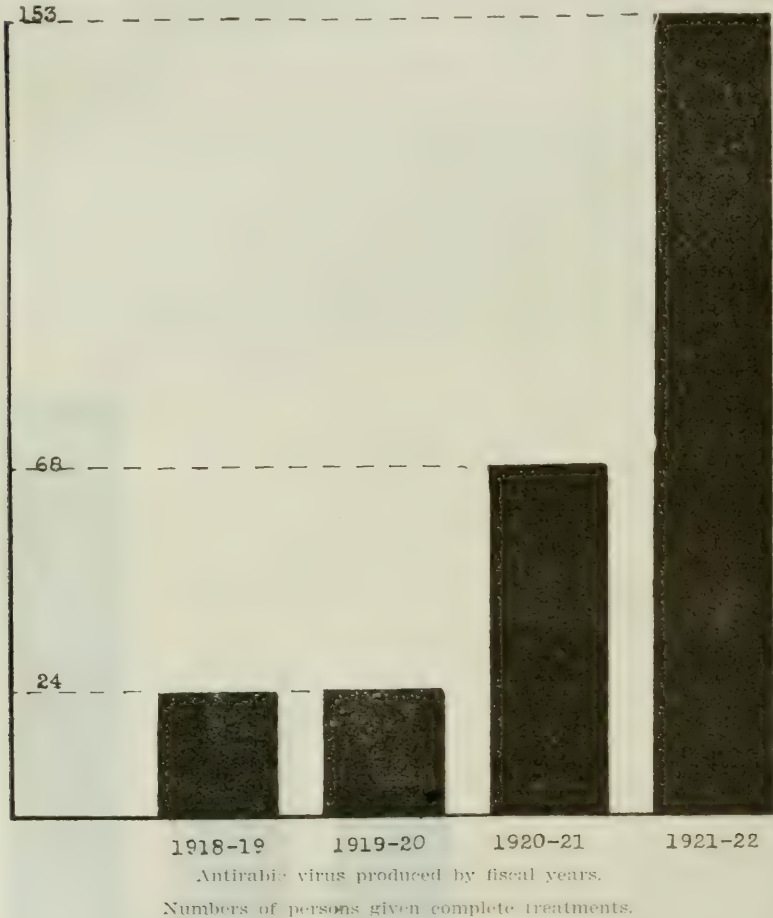
KARL F. MEYER, D.V.M.	.....	Consulting Bacteriologist
ALICE POTTER, A.B.	.....	Bacteriologist
AGNES WALKER, M.D.	.....	Bacteriologist
L. AMY WELLS, A.B.	.....	Bacteriologist
MARGARET OLMSTED, M.A.	.....	Bacteriologist
J. R. SNYDER, M.D.	.....	Bacteriologist
LUCY POWERS	.....	Assistant Bacteriologist
SAM B. RANDALL, A.B.	.....	Technician
MRS. E. H. RANDALL	.....	Laboratory Helper
SINA A. VENA	.....	Laboratory Helper
FLORENCE B. SHACKELFORD	.....	Clerk
GRACE D. DODGE	.....	Clerk
MARGARET SMITH	.....	Stenographer

In the biennial report for the fiscal years July 1918, to June 30, 1920, attention was directed to the rapid growth of the hygienic laboratory, the first year of this period showing a record in excess of 15,000 examinations and the second year over 30,000, or an actual doubling of the work. This phenomenal growth has continued, as shown by the following diagram:



Increase in diagnostic examinations by years.

The number of examinations made during the last half of the period covered by this report was nearly 60,000 and this figure represents a volume of work in excess of the apparent showing of the figures for the reason that there has been an increase in those examinations requiring time, such as the Wasserman test. The output of the division of preventive therapeutics represented by antirabic treatments has increased enormously and this work is not represented in the examination totals. See diagram.



The cost of conducting the laboratory has not advanced in anything like the same ratio; in fact, it can not be said to have advanced at all. The clerical staff remains the same, one additional bacteriologist has been added and a little more money has been expended on student help on an hourly basis for unskilled work.

The salary roll for the permanent staff was \$1106 per month in 1920 and it is \$1233 as of June 30, 1922.

This economy of operation in the face of a 300 per cent increase of work has been accomplished in two ways: First, by holding down salaries; it will be observed by consulting the salary roll that, besides the

director, only three names that were on the 1920 roll are still on the 1922 roll. Two of these are employees whose time and responsibility for payment of salary are shared by another bureau. Therefore, there is actually only one permanent employee of the laboratory, besides the director, who was here two years ago. Second, by the installation of an office system, including special carbon copy report forms that has spared the department the necessity of employing at least one additional stenographer. It is plainly evident at the present time that this economy has reached the limit of its possibilities and another stenographer is now badly needed. The separation of communicable disease control from the laboratory has, of course, enabled the director to devote a little more time to laboratory work, thus lessening the strain on an inadequate staff.

A state laboratory should be more than a mere diagnostic laboratory; it should be of assistance to municipal laboratories by acting as a clearing house and testing headquarters for the many advances that are being made in the field of bacteriology, and its policy should be the encouragement and building up of local laboratories, so that ordinary routine work may be cared for by them and the state relieved of as much work as possible. The state laboratory should be in a position to assume responsibility for the more difficult procedures that frequently are not attempted in municipal laboratories, and consequently go undone to the detriment of the public health. Examples are virulence tests in diphtheria and the detection of typhoid carriers. A certain amount of research work is necessary if the laboratory is to occupy a position of leadership in standard methods among the laboratories of the state. At least one worker should be available at all times for special problems. Such desirable conditions do not exist at present, but even with all our handicaps it has been possible in the period covered by this report to put forth a few contributions to the advance of our work, principal among which may be mentioned a study of the Wasserman test that has resulted in the conviction that we are using a method that is absolutely free from false positives and that is sensitive enough to catch any positives that will show by any other *safe* method.

Another piece of work was the development of a new test for diphtheria susceptibility and immunity, which has certain advantages in accuracy over the Schick test, and which opens the way to a service by the family practitioner to his patients which has been lacking heretofore. The test which was fully described in the *Journal A. M. A.*, June 10, 1922, Vol. 78, pp. 1782 and 83, can be performed in any laboratory with small quantities of blood from the persons to be tested, which may be sent any distance by mail, as in the Widal test for typhoid fever.

The clear serum from these blood specimens is mixed in the laboratory with a definite quantity of diphtheria toxin, which has been carefully standardized on the L+ basis, and the mixture injected intracutaneously into the skin of a white guinea pig. The guinea pig is not susceptible to the proteins of diphtheria toxin, hence there are no confusing pseudo reactions. The reaction is sharp and clear cut and can be read sooner than a Schick test.

This test, while not expected to displace the Schick test where large numbers of children are to be tested at one time, will, it is believed, find a field of its own in checking up atypical Schicks, and will be particularly welcomed by the practitioner who wishes to make an occa-

sional test of one or two individuals at a time. For such use the Schick is not suitable because it is necessary to have absolutely fresh material, diluted at the time of use, and there is no control against false negatives from deteriorated toxin, such as one has in applying the Schick test to a large group. Here an unusual number of negatives would arouse suspicion. There is also the possibility of false positive Schicks, which recent experience with the new test has shown to occur. Study of this phase of the subject is now under way and the results will be embodied in a paper to be published during the coming year.

HYGIENIC LABORATORY.

DIAGNOSTIC EXAMINATIONS.
July, 1920, to December, 1920, inclusive.

	July		August		September		October		November		December		Total
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	
Anthrax	1	1	1	1	1	1	1	1	2	2	2	2	10
Diphtheria	236	743	170	575	312	1,310	236	1,350	380	1,614	395	1,764	7,356
Diphtheria (virulence test)	1	1	1	1	1	1	1	1	3	5	3	4	11
Dysentery (excreta)	1	7	1	6	7	7	4	23	12	12	1	11	66
Dysentery (blood)	1	1	2	2	2	2	2	2	2	2	2	2	3
Gonococcus infection	45	132	42	136	53	192	70	193	75	275	50	245	1,173
Leprosy	1	1	1	4	6	34	3	28	2	27	2	16	9
Malaria	3	46	3	41	6	34	3	28	2	27	2	16	192
Meningitis	3	46	3	41	6	34	3	28	2	27	2	16	192
Paratyphoid (alpha)	1	1	1	1	3	3	2	2	2	1	1	4	11
Paratyphoid (beta)	1	1	1	1	3	3	2	2	2	1	1	4	11
Paratyphoid (alpha)	1	1	1	1	3	3	2	2	2	1	1	4	11
Paratyphoid (beta)	1	1	1	1	3	3	2	2	2	1	1	4	11
Paratyphoid (excreta)	1	1	1	1	2	2	2	2	2	2	2	2	2
Paratyphoid (Widal)	1	1	1	1	2	2	2	2	2	2	2	2	2
Plague	1	1	1	1	1	1	1	1	1	1	1	1	1
Polomyelitis	1	1	1	1	1	1	1	1	1	1	1	1	1
Rabies	4	5	7	14	4	7	6	6	9	12	11	24	68
Syphilis (Wassermann test)	133	1,052	149	983	205	1,042	193	1,036	214	1,072	222	1,146	6,331
Tuberculosis (spinal fluid)	40	179	44	185	48	169	55	170	40	181	43	191	1,075
Tuberculosis (sputum)	40	179	44	185	48	169	55	170	40	181	43	191	1,075
Tuberculosis (pus)	1	1	1	1	1	1	1	1	1	1	1	1	1
Tuberculosis (urine)	1	1	1	1	1	1	1	1	1	1	1	1	1
Tuberculosis (feces)	1	1	1	1	1	1	1	1	1	1	1	1	1
Typhoid (excreta)	18	18	1	11	30	30	8	92	4	62	1	18	231
Typhoid (Widal test)	28	124	44	126	34	103	39	110	31	85	5	44	592
Typhoid (blood culture)	2	3	1	1	4	4	1	4	1	1	1	1	7
Vincent's angina	1	1	1	1	4	4	1	1	1	1	1	1	7
Miscellaneous	2	2	2	2	1	1	1	1	3	3	3	3	22
	494	2,322	464	2,059	669	2,906	619	3,037	770	3,356	736	3,430	17,190

DIAGNOSTIC EXAMINATIONS—Continued.
January, 1921, to June, 1921, Inclusive.

	January		February		March		April		May		June		Total
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	
Diphtheria	295	1,746	390	1,507	273	1,294	395	2,105	244	1,094	313	1,185	8,731
Diphtheria (virulence test)			2	7	2	5	1	4	2	2	1	1	19
Dysentery (excreta)				1		11				1	1	6	19
Dysentery (blood)													1
Gonococcus (Fixation test)	1				35	157	35	146	28	181	36	180	1,014
Leprosy													1
Malaria	15			18		31	2	27	1	27		31	149
Meningitis	1						1	1					4
Paratyphoid (Widal test)	3												8
Rabies	4	18	7	14	9	24	4	16	7	17	5	24	113
Syphilis (Wassermann test)	177	1,162	105	1,213	192	1,515	231	1,839	248	1,228	244	1,245	7,702
Tuberculosis (spinal fluid)	1			2									3
Tuberculosis (sputum)	59	225	48	175	55	205	50	210	45	195	47	203	1,213
Tuberculosis (urine)			1	1		1				1			3
Typhoid (excreta)	4	52	3	64	3	17	1	15		12		19	100
Typhoid (Widal test)	6	49	9	44	11	78	10	47	6	51	20	89	358
Miscellaneous				9		20		7		6		4	48
Pasteur treatments (inoculations)								242		237		155	634
	549	3,418	569	2,981	580	3,358	700	4,160	581	3,052	674	3,151	20,120

DIAGNOSTIC EXAMINATIONS—Continued.
July, 1921, to December, 1921, Inclusive.

	July		August		September		October		November		December		Total
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	
Anthrax	1	1	1	2	2	2	2	2	2	2	2	2	6
Diphtheria	202	728	278	1,370	339	1,310	473	2,674	1,505	8,837	1,182	5,451	20,370
Diphtheria (virulence test)	2	3	1	4	3	6	2	3	13	13	18	38	67
Dysentery (excreta)	3	3	2	5	17	17	6	6	1	1	1	4	36
Gonococcus infection	35	133	30	160	37	164	33	177	52	210	30	143	993
Gonococcus (Fixation test)	1	1											1
Leprosy		1											1
Malaria		41		35	2	30	2	25	10	29	1	21	181
Meningitis		1		5		2							8
Paratyphoid (Widal test)	3	4	7	7	4	5		1		1			18
Plague		1											1
Rabies	1	5	6	14	3	14	2	11		8	4	9	61
Syphilis (Wassermann test)	210	1,298	316	1,284	315	1,297	292	1,423	268	1,509	260	1,401	8,122
Tuberculosis (animal inoculation)		1		1	1	2		2					5
Tuberculosis (sputum)	60	210	65	174	63	195	41	125	59	179	53	183	1,065
Tuberculosis (pus)	1	1											1
Typhoid (excreta)	4	52	3	64	6	74	1	31	1	21	2	17	259
Typhoid (Widal test)	28	116	46	136	23	115	17	78	19	74	17	52	571
Miscellaneous		2		4		11		17		12		12	58
Pasteur treatments (inoculations)		51		117		292		46		32		27	475
	546	2,593	757	3,382	801	3,446	863	4,619	1,928	10,927	1,567	7,358	32,300

DIAGNOSTIC EXAMINATIONS—Continued.
January, 1922, to June, 1922, Inclusive.

	January		February		March		April		May		June		Totals
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	
Anthrax	596	3,079	621	3,272	451	2,186	243	1,332	233	1,656	494	2,349	13,894
Diphtheria	8	14	11	14	15	44	5	5	6	13	10	52	142
Dysentery (blood)	36	220	26	127	31	165	30	158	27	207	42	209	1,094
Genococcus infection									1	1			1
Leprosy			2	8			2	21	2	37	4	24	117
Malaria		10				17							5
Paratyphoid (excreta)	9	12	6	15	10	16	8	17	10	16	15	30	106
Rabies	332	1,669	331	1,218	278	1,473	287	1,522	271	1,466	323	1,721	9,089
Syphilis (Wassermann test)	1	3		4			1	2					10
Tuberculosis (animal inoculation)	92	262	69	223	84	266	69	227	89	261	68	192	1,431
Tuberculosis (sputum)			1				1						1
Typhoid (excreta)		20	1	38			2	10	20	20	2	40	146
Typhoid (Widal test)	11	87	17	78	8	33	12	46	21	60	18	59	363
Miscellaneous		24		7		8				5			54
Pasteur treatments (inoculations)		235		66		83		203		217		387	1,191
	1,085	5,635	984	5,078	877	4,309	660	3,571	720	3,966	976	5,072	27,631

PREVENTIVE THERAPEUTICS.

Pasteur treatments for the prevention of rabies by the State Hygienic Laboratory :

	1920-21	1921-22
Main laboratory at Berkeley-----	28	17
Northern Branch at Sacramento-----	27	3
Southern Branch at Los Angeles-----	10	71
Laboratory of Los Angeles Health Department, by deputized bacteriologist-----	0	51
Laboratory of Pomona Health Department, by deputized bacteriologist-----	0	6
Laboratory of Pasadena Health Department, by deputized bacteriologist-----	0	3
Laboratory of Colfax Health Department, by deputized bacteriologist-----	0	2
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist-----	3	0
Totals-----	68	153

Vaccine issued by the State Hygienic Laboratory (triple typhoid-paratyphoid vaccine) :

Number of physicians to whom vaccine was sent-----	94
Amount of vaccine sent-----	8,988 cc.

Ophthalmia neonatorum prophylactic outfits distributed :

Number of outfits, containing two ampoules each issued-----	25,114
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THE DIVISION OF PARASITOLOGY.

CHARLES A. KOFOID, Ph.D., Sc.D., Consulting Parasitologist.

During this biennium attention has been given in the main to the routine examination for intestinal parasites in stools received from various physicians in the state and from infirmaries, hospitals and health centers. They are mainly of persons in ill health and in a physician's care. In all a total of 10,003 stools have been examined from 2581 persons. Of these 3572 stools of 984 persons were examined in the first and 6431 stools of 1730 persons in the second fiscal year, respectively.

The results of these examinations are tabulated in Tables I and II, which are based, respectively, on the numbers of examinations and on the numbers of persons examined. It will be noted that the average number of examinations per person rose from 3.63 in the first year to 3.72 in the second. The number of examinations increased from 3572 in the first year to 6431 or 8.4 per cent in the second, and the number of persons examined from 984 to 1730, or 75.8 per cent. The percentages of infection detected in the two years vary in part according to the sources of the material. In the first year more persons with overseas exposure to infection were examined than in the second year and the percentage of infection is higher in them than in the usual run of patients examined. The second year includes a larger number of examinations of persons who had previously received treatment for amoebiasis. These facts account in part for the decline in the percentage of infection by *Endamoeba dysenteriae* from 27.4 per cent in the first year to 13.1 per cent in the second.

Infections Encountered.

Among the 2581 persons examined for protist parasites, including the rhizopod, flagellate, and sporozoan Protozoa and the blastomycete Blastocystis and Phycomycete spore, there were 1671 or 62.7 per cent in-

fected with one or more protozoan parasites. Of this same number, 275 or 10.6 per cent were infected with worms.

Since these protozoan infections are acquired, in so far as our information extends, only by mouth, it is evident that our systems of public and household sanitation and of personal hygiene are far from perfect. It seems probable that the infected food handler and the dirty hand are the main sources of infection in our homes and that the fly may be an agent in spreading the cysts from infected faeces in country districts where sewage disposal is inoperative. The presence of infection among other members of families in which an infection had been detected in one is indicative of the operation of these or related factors in the maintenance and spread of these parasitic infections.

Blastocystis.

This parasite of the human bowel is most frequently met with, and one of the most abundant parasites found in the stools, attaining 45.3 per cent in the 2581 persons here reported. Its presence is indicative of faecal infection and its abundance is often great in disturbed intestinal conditions and in amoebiasis. It is an indication that thorough search for other infections should be made, though its presence adds to the confusion in the search.

Amoebic Infections.

Endamoeba dysenteriae (Councilman and Lafleur).

This is widely known as *E. histolytica* Schaudinn, the etiological factor in tropical amoebic dysentery and in the wider sense of its pathogenic capacities, of human amoebiasis. We attribute the relatively high percentage of infection recorded here, 20.1 per cent in 2581 persons, to a combination of factors, among which are the selected group of persons examined (in physician's care), often with intestinal symptoms, the overseas exposures of some of them during the war, the contributions from the tropics and the Orient, and to our policy of repeated examinations in suspected cases. The experience gained has also been of assistance. The total number of examinations made during our work in the United States Army and in the California State Board of Health to June 1, 1922 was 17,089.

Endamoeba coli (Loesch) and *Councilmania Lafleuri* (Kofoid and Swezy).

This non-pathogenic species is unequally represented in the records of the two years in the tables owing to the fact that *Councilmania lafleuri* was first distinguished from true *E. coli* in the latter part of the first year. The records of the second year represent more truly the relative proportions of these two amoebae, namely, 180 or 10.4 per cent for *E. coli* and 138 or 7.9 per cent for *Councilmania lafleuri*.

Endolimax nana (Wenyon and O'Connor).

This is the commonest of the intestinal amoebae of man, 30.3 per cent in 2581 persons examined. It often disappears from the stools after treatment for amoebiasis, but sometimes soon recurs.

Iodamoeba buetschlii (Prowazek).

This species is apparently non-pathogenic and relatively very rare, occurring in only 45 cases or 1.7 per cent in 2581 persons.

Dientamoeba fragilis Jepps and Dobell.

This is the rarest of the amoebae listed in our records, only five cases having been encountered. There is no evidence of pathogenicity on its part.

Flagellate Infections.*Giardia enterica* (Grassi).

This is the most frequent flagellate infection in our records, 5.1 per cent in 2581 persons. In the stools it is also the most abundant in individuals of all the flagellates, excepting in some cases of *Pentatrichomonas*.

Chilomastix davainci.

This species is next in abundance to *Giardia*, and is more frequently met with in the active stage than is *Giardia*. The cysts occur less regularly and, as a rule, less frequently. The percentage of actual infection is perhaps not fully represented in our records in consequence of the proportion of stools which are several days old when received at our laboratory. In such stools the active flagellates have usually disintegrated and the infection, in the absence of cysts, escapes detection. A saline purge helps to bring this infection to light, as it tends to increase the discharge of active flagellates.

Trichomonas hominis (Davaine).

The absence of cysts of this reputed common parasite in the stools of man tends to reduce the number of infections detected for the reasons above stated. It is rarely abundant except in disturbed intestinal conditions and has often been, and still is, confused with *Chilomastix* in some medical literature and clinical examinations. There appears to be no evidence of pathogenicity on the part of this species in this locality.

Pentatrichomonas arden delteili (Derrieu and Raynaud).

This five flagellated trichomonad has been described from Algiers and Calcutta as pathogenic. Four cases only have come to our attention, two of which were coincident with very serious intestinal conditions not attributable at that time to bacillary or amoebic dysentery. The species ran true to the morphological type, with five anterior flagella in one case examined for several weeks. The numbers of the flagellates present were very great. It is desirable that careful identification be made of the trichomonad flagellates in all cases of diarrhea and dysentery, in which these parasites occur *in abundance*, with a view to the more definite determination of the species and the possible relation of *Pentatrichomonas* to the clinical conditions attending the infection.

Craigia hominis (Craig).

This parasite, which occurs in both the amoebic and flagellate phases in the stools, has been found in ten persons in the past biennium, in

each instance with a clinical history of intestinal trouble. The infection has been detected at widely separated intervals in the same person and is not, as some have suggested, a mixture of an amoebic and a distinct flagellate infection. It is rather a distinct entity, with the morphology of the flagellate but with also an amoebic phase with strong indications of pathogenicity as originally described by Colonel Craig from Manila.

Sporozoa.

Isospora hominis (Rivolta).

A single case of this rare infection of man in a native of Modoc County was detected.

Ciliata.

Balantidium minutum (Schaudinn).

One case of infection by this parasite was detected in a patient with intestinal symptoms under treatment.

Intestinal Worms.

Hookworm.

The identification of the species of hookworm from the ova, only which are found in the stools, is fraught with such uncertainty that we have recorded the infection as "hookworm" only, without specification of the genera *Ancylostoma* and *Necator*. Both of these genera occur in California. The former occurs among the miners of the Mother Lode and the latter in immigrants from Southern states. Both may occur in persons of tropical or Oriental residence. The sources of this notorious parasite of man in California are threefold—the Oriental races, the immigrants from Southern and especially Southeastern Europe, and from Southern states and Mexico. Several instances of endemic infection not traceable to these sources have occurred in our records.

Schistosoma.

The two records of these blood flukes were both in persons of Oriental residence. It is an important sanitary precaution that such infections be eradicated in view of the possibility that these dangerous infections might become established in the fresh water snails of California. The occurrence of snails in the Delta region and in the irrigation ditches increases the hazard. The infective cercariae escape from snails into the water and enter man by penetrating the skin. Not only man but certain domestic animals may thus become infected. The snail acquires the infection from infected human or animal dejecta which may be discharged or washed into the water.

Fasciola hepatica (Linnaeus).

The liver fluke of the sheep occasionally occurs in man. The single case recorded here is that of a Portuguese woman from Hawaii who fourteen years before had cared for sheep in Portugal. The fluke was removed from the gall bladder by operation by Dr. Adams of Oakland. The case is interesting as indicating a prolonged life (at least fourteen years) of this parasite in the liver or gall bladder.

Results Attained.

The work of this division has been supplemented by funds from the University of California Infirmary, by a grant from the Board of Research of the university, by a grant from the Carnegie Institution, and by private gifts. This has made possible the carrying of the heavy burden of over 10,000 routine examinations and the completion of certain research projects.

It is not feasible in this report to do more than summarize certain conclusions arrived at in these researches and from the not inconsiderable mass of significant data pertaining to intestinal parasitic infections.

Our statistical evidence suggests the following conclusions and inferences:

(1) There is a considerable number of cases of human amoebiasis to be found among patients with intestinal symptoms and of ill health of obscure origin in which there may be no history of dysentery.

(2) These persons may never have resided or traveled in the tropics, Orient, or Southern states. There are some endemic infections without record of possible foreign origin.

(3) Travel and residence in the tropics, especially China, Japan, the Philippine Islands, Mexico, Central America, Panama, Egypt, the Near East, and to a less extent in the Hawaiian Islands and the Southern states favor infection by intestinal parasites, especially by intestinal Protozoa (*Endamoeba dysenteriae*) and hookworm.

(4) Soldiers and social workers returned from service on the Western front during the late war and social workers and others returned from the Near East have a higher percentage of infection than other groups.

(5) There is some evidence that these infections tend to spread within the family and the household, and that they are favored by institutional or other associations.

(6) Diagnosis of human amoebiasis should be based generally upon finding undoubted cysts of *Endamoeba dysenteriae* in the stools. It is very difficult, even for experienced protozoologists to distinguish this species in all its phases from other amoebae in the motile phase, and even stained smears of these motile stages require experience with like stages of other intestinal amoebae for critical diagnosis. Diagnosis and treatment should rest upon the clearly established presence of *Endamoeba dysenteriae*, the known pathogenic species, and not merely upon "amoebae" or "amoebic cysts" without specific determination.

(7) A single examination is inadequate to establish a negative. Six successive examinations are desirable to indicate a probable negative. Prolonged successive examinations, or repeated groups of six examinations should be used in cases where the clinical history creates a suspicion of amoebiasis. Multiple infections by various protozoans often accompany infection by *Endamoeba dysenteriae*. A saline purge sometimes uncovers the infections, especially by flagellates.

(8) Coincident occurrence of amoebiasis of the intestine (infection by *Endamoeba dysenteriae*) with Hodgkin's disease has been detected in eight of twelve cases examined by us, some of the negatives having received but a single examination. Amoebae have been found by us in an excised inguinal gland from a case of Hodgkin's disease. Identification of amoebae in this gland rests upon the type of mitosis and the number of chromosomes.

(9) Intestinal amoebiasis accompanies some cases of Arthritis. In one case diagnosed by Ely as his second type of Arthritis deformans we have found amoebae in the areas of destruction of cancellated bone in the excised head of the femur. The identification of the amoebae rests upon the type of mitosis and the number of chromosomes.

(10) We have differentiated in human stools from the non-pathogenic amoeba, generally known as *Endamoeba coli*, a new genus and species of amoeba, *Councilmania lafleuri*, differentiated by nuclear structure and by the prevalence of budding stages in the stools, marked in some cases by chromophile ridges in the cyst. It can be readily differentiated from *Endamoeba coli* in stained slides by the diffusely granular structure of the large karyosome in the nuclei of the cysts, the centrally grouped, less splinter-like chromatoidal bodies, the larger size and often ellipsoidal shape of the cyst. The chromophile ridges are not wrinkles on the cyst wall and the budding is not induced by maltreatment or pressure. It occurs in fresh stools fixed intact and sectioned. Infection by this amoeba is nearly as frequent as that by *Endamoeba coli* and the individuals are generally much more abundant than in that species. Clinical study is needed to determine possible pathogenicity.

A list of papers published from this laboratory during the biennium is appended.

Much Needed Extensions of the Work.

The renewal of gold mining since the war again brings up the desirability of action by the State Board of Health in cooperation with the miners and mining interests in stamping out hookworm infection among miners in the Mother Lode. This can be done by systematic examination and certification of all persons entering the mines and the treatment until cured of infected persons. This feature and the establishment and maintenance of sanitary systems of disposal of faeces in the mines is essential in the elimination of hookworm as an occupational disease which undermines the health of the worker and menaces the health of the community. For this work a field agent is needed on full time.

The determination of the extent to which parasitic infections of children are contributory to delay and suppression of mental development in the period of school life is one which should be undertaken both in the interests of the progress of the child and of standards of school work.

Our investigations and those of Myers and of Waite on the retardation of intellectual development associated with hookworm have shown clearly that hookworm infection is attended by definite retardation of intelligence resulting in about 25 per cent subnormality in army recruits with mild infections and up to as much as six years mental age in case of Australian school children.

It is not improbable that some other intestinal infections may be similarly implicated in subnormal health and mental retardation of school children. Surveys of backward children to detect infections, and to determine the extent and degree of recovery of normality after cure, of known pathogenic infections when found, are much needed. For this work an additional laboratory helper is needed.

Personnel.

The personnel has been limited owing to lack of funds to one laboratory technician, a part only of whose salary is paid by the State Board

of Health. Since January, 1922, this position has been ably filled by Miss Inez Smith. Student helpers employed by the hour have assisted in helminthological examinations and in the preparation of stained smears which are made in all cases of positive reports for amoebiasis. The board has received the gratuitous services of Dr. Olive Swezy, to whose skill in making difficult diagnoses of infections by intestinal Protozoa much credit is due.

TABLE I.

Statistical Summary of Fecal Examinations for Protozoa and Worms Made in the Division of Parasitology, Bureau of Communicable Diseases, California State Board of Health, for the Biennium, July 1, 1920, to June 30, 1922.

CHARLES A. KOFOID, Consulting Parasitologist.

	1920-21	1921-22	1920-22
Total number of fecal specimens examined.....	3,572	6,431	10,003
Total number of examinations for protozoa.....	3,572	6,431	10,003
Total number of examinations for worms.....	3,572	4,486	8,058
Total number of positive examinations for protozoa.....	1,663	3,068	4,731
Total number of positive examinations for worms.....	197	329	526
Amoeba:			
Endamoeba dysenteriae.....	417	516	933
Endamoeba coli.....	280	428	708
Endolimax nana.....	673	901	1,574
Iodamoeba buetschlii.....	28	88	116
Councilmania laffeyi.....	85	366	451
Dientamoeba fragilis.....	1	4	5
Flagellates:			
Giardia enterica.....	111	231	342
Chilomastix davainei.....	134	181	315
Trichomonas hominis.....	61	78	139
Craigia hominis.....	3	22	25
Pentatrichomonas arden delteili.....	3	18	21
Enteromonas hominis.....	1		1
Embdomonas intestinalis.....		4	4
Other organisms:			
Isospora hominis.....		3	3
Balantidium minutum.....		1	1
Blastocystis hominis.....	912	2,004	2,916
Phycomycete spores.....	46	3	49
Trematodes:			
Schistosoma japonicum.....		3	3
Schistosoma mansoni.....		3	3
Paragonimus ringeri.....		1	1
Fasciola hepatica.....		1	1
Cestodes:			
Hymenolepis nana.....	4	2	6
Hymenolepis diminuta.....		1	1
Taenia saginata.....	12	9	21
Nematodes:			
Hookworm.....	28	64	92
Ascaris lumbricoides.....	6	7	13
Oxyuris incognita.....	28	84	112
Oxyuris vermicularis.....	10	16	26
Trichuris trichiura.....	63	144	207
Strongyloides stercoralis.....	4		4
Trichostrongylus orientalis.....	3	21	24

TABLE II.

Statistical Summary of Persons Examined for Protozoa and Worms in the Division of Parasitology, Bureau of Communicable Diseases, California State Board of Health, for the Biennium, July 1, 1920, to June 30, 1922.

CHARLES A. KOFOID, Consulting Parasitologist.

	1920-21	Per cent	1921-22	Per cent	1920-22	Per cent
Number of persons examined.....	984	-----	1,730	-----	2,581	-----
Number of persons examined for protozoa.....	984	-----	1,730	-----	2,581	-----
Number of persons examined for worms.....	984	-----	1,730	-----	2,581	-----
Number of persons positive for protozoa.....	663	67.3	1,050	60.6	1,621	62.7
Number of persons positive for worms.....	105	10.6	173	10.	275	10.6
Amoebæ:						
Endamoeba dysenteriae.....	270	27.4	259	14.9	520	20.1
Endamoeba coli.....	157	15.9	180	10.4	332	12.8
Endolimax nana.....	367	37.2	459	26.4	783	30.3
Iodamoeba buetschlii.....	15	1.5	32	1.8	45	1.7
Councilmania laffeurii.....	23	2.2	138	7.9	169	6.5
Dientamoeba fragilis.....	1	.1	4	.2	5	.1
Flagellates:						
Giardia enterica.....	50	5.	88	5.	132	5.1
Chilomastix davainei.....	43	4.3	77	4.4	116	4.4
Trichomonas hominis.....	25	2.5	24	1.3	48	1.8
Craigia hominis.....	3	.3	8	.4	10	.3
Pentatrichomonas arden delteili.....	3	.3	2	.1	4	.1
Enteromonas hominis.....	1	.1			1	.03
Embadomonas intestinalis.....			3	.17	3	.1
Other organisms:						
Isospora hominis.....			1	.05	1	.03
Balantidium minutum.....			1	.1	1	.03
Blastocystis hominis.....	434	44.1	212	46.9	1,180	45.3
Phycomycete spores.....	47	4.7	2	.1	48	1.8
Trematodes:						
Schistosoma japonicum.....			1	.05	1	.03
Schistosoma mansoni.....			1	.05	1	.03
Paragonimus ringeri.....			1	.05	1	.03
Fasciola hepatica.....			1	.05	1	.03
Cestodes:						
Hymenolepis nana.....	6	.6	1	.05	7	.2
Hymenolepis diminuta.....			1	.05	7	.2
Taenia saginata.....	6	.6	6	.3	12	1.2
Nematodes:						
Hookworm.....	22	22.3	26	1.5	47	1.8
Ascaris lumbricoides.....	5	.5	7	.4	12	1.2
Oxyuris vermicularis.....	9	.9	12	.6	21	.8
Oxyuris incognita.....	25	2.5	63	3.6	88	3.
Trichuris trichiura.....	38	3.8	66	3.2	100	3.8
Strongyloides stercoralis.....	2	.2			2	.07
Trichostrongylus orientalis.....	3	.3	10	.5	13	.5

LIST OF PUBLICATIONS FROM THIS DIVISION JULY 1, 1920-JUNE 30, 1922.

Bercovitz, N.

1922. Chlorinated lime and cysts of human intestinal parasites. Journ. Amer. Med. Assoc., **78**, 1388-89.

Kofoid, C. A.

1920. Hookworm and amoebiasis in California. Calif. State Journ. of Med., **18**, 329-332.
1921. Sanitary entomology, the entomology of disease, hygiene, and sanitation. Edited by William Dwight Pierce. (Review.) Amer. Journ. Trop. Med., **1**, 409-412.

Kofoid, C. A., Boyers, L. M., and Swezy, O.

1922. *Endamoeba dysenteriae* in the lymph glands of man in Hodgkin's disease. Univ. Calif. Publ. in Zool., **20**, 307-312, 4 figs. in text.
1922. Occurrence of *Endamoeba dysenteriae* in the lesions of Hodgkin's disease. Journ. Amer. Med. Assoc., **78**, 1604-1607.

Kofoid, C. A., and Swezy, O.

1920. On the prevalence of carriers of *Endamoeba dysenteriae* among soldiers returned from overseas service. New Orleans Med. and Surg. Journ., **73**, 4-11.
1921. The flagellate infections of the human digestive tract. Nelson's Loose Leaf Encyclopedia of Living Medicine, **4**, 365-395, 6 pls. in text.
1921. On the free, encysted, and budding stages of *Councilmania lafeuri*, a parasitic amoeba of the human intestine. Univ. Calif. Publ. Zool., **20**, 179-189, pls. 18-22, 3 figs. in text.
1921. *Councilmania lafeuri*, a new amoeba of the human intestine. Proc. Soc. Exper. Biol. Med., **18**, 310-312.
1922. On the occurrence of *Endamoeba dysenteriae* in bone lesions in arthritis deformans. Calif. State Journ. of Med., **20**, 59.
1922. Mitosis and fission in the active and ensysted phases of *Giardia enterica* (Grassi) of man, with a discussion of the method of origin of bilateral symmetry in the polymastigote flagellate. Univ. Calif. Publ. in Zool., **20**, 199-234, pls. 23-26, 11 figs. in text.
1922. Mitosis in *Endamoeba dysenteriae* in the bone marrow in arthritis deformans. Univ. Calif. Publ. in Zool., **20**, 301-307, 7 figs. in text.
1922. Amoebiasis of the bones. Journ. Amer. Med. Assoc., **78**, 1602-1604.

Kofoid, C. A., Swezy, O., and Boyers, L. M.

1922. The coexistence of Hodgkin's disease and amoebiasis. Journ. Amer. Med. Assoc., **78**, 532.
1922. The coexistence of Hodgkin's disease and amoebiasis. Journ. Amer. Med. Assoc., **78**, 1147.

Kofoid, C. A., and Tucker, J. P.

1921. On the relationship of infection by hookworm to the incidence of morbidity and mortality in 22,842 men of the United States Army at Camp Bowie, Texas, from October, 1917, to April, 1918. Amer. Journ. Hyg. **1**, 79-117, 3 figs. in text.

REPORT OF THE BUREAU OF TUBERCULOSIS.
FOR THE BIENNIAL PERIOD 1920-1922.

EDYTHE TATE THOMUSON, Director.

Looking backward on seven years of attempting to control tuberculosis in this state reminds one of Christian and Hopeful in Pilgrim's Progress when they looked through the glass at the gates of the Celestial City. No one not working in close contact with patients and families can possibly realize what the State of California and the supervisors have made possible. Once it seemed almost too much to hope for, when we saw the patients in the clean beds of the subsidized hospitals and observed the food served the patients, one had the feeling that perhaps isolation in the quiet lovely places the hospitals were located in, coupled with food and nursing care, were as much as might be expected. But the past two years have demonstrated some interesting and remarkable facts connected with the hospitals, it compensates for that nerve racking period in the legislature, it takes away recollections of baking hot summer days that extended in travel from the desert to the high Sierras looking for sites suitable for hospital purposes. Most of this is forgotten when one has an opportunity to inspect the sanatoria and observe the very excellent medical care now being given the patients. It appears to the bureau's staff that standards looked upon five years ago as unreasonable are now accepted as the regular procedure. So remarkable has been the development of the medical service that distinguished medical men from all over the United States have congratulated the bureau on the cooperation it has received. The bureau has ever taken the attitude that since the counties and the State were spending the amount of money now being expended for care, that the hospitals must not be mere places of shelter and isolation, but institutions where proper care and treatment would return the patient to economic life. The hospitals, receiving as they do, hundreds of friends of patients, and visitors, have become educational centers as well.

Realizing the opportunities to help in the teaching of medical students attending the University of California the bureau has helped furnish a splendid teacher with the hope that these students might become available later as superintendents in the county sanatoria. Occupational therapy is being developed by the California Tuberculosis Association to such a degree that the bureau now has a supervisor for this work. Rehabilitation of ex-sanatoria patients is the next step and in another year work shops in the north and south will be a necessity. But by far the most interesting part of the development of the work is the change in the type of patient now receiving care, from the old miserable lodging provided before the subsidy, when only the tuberculous tramp would accept such a place for a hospital, we find now what the director has reiterated over and over again, that once decent places were provided our sanatorium population would change, and it has. Complaints from either physicians or patients regarding discipline are exceedingly rare. Undoubtedly much of this is due to the very splendid personnel in our hospitals. Even the smaller hospitals now have full time medical directors.

Social Service.

The policy to get closer contact with the patient in the rural districts has brought many new cases to light. Our field workers spend as much as two months at a time in a county working with the county nurses, making spot maps so the cases can be located and arranging, if possible, for periodic clinics. Last year, following the trip of the California Tuberculosis Association's motor clinic, a special field worker was detailed to follow up these cases. Such misery and poverty as she found made one realize what the unemployment problem had done to families in which there was a case of tuberculosis. As an example of the great amount of social service work necessary the following is quoted from the field worker's report:

"O. R., lad's mother died last year with tuberculosis. Is a state aid case, the county is giving an additional \$10 for his board. Lives in an unfit home; the family met the visitor's questions with evasions. First said the boy slept in shack in the yard, then in the kitchen. Visitor insisted on being shown the bed where he slept, told some member of the family had key to the shack. The child is unkempt, undoubtedly sleeping on the floor. Took the matter up with the county charities to find a better home for him." What a charge on the community when this child later will fill a hospital bed unless supervised now.

"L. J., nine years of age, has been running a temperature, losing weight; father at our request has built screen porch for the child. Two other children, a girl fifteen and a boy eleven, died with tuberculosis in 1921. There are six other children living, ranging from thirteen years to eleven months. Three children sleep in one bed. Asked that another be provided. Turned case over to local nurse; two quarts of milk sent in daily."

"R. family, within the last year there have been *four* deaths from tuberculosis here. Three rooms and nine people living in the house. Seven children being cared for by a fourteen-year-old widow, whose husband died with tuberculosis. Due to the lack of a compulsory commitment law this family will continue to disseminate tuberculosis."

"Called on Dr. T., who referred us to Mr. A. H. H. and Mr. D. K., ex-service men. Arranged to take H. in bureau's car to Sawtelle. To ill to travel otherwise. Sent wife and baby to his mother. Secured \$100 from the Red Cross so the wife could move."

From northern California comes the same story. All too often the mother has died with tuberculosis, leaving little children, and the father is obliged to leave his work to take care of them. No one knows what the visits of these field workers mean. All too often the children are found to need immediate care in order that they may not develop active tuberculosis and word of the summer camp or preventorium means sometimes a new lease on life to the entire family. This social service work is of the utmost importance, as so often the suggestions and supervision can do much to save a second break in the family circle.

San Francisco Children's Survey.

If the state is to continue its present program, economical as it is, certain facts must be learned. Certain efforts now being made to restore children to normal health must be watched. In San Francisco the Associated Charities has under observation 1000 children, 500 of this group are in foster homes, the remainder with their own mothers. All of the thousand are receiving either state or county aid. The bureau is making a study of the two groups, a special worker is detailed for six months to work with these children, medical and social histories are taken, and, with the cooperation of the two universities, defects are cor-

rected. The foster mother and the child's own mother are taught the rules of health and when the survey is completed we shall have certain facts before us which will help us to decide whether the money given to help these children is producing the desired results or whether forest schools and preventoria will contribute more towards their permanent recovery.

Preventoria.

In line with our hospital care for adults, a demand for beds has made itself felt for the child too ill to enter summer camps or preventoria. Arroyo, Stony Brook and Ahwahnee have already provided separate buildings for children with active tuberculosis. Springville, Santa Barbara and Los Angeles expect to provide buildings during the summer.



Graduating class at Sunshine Preventorium.

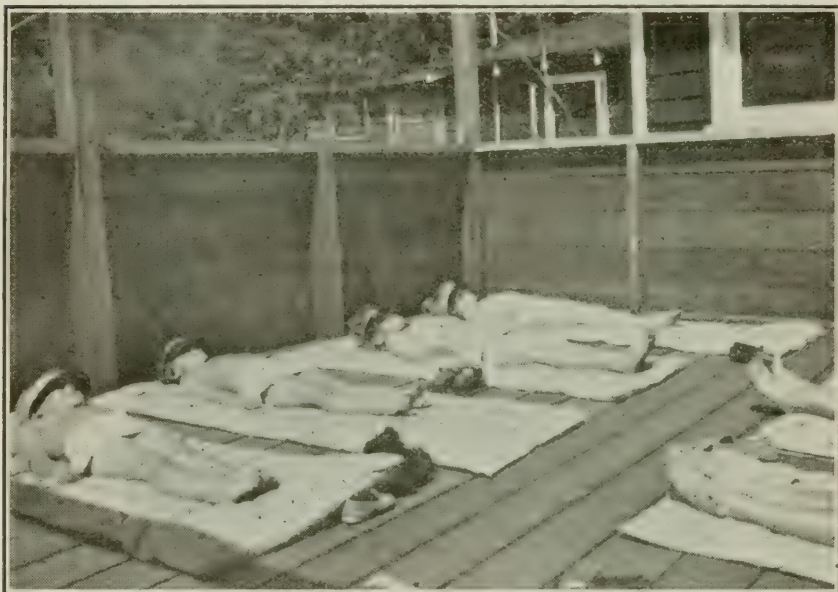
But by far the greatest single piece of cooperation with our own program has been the establishment of preventoria by the state and local tuberculosis associations. Here the ounce of prevention is put into practice to the Nth degree. The marvelous gains of these children, the training in health habits, means ultimate conquest of the "White Plague" with this group.

The Sunshine Preventorium in Marin County for girls, the San Mateo Preventorium for boys and Rest Haven for girls at San Diego are filled with little people not eligible for nutrition classes, camps or hospitals. Preventoria have bridged a great gap in certain neglected periods of childhood. Alameda, Los Angeles and Santa Clara counties expect to build their own places this summer. The state does not contribute in any way to the support of this group of institutions.

Migratory Consumptive.

Just as the pendulum was beginning to swing back and civilian cases of migratory indigents began to be noticeably lessened, California found

herself the vantage ground of hundreds of ex-service men suffering with tuberculosis. If the government hospitals had been as comfortable or the men as amenable to discipline as are our civilian patients, migration might have been a negligible factor in handling the situation, but instead of that, migration into California and migration between hospitals has created a serious public health problem. Compensation, free travel and hospital bills paid would break the morale of any group, either civilian or soldier, but the wasted lives and wasted millions of the government's funds and the small number of really lasting cures has brought home, as nothing else could to civilian patients, the fact that patients can not supervise their own cure successfully, and that in spite of a sojourn in all the various climates in this country, climate without



Sunbaths are part of the treatment in all preventoria.

the patient's desire to follow rules laid down by men wiser than they, will not effect a cure.

The bureau has cooperated with and assisted the U. S. Veterans' Bureau constantly. When the Veterans' Bureau sent a representative from Washington to investigate suitable sites for the new \$2,000,000 hospital for tuberculous ex-service men the director was able to recommend a site which has since been purchased, and located as it is, near one of our best hospitals, we hope that the men sent there will react to the peace and beauty of the surroundings and seriously make it their business to profit by the government's generosity, and recover.

For years Los Angeles has been a dumping ground, but with the subsidizing of the hospitals some control of migration was necessary. For three years now with the cooperation of eastern boards of health and tuberculosis associations we have had publicity, both through the press and with a poster warning patients against migration if they were without funds.

IF TRAVELING FOR HEALTH
† TAKE NOTICE †

Tuberculosis demands rest, food, fresh air and peace of mind. This may not mean a change of climate.

California has no public institutions with free care for non-residents.

With funds to live for a year, come, but do not rely on finding light work for support.

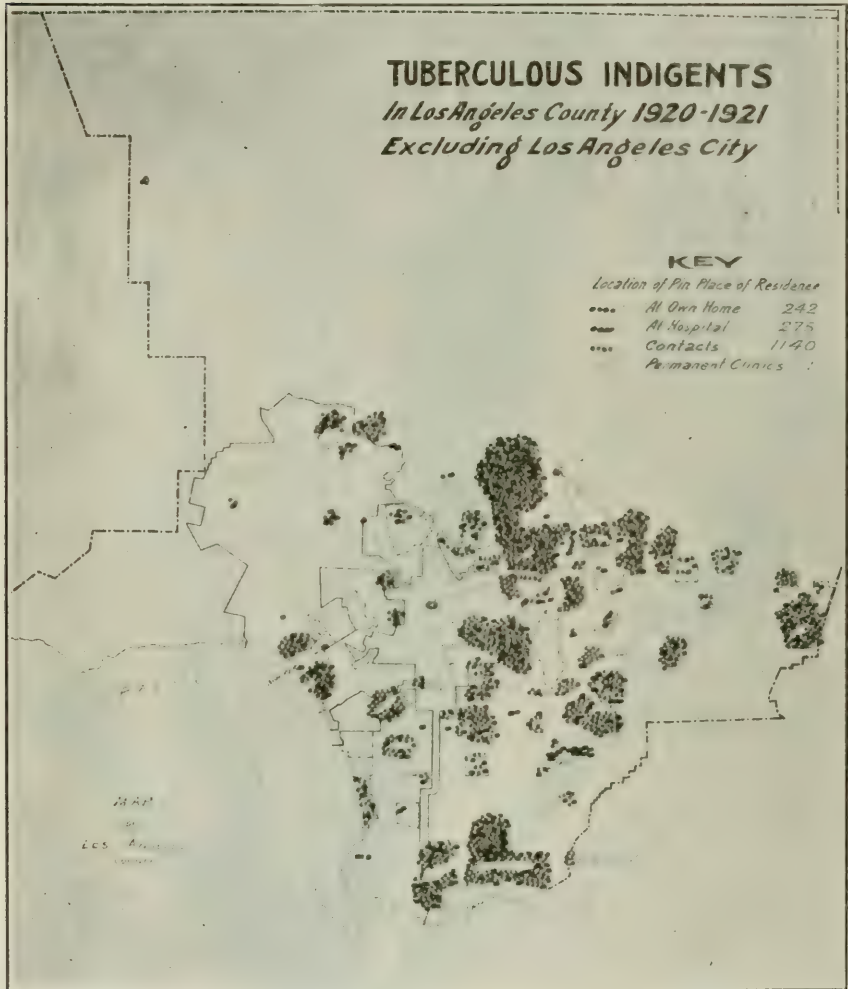
The State Board of Health warns you, because it wishes to spare you homesickness and suffering from financial strain.

BUREAU OF TUBERCULOSIS
CALIFORNIA STATE BOARD OF HEALTH

But because Los Angeles has advertised her climate and because patients from the southwest are apt to reach Los Angeles eventually, an intensive survey was made of all of the large cities of the southwest. Los Angeles has in no way carried the burden that Phoenix and San Antonio have carried. The ratio in Los Angeles is one nonresident indigent to 186. The greatest problem connected with the group studied was the enormous number of contacts; 1669 cases were living with their families, coming in immediate contact with 5516 other members in the families, and of this number 3300 were children. This, coupled with the great number of aliens, constitutes a serious health problem for Los Angeles. This bureau has had introduced at three different national meetings this past year resolutions urging a careful physical examination at the port of embarkation. Thousands of immigrants, worn out from the war, are flocking to America; our hospitals and asylums will, of necessity, have to harbor them.

Work in Los Angeles County.

Because of the problem, particularly in the smaller towns and unincorporated villages, we have visited all cases and contacts that were known to us. Through the visit of the motor clinic of the California Tuberculosis Association hundreds of cases were found last year. Later these people were visited to see if further help was needed. The map



of tuberculous indigents and contacts in Los Angeles County shows the necessity of eternal vigilance, as many of these contacts may become active cases unless they are helped. At the request of local authorities, surveys and spot maps have been made to help locate cases and arrange for a clinic.

Orange, Imperial, Riverside, Yolo, Butte, Placer, Yuba, San Francisco and many of the towns on the desert have been given this service during the year.

Follow Up Work.

This year the bureau is helping the subsidized hospitals on their follow up work among discharged sanatorium patients.

Medical Work.

The bureau had the services of Dr. H. A. Pattison, medical field secretary for the National Tuberculosis Association early in the year, making a survey of the clinics in the state.

Our aim from the beginning was to see that the hospitals were provided with tuberculosis specialists. The war intefered with this plan, but at present Arroyo, Stony Brook Retreat, Ahwahnee, Weimar and Olive View are provided with full time medical directors. San Francisco has gone over the top with the organization of their medical work.



Outdoor occupational therapy.

Los Angeles County Hospital is giving good care under very difficult conditions, Santa Barbara, Santa Clara, Springville, Fresno, San Joaquin and San Leandro all have attending physicians. All of the hospitals are now equipped with every facility to assist in diagnosis and treatment.

Rehabilitation.

It is a far cry from the old days in the county hospitals to the sanatoria that now have their own printing shops, radio equipment and occupational therapy studios, with the patronage of a growing clientele the purchases from the studios because the work is good. When the aftermath of war and our changing civilization makes one pessimistic over the survival of this civilization one might be restored by a visit at Christmas time to these busy hospitals where bed patients are busy making gifts or finishing work that is going to mean presents for the folks

at home. Another year and we shall be in a position to talk seriously of convalescent colonies and work shops. Our sanatoria are schools now, and that dreaded day to patients when they know they are to be dismissed is no longer the *bête-noir* of all sanatoria.

Our occupational therapy supervisor will put a standard of work in all of the hospitals, so that our work will be uniform.

Educational Work.

Hundreds of pieces of educational literature have been distributed during the year. Ten thousand posters against migration were distributed in the east. The poster on influenza and tuberculosis and the sneezing poster are used everywhere in the state. The bureau owns



Occupational therapy class.

three films on tuberculosis and the director is constantly filling requests to speak with the bureau's slides, showing the work in the state.

Indian Work.

The bureau loaned one of its nurses for work with the Indians last summer.

New Hospitals.

Humboldt County will soon open their new school for the tuberculous. Last year at the request of the director and the Humboldt County Tuberculosis Association the supervisors appropriated \$60,000 for a new hospital.

Riverside, Orange and Imperial counties have signified their willingness to join in a tri-county hospital. Difficulties regarding a suitable site have held up the building program which should be settled this year. San Francisco is to join with Alameda County.

Cooperation.

The supervisors of the state generally have cooperated with the bureau far more than our printed standard demands. Indeed, countless splendid things are done by them without even the suggestion from our office. Landscape gardens, which add so much to the patient's peace of mind, comfortable homes for the nurses, new infirmaries for advanced cases have been built the past year.

But the faces of the young people who can face the truth when told they have tuberculosis, filled with hope of recovery, as against the type of patient cared for in other days has, of course, made the supervisors realize that a saving of the young lives in their county is an investment in which the dividends are too great to reckon on.

Cold Facts.

The decline in the death rate from 189 per hundred thousand to 155 per hundred thousand is proof of the fact that control is in sight. Our death rate is not a fair index of the real decline because of the great number of ex-service men who have been brought into California and placed in government and contract hospitals. Many of these men having traveled over the United States have lost their chance for recovery on account of their migration. The bureau has tried against very adverse conditions and circumstances to see that these men receive a square deal from the contract hospitals. The establishment of government hospitals in this state will keep our death rate always higher than it would be with only civilians being cared for, but that is of small consequence if the ex-service man can recover his health.

Reporting of Cases.

The weakest spot in the bureau's work is the reporting of cases of tuberculosis. Physicians in general do not realize what a valuable index reporting is. In most counties the number of cases reported is about equal to the number of deaths. Better clinics and more nurses are bringing in a greater number of patients and contacts as reported cases. Cooperation with local agencies, encouraging them, wherever possible, to keep better records and to keep eternally at our program of prevention has brought results. The coast counties will be worked in during the coming year. Certain industries must be reached and our general educational campaign carried on as intensively as it is possible for our limited staff to carry it.

The plan for rehabilitation will take considerable time and thought, but the opportunity it offers to save the patient from a second breakdown is so great that no effort should be spared to put this plan into operation at the earliest possible moment.

Plans in Foreign Countries in Fighting Tuberculosis as Presented at the International Conference on Tuberculosis in Paris, October, 1920.

Spain reports their tuberculosis on the increase, partly due to their lack of proper housing facilities. A campaign has been inaugurated to increase the facilities for care of the tuberculous poor. California has done this.

Switzerland, a health resort country for all Europe, reports a new federal law under consideration to provide registration, disinfection of houses, notification of change of patient's residence by physicians, hos-

pital care for advanced cases, improvement of dwelling houses and a *subsidy* for all institutions engaged in the care of tuberculous cases. They further state that their beds for advanced cases are too few and they contemplate special pavilions attached to general hospitals. This plan is being advocated in America.

Italy, after a lengthy study, reports that *state aid* is indispensable.

Roumania reports a movement on foot to prevent tuberculous soldiers from returning to their homes.

Greece is adopting vacation colonies for pre-tuberculous children. California has nine such colonies in its children's camps.

Holland has a *state subsidy* which has been increased from *ten thousand* to a *million florins*. A decrease in the number of deaths has already set in. Note the California decrease.

Belgium reports that work for the prevention and care of tuberculosis has greatly increased since the government has provided a generous *subsidy*.

Denmark reports free compulsory disinfection, free treatment, compulsory examination for nurses, midwives, teachers and ministers; registration of cases, pensions for all civil employees suffering with tuberculosis. The state has established hospitals, dispensaries and convalescent homes.

Norway makes registration and supervision compulsory. Also has a compulsory commitment law.

Sweden has a *state subsidy* which is used to stimulate local work.

Czecho-Slovakia keeps patients in military hospitals unless their sputum is free from bacilli.

The Argentine has a small *state subsidy*.

Japan makes her hospital law mandatory. They have a *state subsidy* to encourage the building of sanatoria.

It is self evident on the face of the facts collected internationally that wherever the encouragement by governments of a subsidy to local agencies is used the country itself has contributed a program that is steadily decreasing the death rate. In America the pendulum has swung away from the state institutions with their long waiting lists and very high per capita to the subsidy plan, thus making it possible for the counties to increase their efforts for control without terrific expense to the state.

COUNTIES RECEIVING STATE SUBSIDY.

Name of hospital	No. of beds available
Ahwahnee (Merced, Madera and Stanislaus Counties)-----	100
Antonio (Santa Barbara County)-----	50
Arroyo (Alameda County)-----	250
San Leandro (Alameda County)-----	60
Fresno-----	75
Los Angeles-----	280
Olive View (Los Angeles County)-----	150
San Bernardino-----	60
San Francisco-----	250
San Joaquin-----	60
Santa Clara-----	60
Shasta-----	16
Springville (Tulare-Kings Counties)-----	100
Stony Brook Retreat (Kern County)-----	100
Vaulchain Home (San Diego County)-----	60
Weimar (Amador, Colusa, Contra Costa, El Dorado, Placer, Plumas, Sacramento, Sutter, Tuolumne, Yolo and Yuba Counties)-----	200

CALIFORNIA MEN REJECTED AND DISCHARGED BECAUSE OF TUBERCULOSIS DURING THE WORLD WAR AND CASES OF TUBERCULOSIS REPORTED IN CALIFORNIA IN 1920.

County	Number of men rejected by Draft Boards because of tuberculosis, in California	Number of men discharged from the Service because of tuberculosis in California	Total	Number of tuberculosis cases reported by cards in 1920	County	Number of men rejected by Draft Boards because of tuberculosis, in California	Number of men discharged from the Service because of tuberculosis, in California	Total	Number of tuberculosis cases reported by cards in 1920
<i>California</i>	5,289	2,195	8,702	8,009	Nevada	10	8	18	9
Alameda	314	153	467	428	Orange	78	21	99	65
Alpine					Placer	37	15	52	481
Amador	20	7	27	1	Plumas	11	3	14	5
Butte	24	29	53	15	Riverside	124	68	192	273
Calaveras	12	4	16	3	Sacramento	170	64	234	145
Colusa	6	5	11	4	San Benito	12	3	15	1
Contra Costa	36	38	74	11	San Bernardino	169	50	219	156
Del Norte	5	3	8		San Diego	281	49	330	292
El Dorado	16	7	23	3	San Francisco	728	355	1,083	1,298
Fresno	294	92	386	17	San Joaquin	226	29	255	89
Glenn	3	4	7	1	San Luis Obispo	28	21	49	8
Humboldt	10	29	39	50	San Mateo	68	18	86	120
Imperial	68	42	110	4	Santa Barbara	40	33	73	92
Inyo	12	3	15	1	Santa Clara	121	58	179	137
Kern	88	44	132	61	Santa Cruz	15	7	22	20
Kings	21	16	37	9	Shasta	17	16	33	6
Lake	6		6	2	Sierra	3	1	4	
Lassen	6	2	8		Siskiyou	19	16	35	4
Los Angeles	1,645	605	2,250	4,045	Solano	25	20	45	5
Madera	12	11	23	4	Sonoma	43	38	81	53
Marin	8	10	18	6	Stanislaus	35	17	52	18
Mariposa	4	2	6	3	Sutter	14	3	17	2
Mendocino	15	23	38	3	Tehama	17	13	30	5
Merced	66	13	79	12	Trinity	3	2	5	
Modoc	22	3	25	1	Tulare	137	33	170	51
Mono	5		5		Tuolumne	15	4	19	2
Monterey	25	22	47	7	Ventura	18	15	33	16
Napa	30	11	41	10	Yolo	16	19	35	5
					Yuba	36	18	54	1

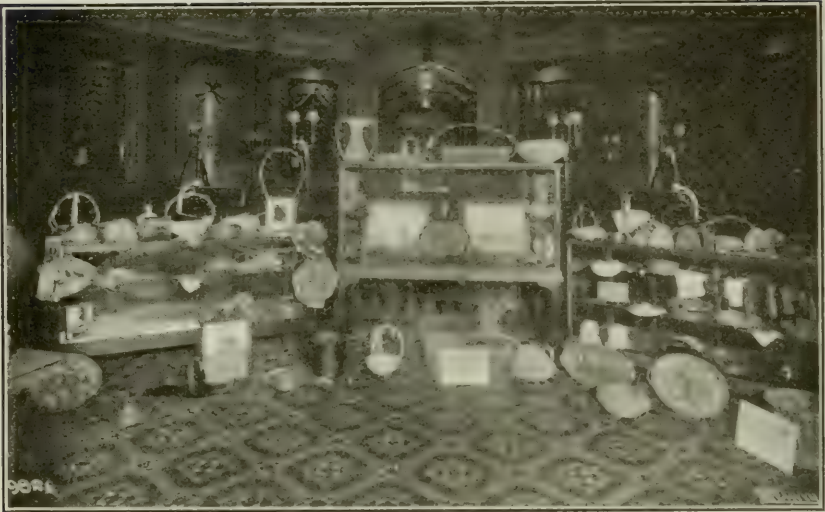
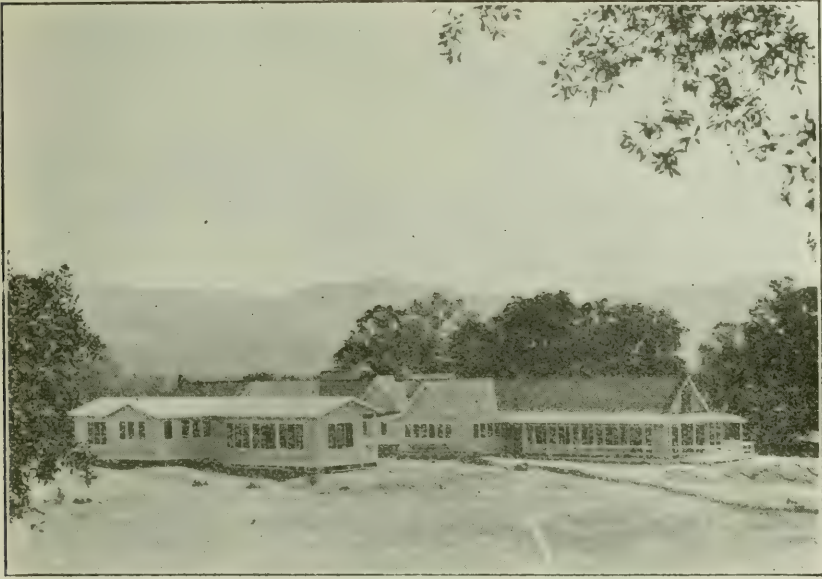


Exhibit of work done by patients in subsidized hospital at the Federation of Women's Clubs, held in Sacramento. Teachers and materials furnished by California Tuberculosis Association. Many counties are putting in their own occupational therapy workers.



Stony Brook Sanatorium, Kern County.

TYPES OF COUNTY SANATORIA OPERATING UNDER STATE SUBSIDY.



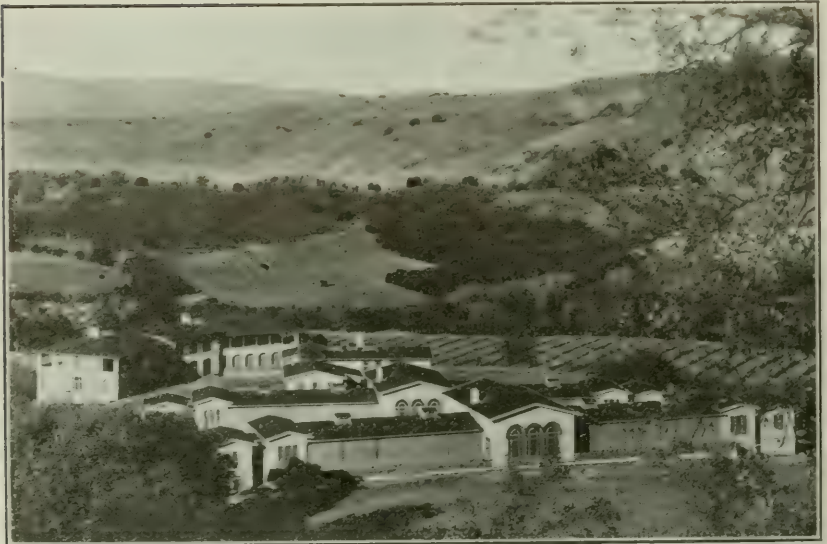
The Madera, Merced and Stanislaus Sanatorium at Ahwahnee, California.



These thoroughbred Holsteins supply the milk used at Ahwahnee Sanatorium.



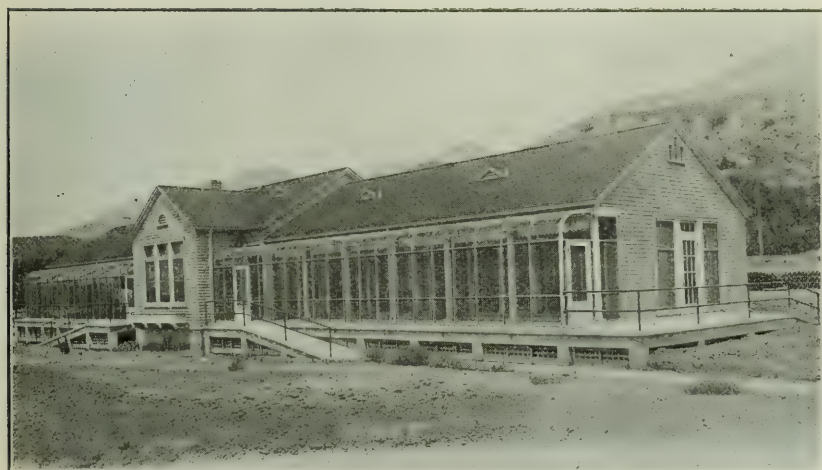
Type of Building, Antonio Sanatorium, Santa Barbara.



Arroyo Sanatorium, Alameda County Tuberculosis Sanatorium, Livermore.



Women's Wards, Arroyo Sanatorium.



Sleeping Unit for Ambulatory Patients, Olive View, Los Angeles County.



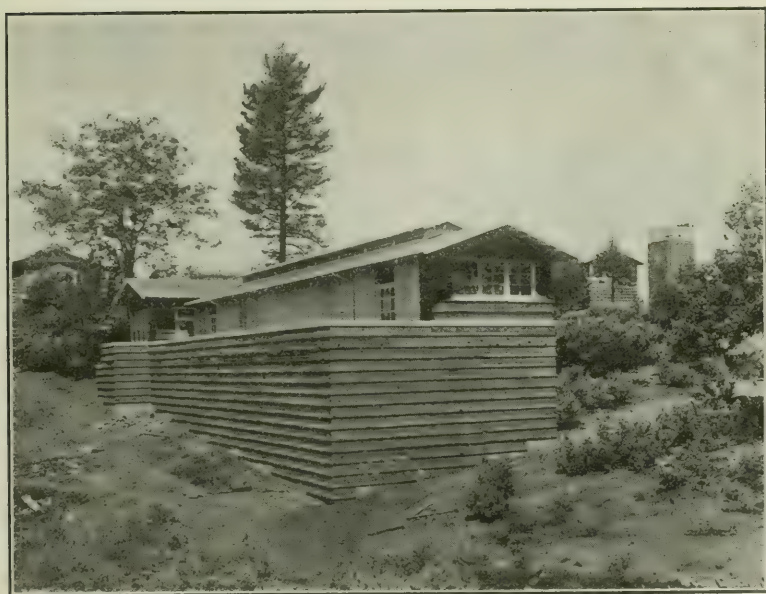
San Francisco Hospital.



Type of Building for Tuberculous Miners. Shasta County.



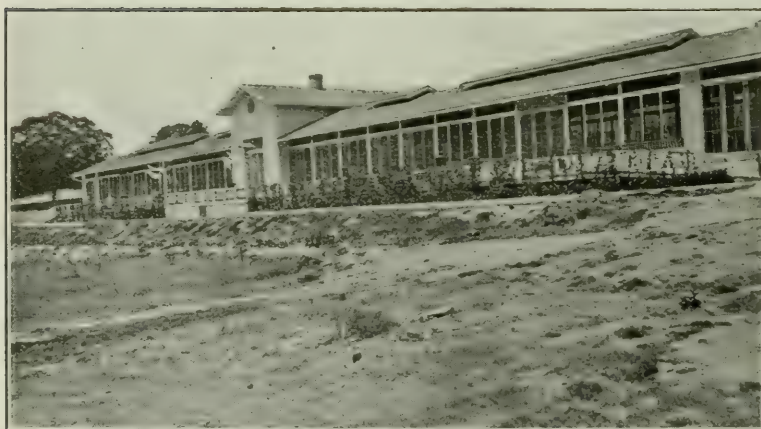
Vauclain Home, San Diego County Sanatorium.



Sleeping Unit for Ambulatory Patients, Weimar. Eleven Counties Tuberculosis Hospital.



Sleeping Unit for Women Ambulatory Patients, Weimar.



Infirmiry, Kings-Tulare Sanatorium, Springville.

BIENNIAL REPORT OF THE BUREAU OF SOCIAL HYGIENE.

ELIZABETH McMANUS, Director.

The Bureau of Social Hygiene of the California State Board of Health was organized for the purpose of controlling and preventing the spread of venereal disease. This work has been carried on under a program of medical treatment, social service and education. The rapidly changing social conditions have demanded that the program of social hygiene adapt itself to the present day needs. Better medical facilities have been provided, more interest has been awakened in the underlying causes, and the educational program has been broadened.

MEDICAL.

The function of the medical department of the bureau is:

First—To stimulate the reporting by private physicians and clinics of cases of syphilis and gonococcus infection, for the purpose of gathering accurate information as to the prevalence of these diseases.

Second—To assist in emphasizing the importance of early treatment.

Third—To cooperate with communities in the establishment of venereal disease clinics where those who are unable to pay the physician's fee may obtain treatment.

The tabulation accompanying this report shows a total of 9190 cases of syphilis and 7972 cases of gonococcus infection reported by physicians during this biennium. These figures indicate the fact that the physicians throughout the state are realizing the importance of reporting.

Of the fourteen original clinics organized by the bureau, and subsidized by the joint state and federal funds, nearly all continue to make monthly reports to the bureau, although they now receive no financial aid. The tabulation shows the number of monthly reports received by the bureau from each clinic, and, notwithstanding the fact that during some months certain of the clinics failed to report, the total number of new cases is far greater than the total shown in the last biennial report, when the clinics were required to send in reports each month, because of the subsidy. Not only have the clinics become self-sustaining, but the interest in the work continues to grow.

During this period four new clinics have been established, two of which were organized by the Bureau of Social Hygiene:

Alameda City Clinic, Alameda, California.

Berkeley Clinic, Berkeley, California.

Santa Rita Clinic, Los Angeles, California.

Fresno County Clinic, Fresno, California.

The bureau has distributed 2672 ampoules of salvarsan, making a total of 24,986 ampoules distributed to the various communities throughout the state to date.

Report of California Venereal Disease Clinics Cooperating with Bureau of Social Hygiene, California State Board of Health.

No. of months reporting	Clinics	New cases		Total treatments including arsp..	No. doses of arsp..	New cases brought in by clinic social worker		
		Syphilis	Gonorrhoea			Men	Women	Children
19	San Diego Clinic.....	120	47	1,845	569	33	95	3
21	San Bernardino Clinic.....	75	69	1,541	590	16	15	12
23	Los Angeles Health Department Clinic.....	1,315	1,570	22,670	6,578	130	338	135
22	Boyle Avenue Dispensary, Los Angeles (adult).....	581	184	6,556	2,415	36	88	
20	Boyle Avenue Dispensary, Los Angeles (children).....	71	19	1,065	493	25	18	54
23	Good Cheer Club, San Jose.....	115	24	2,142	675	25	18	13
23	Graves Memorial Dispensary, Los Angeles (University of California).....	831	594	4,616	1,826			
14	Pasadena Dispensary.....	93	7	641	636	4	12	
11	Cottage Hospital Dispensary, Santa Barbara.....	25	27	214	93			
18	Fresno City Clinic.....	173	117	1,004	53	53	59	12
22	Stockton City Clinic.....	97	102	892	528	31	37	9
10	Sacramento Health Department Clinic.....	31	54	263	178			
22	San Francisco Health Department Clinic.....	845	673	12,749	4,315	12	33	3
24	Stanford University Clinic, San Francisco.....	501	59	16,357	5,441	33	74	9
2	University of California Clinic, San Francisco.....	44	11	937	213	1	1	3
23	Alameda County Health Center, Oakland.....	431	539	6,323	3,224	126	90	61
9	Riverside Clinic.....	6	4	42	43	3	1	
	Totals.....	5,354	4,070	80,377	27,910	503	861	314

Total number of new cases to clinic..... 9,424
 Number of cases treated..... 45,569
 Number of treatments given..... 80,377
 Number of visits to clinics for diagnosis and treatment..... 113,888
 New cases brought in by clinic social workers..... 1,678
 Number of cases reported by physicians:
 Syphilis..... 9,190
 Gonorrhoea..... 7,972

Reports from the State Hygienic Laboratory indicate that the following examinations have been made:

Wassermann	57,740
Gonorrhoea	13,265
Chancroid	65
Total.....	67,070

These figures do not include any tests made in private laboratories or in clinics where adequate laboratory facilities are available.

A recent report from the U. S. Public Health Service, Division of Venereal Diseases, Washington, D. C., states that the figures of one of the large life insurance companies indicate that the mortality rate for syphilis and its principal sequelae has declined 21 per cent since 1917, and suggests that "this improvement in the early and middle years of life is the result of increasing effectiveness in the treatment of syphilis."

SOCIAL SERVICE.

Originally a social service worker, paid from the joint state and federal funds, was placed at each venereal clinic, under the direction of the Bureau of Social Hygiene. Her duties were:

First—To discover cases in the community requiring treatment, and to assist in placing such cases under treatment.

Second—To see that cases continued treatment until dismissed by the physician.

Third—To make every effort, through cooperation with all available agencies, to change conditions and remove the cause of infection.

Through this work the bureau was able to demonstrate to the communities the value of such workers, to the extent that when the federal funds were withdrawn, because of lack of appropriation by Congress, the clinics, with the exception of two, made provision to retain these social workers, who have continued to cooperate with the bureau.

The bureau has four field workers, two of whom have been assisting definitely with case work—one in San Francisco, the other in Los Angeles.

In San Francisco the field worker has been present at most of the juvenile court sessions and has cooperated with them in caring for venereally infected girls and boys. She has also cooperated with the dance hall supervisors, institutions for the insane, parole officers, Interdepartmental Social Hygiene Board, Associated Charities, police departments, the university clinics, city clinics, Stanford clinic, Travelers' Aid, employment agencies, Emergency Hospital, and many other organizations. Through the efforts of this field worker 990 persons have been assisted; some have required treatment at the clinics; employment has been found for others; some have not only required medical attention but have also been referred to mental clinics; a number were drug addicts and required special care because of that fact. In other words, this worker has served as a clearing house for this work in the city of San Francisco and has been a friend to many an unfortunate girl who needed her help and advice.

In Los Angeles the field worker has done much the same type of work except that while the juvenile court work has been emphasized in San Francisco, the psychopathic court work in Los Angeles has occupied much of the worker's attention. She has been present at most of the hearings of the psychopathic court and no less than 570 venereally

infected cases have been referred to her. In addition to this, Norwalk has referred 96 cases, while the juvenile court has reported 160 and the Children's Hospital 30 children for follow-up work. Other hospitals have referred to her 10 cases, private physicians 47, various city organizations 50, county organizations 48, and 100 of the persons calling at the Los Angeles office have received assistance. Other cities in California have referred 79 patients to this worker—other states 8; making a total of 1166.

Aside from the above this field worker has assisted in arranging for educational programs.

One other field worker, who is situated at San Diego, originally did case work such as that described above, but worked more directly with the clinic. During the past year this worker has devoted much of her time to organization work, traveling throughout the southern counties and assisting in rural districts. During the conference of social work held in San Diego this worker was on leave of absence from the bureau for a period of four months, during which time she served as executive secretary of the conference.

The fourth field worker has visited twenty-seven counties during this biennium in the interest of organization and educational work. She has conferred with the public health nurses, health officers, private physicians, farm bureaus, parent-teacher associations, women's clubs and other organizations in the rural districts, and has also visited most of the nurses' training schools in the northern part of the state and assisted in arranging the course of lectures given in these schools by the bureau.

This worker has also assisted with the instruction of the students in the classes in public health nursing at the University of California, and supervised the field work in connection with same.

EDUCATION.

The educational work of the Bureau of Social Hygiene has developed more rapidly than any of its other functions. It is impossible to adequately report upon this phase of the work, as its ramifications are so far-reaching and so impossible of tabulation. For example, much of the work done by the field workers is purely of an educational nature and perhaps even more valuable and far-reaching in its effects than the work tabulated.

In April, 1921, a series of social hygiene conferences, consisting of ten programs, was held by the Bureau of Social Hygiene, with the assistance of the U. S. Department of Education, the U. S. Public Health Service, and the Science and Mathematics Association of Southern California. These conferences were held in San Francisco, Oakland, Los Angeles and San Diego. Some of the best speakers in the state addressed these meetings, and a representative of the United States Public Health Service was sent from Washington to assist. Normal and high school teachers were invited and over 3000 were in attendance at the series.

As a result of these conferences, the bureau has enjoyed the cooperation of school departments in the various centers where the meetings were held, and the visual education departments of the school libraries, both city and county, have assisted materially in the distribution of our films.

During the biennial period just ended 645 lectures or talks have been given, with a total attendance of 53,684. This number includes a series

of three lectures to the nurses training schools in California; also lectures to grade and high schools, to groups of teachers; University classes; church organizations; women's clubs; parent-teacher associations; industrial groups; rotary clubs; civic organizations; study groups; Y. M. C. A. and Y. W. C. A. groups; recreation centers, etc.

During the same period the bureau's educational charts and films were shown to 304 groups, comprising a total of 58,923 persons. The Bureau has also distributed 118,829 pamphlets.

For the purpose of stimulating interest in the work, and in order that it might in some degree meet the need for a medium of exchange for ideas in regard to the solution of the many problems which are constantly confronting those who are interested in any phase of social hygiene, the bureau is issuing a bulletin each month to clinicians, social workers, teachers, etc. In this bulletin one of the best books on the subject of social hygiene is reviewed each month; suggestions are made as to reading courses; and mention is made of what the bureau has to offer in the way of pamphlets, films, lectures and other educational material. The clinics are also listed, with the name of the social worker in connection with each, and articles have been furnished by some of the leading clinicians as to the best methods of treatment.

In her capacity as chairman of Public Health for the Los Angeles District, Federated Women's Clubs, the director and her educational assistant have communicated with 161 clubs in the district for the purpose of creating an interest among club women in health ideals. The response has been most gratifying and a number of programs have been arranged, speakers and films scheduled, and study outlines on social hygiene education prepared for the various groups that have requested same.

The educational work of the Bureau of Social Hygiene must necessarily be slow and well grounded, for we believe with Mr. W. T. Foster, that "The present social emergency is not concerned merely with diseases, or physiology, or laws, or wages, or suffrage, or recreation, or education, or religion. All of these phases of the present situation, and many others, must be taken into account in our attempted solution of the problem * * *. A person who believes that he can offer a quick and certain way out of our difficulties appears to have no comprehension of the problem. This much, however, is certain: the greatest need is public education. The policy of silence has failed. Accurate and wide spread knowledge is a necessary condition of progress whatever may be the chosen direction. The main questions at issue concern the agencies, methods, materials and ideals of education."

Tabulation of Lecture, Film and Pamphlet Distribution.

Number of lectures given.....	645
Number of persons addressed by lecture.....	53,684
Number of showings, films, charts and slides.....	304
Number of persons witnessing showings of films, charts and slides.....	58,923
Number of requests received for pamphlets.....	3,582
Number of pamphlets distributed.....	118,829
Number of visits to communities:	
Population under 10,000.....	190
Population 10,000 and over.....	242

Some organization or educational work has been done by the Bureau of Social Hygiene in thirty-seven counties in California.

REPORT OF THE BUREAU OF SANITARY ENGINEERING.
FOR THE BIENNIAL PERIOD, 1920-1922.

The staff of this bureau at the end of the biennium, June 30, 1922, was as follows:

In Berkeley.

Ralph Hilscher	.....	Director
E. A. Reinke	.....	Assistant Engineer
Harry N. Jenks	.....	Assistant Engineer
R. L. Derby	.....	Assistant Engineer
W. F. Langelier (part time)	.....	In Charge of Laboratories
Cornelius Herb	.....	Assistant Bacteriologist
Harold Matthews (part time)	.....	Laboratory Assistant
Anson B. Mathews	.....	Laboratory Assistant
A. M. Tridel	.....	Clerk
C. M. Partsch	.....	Stenographer

In Los Angeles.

R. F. Goudey	.....	Southern Division Engineer
Lucy Powers (part time)	.....	Laboratory Technician
Jessie E. Hellings (part time)	.....	Stenographer
Sina A. Vena (part time)	.....	Laboratory Helper

The position of southern division engineer remained vacant from December, 1919, until July, 1921, during which time the work in the south was handled from the Berkeley office. This work grew to such proportions, however, that when the appropriation for the present biennium became available it was deemed advisable to transfer Mr. Goudey permanently from Berkeley to Los Angeles.

Mr. Clyde F. Smith, assistant engineer with the bureau since June, 1917, resigned in May, 1922, to enter private practice.

In October, 1921, Mr. George W. Putnam was employed as assistant engineer. Mr. Putnam resigned in April, 1922, to take a position as state sanitary engineer of Missouri.

Mr. Jenks and Mr. Derby were added to the staff following the resignations of Mr. Smith and Mr. Putnam.

APPROPRIATION.

The sum of \$50,000 was appropriated for the maintenance of this bureau during the biennium ending June 30, 1921. The appropriation was increased to \$68,700 for the present biennium, which ends June 30, 1923. However, the necessity of maintaining a 10 per cent un-budgeted reserve, due to uncertainty regarding the legality of the King Tax Bill, has virtually reduced this appropriation to \$61,893.

WATER SUPPLIES.

About three-fourths of public water supplies in this state are derived from natural streams, impounding reservoirs, or artificial canals. The remaining supplies are from underground sources, such as wells, springs and tunnels.

Underground sources, in general, yield safe supplies. The most important sanitary consideration in connection with these supplies is usually the method of developing and handling the water. Safe methods usually cost little if any more than methods that expose the water to possibility of contamination. Ground supplies in danger of contamination can usually be remedied at small cost.

Surface supplies, on the other hand, are seldom continuously safe in their raw condition. If the drainage area is one that is frequented or

traversed by human beings, it is fair to assume that some of these people will leave human pollution on their trails, and it is human pollution that is most to be feared. Only a few of our watersheds are uninhabited.

The two most common methods in California of protecting the health of people using surface water are purification by storage and disinfection with chlorine, either of which is very effective with proper facilities and proper operation. In several cases particular pains are taken to control the pollution by ownership of the watershed or by patrol. This is desirable but often inadequate. In a few cases the water is filtered, more, however, to clarify the water than to remove bacteria. Filtration is usually accompanied by chlorination.

The bureau has distributed to cities and water companies many thousands of placards, to be posted on watersheds, warning against stream contamination. It is believed that this is of assistance in that a word of advice is sufficient for some people, but the principal work of the bureau in connection with water supplies is the making of inspections and the giving of advice regarding sanitary water development and the operation of water purification works. The two laboratories of the bureau make analyses of several thousand water samples each year.

Following is a summary of the bureau's work in connection with water supplies, during the past two years:

Inspections and reinspections.....	179
Reports to communities.....	30
Plans received.....	8
Permits granted.....	6

SEWERAGE.

The past two years have seen a greater growth of interest and a larger volume of actual construction work in connection with sewerage and sewage disposal in California than has any similar period during the existence of this bureau. Moreover, the future promises to see this development proceed unabated. The natural growth in centers of population results in a demand for better or larger or entirely additional sanitary equipment. The growth of rural population and the development of hitherto unoccupied rural districts has resulted in encroachments upon sewage disposal sites and a demand for abatement of nuisances that formerly were tolerated because they were isolated. An increasing use of streams for water supplies, for recreation, for irrigation and for industrial purposes has magnified the sewage disposal problem and created a demand for more and better sewage treatment works.

The following sewage treatment plants have been built in California during the past two years:

- Arcadia Balloon School—Sprinkling filter.
- Avalon—Septic tank.
- Biggs—Imhoff tank and sprinkling filter (new sewer system).
- Ceres—Alvord tank and sand beds (new sewer system).
- Calipatria—Septic tank (new sewer system).
- Davis—Imhoff tank and sprinkling filter and chlorination (new sewer system).
- Fullerton—Septic tank.
- Glendale (Verdugo Canyon)—Activated sludge (new sewer system).
- Los Angeles (East San Pedro)—Dorris screen.
- Newport Beach—Imhoff tank (new sewer system).
- Patterson—Imhoff tank (new sewer system).
- Selma—Imhoff tank.
- Stockton—Imhoff tank and chlorination.
- Taft—Imhoff tank.
- Turlock—Activated sludge.

The following places have actually begun or appear to have definitely decided to make improvements or additions in sewage disposal:

Atwater—Sewer system and tank treatment.
 Burbank—Sewer system.
 Culver City—Sewer system.
 Dinuba—Imhoff tank and sprinkling filter.
 Lodi—Activated sludge.
 Gilroy—Imhoff tank, sprinkling filter.
 Laguna Beach—Sewer system and septic tank.
 Lakeport—Sewer system.
 Long Beach—Fine screening.
 Los Angeles—Sprinkling filters (temporary).
 Madera—Imhoff tank, sprinkling filter.
 Marin Sanitary District No. 1—Imhoff tank and chlorination.
 Mendocino State Hospital—Imhoff tank.
 Morgan Hill—Sewer system and treatment plant.
 Pasadena—Activated sludge.
 Pismo—Sewer system.
 San Juan—Imhoff tank and sprinkling filter.
 San Luis Obispo—Additional tank capacity.
 San Pablo—Sewer system.
 Sherman—Imhoff tank and contact beds.
 Santa Ana-Anaheim—Joint ocean outfall.
 Stockton State Hospital Farm—Imhoff tank and sprinkling filter.
 Ventura—Fine screening.
 Visalia—Imhoff tank.
 Whittier—Imhoff tank.
 Watts—Sewer system.
 Yuba City—Sewer system.

The greater part of the engineering work in connection with this type of work in California has been placed in the hands of men that do not profess to be experts in sewage disposal. In fact, very few engineers in California have undertaken to specialize in this work. As a result, the Bureau of Sanitary Engineering is called upon a great deal for help, and in a number of instances the bureau has found it necessary to furnish practically the entire design in order to secure plants that the State Board of Health would be warranted in approving.

For a period of about four months during the winter and spring of 1922, the bureau undertook to conduct some experiments with the activated sludge process of sewage treatment. A small, continuous flow plant was constructed at the State School for Deaf and Blind in Berkeley. The funds available were so limited that a plant capable of operation on a thoroughly practical scale could not be built. However, some information that will be useful to the bureau has been accumulated from these experiments and it is hoped that the work can be continued when the school again opens in the fall.

The work of the bureau in connection with sewerage during the past two years may be summarized as follows:

Inspections and reinspections.....	383
Reports to communities.....	51
Plans received.....	76
Permits granted.....	23

SWIMMING POOLS.

The bureau records show that 36 swimming pools were built in the state during the past two years, bringing the total number of pools in California up to 247. Nearly all pools now built are designed practi-

cally in accordance with the regulations of the State Board of Health. The bureau endeavors to cooperate with all designers and builders of pools, to the end that these regulations may be complied with, and in a few instances complete designs have been supplied by the bureau.

The present regulations were drawn up by the bureau and adopted by the board in December, 1920. They were formulated after numerous conferences with the principal bath house associations and many swimming pool operators, and have been generally accepted as fair and adequate. Some of the older pools have been extensively remodeled in accordance with the regulations. It has not been the policy of the bureau to insist upon expensive alterations except where sanitary or health requirements were obviously violated. The bureau has constructed, for exhibition purposes, an operating swimming pool model, with filter and circulating system, designed to illustrate proper design in connection with each rule in the regulations.

The work of the bureau on swimming pools during the biennium is summarized as follows:

Inspections and reinspections.....	151
Reports	4
Plans received	20
Permits granted.....	12

MISCELLANEOUS.

Miscellaneous work of the bureau, including investigation of garbage disposal conditions, is summarized as follows:

Inspections	13
Reports	7
Special investigations	5

PUBLICATIONS.

The following bulletins on sanitary engineering subjects have been published for general distribution during the past two years:

- No. 37—"How to Judge the Sanitary Quality of Private Water Supplies," by Ralph Hilscher.
- No. 38—"Rules for Sanitation and Safety of Swimming Pools," with discussion and explanation of each rule, by Ralph Hilscher.
- No. 39—"Sewage Disposal for Isolated Residences," by Ralph Hilscher.
- No. 40—"Some Considerations Relating to Collection and Disposal of City Refuse," by Chas. Gilman Hyde.

The bureau has under preparation a bulletin dealing with the softening of water. While the subject has but little or indirect relation to public health, it is recognized that the mineral content of water supplies has a very intimate relation to home comforts, industry and economics. A popular demand for information and assistance in this field exists, and it is believed that no other state organization is in a position to supply this demand.

LABORATORY WORK.

The bureau's main laboratory for water and sewage analysis is located in Berkeley. A branch laboratory is maintained in Los Angeles. Following is a summary of the work done by these two laboratories during the past two years:

Water.

Bacteriological examinations.....	7,971
Partial chemical analyses.....	7,871
Sanitary chemical analyses.....	36
Microscopic examinations.....	7
Special field bacteriological examinations.....	136

Sewage.

Bacteriological examinations.....	109
Chemical examinations.....	87
Putrescibility examinations.....	36

Trade Wastes.

Chemical examinations.....	18
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Miscellaneous.

Mechanical analyses of sand.....	27
Examinations of sludge.....	9
Bacterial examinations, bathing suits and towels.....	78
Special examinations.....	2
Total.....	16,387

REPORT OF THE BUREAU OF FOODS AND DRUGS.

FOR BIENNIAL PERIOD 1920-1922.

E. J. LEA, M. S., Director.

The report of the Bureau of Foods and Drugs herewith submitted is the eighth biennial report of this bureau covering the period July 1, 1920, to June 30, 1922.

Before discussing the details of the present biennial period, it may be of interest to review briefly some of the results which have been accomplished since the pure food and drug laws became effective in this state, January 1, 1908. At that time the adulteration and mislabeling of foods and drugs had reached a point that was almost unbelievable. There were, in fact, very few articles of food which were not more or less adulterated or mislabeled. Credit should be given, however, to certain manufacturing firms whose products were not found adulterated or mislabeled even before the food law went into effect. During this period of food law enforcement certain evil and detrimental practices have been wholly or in part corrected. Among these may be mentioned the almost complete elimination from food of harmful preservatives, such as salicylic acid, formaldehyde, borax, and fluorides. Poisonous food colors are rarely found. Saccharin, an artificial sweetener having injurious properties but no food value, has been practically eliminated from foods, although certain large chemical companies have been very persistent in their efforts to establish a legal right to use saccharin in foods. Diseased and unclean meat has been largely eliminated through the elaborate system of inspection which has been established by the federal government and the various state and municipal health departments. Sanitary conditions in food producing establishments have improved a great deal, especially in canneries, fruit driers, meat markets and soft drink establishments, but along these lines there is in many cases room for still more improvement. Labels of foods and drugs, generally speaking, have been greatly improved. False claims and misleading statements have been largely eliminated. A large percentage of food and drug manufacturers are now using labels which are in complete harmony with the food and drug laws, but there are still quite a few whose labels need considerable correction.

The improvement in the quality of foods may be illustrated by a few examples. In the year 1908, it was still the practice of many canners, both large and small, to make catsup out of refuse and rotten tomatoes. This product was frequently artificially colored to make it appear of better quality. Today it is the exception to find any canner in this state using poor or rotten tomatoes in the manufacture of catsup or other tomato products.

Poisonous metallic colors and injurious coal tar dyes were once very common in confectionery, but at the present time such colors are not in use at all.

Flavoring extracts were adulterated with imitation products and they were frequently less than half strength, whereas at the present time the quality has improved and these products are mostly genuine unless they are labeled imitation, artificial, etc.

Honey was formerly heavily adulterated with glucose, but this practice is not common now.

Ice cream was frequently deficient in cream and often contained injurious colors, poor quality milk and poor quality gelatin, while at the present time ice cream is rarely found which is below standard in cream or butter fat; the injurious colors have been eliminated, the quality of the gelatin improved and the quality of milk and cream used is much better on the average. Many of the large ice cream manufacturers use more cream than is actually required by the pure food standards.

The term "jelly" was formerly used on products which varied from entire imitations containing no fruit juice to a pure fruit jelly. The imitation articles were made with starch paste as a base, flavored with imitation ether flavors, colored with coal tar dyes and preserved with salicylic acid. At the present time the starch paste, salicylic acid and coal tar dye have been practically eliminated. Apple juice is commonly mixed with other fruit juice such as currant, raspberry, etc., but usually the labels indicate the nature of the mixture.

The practice of using a prohibited preservative for embalming hamburger steak has virtually disappeared, although in some localities this violation of the law is still found at times.

In the old days olive oil was frequently adulterated to the extent of 50 per cent or 75 per cent with cottonseed oil, but this practice has now largely ceased.

Egg noodles were formerly made with a liberal supply of yellow coal tar dye instead of eggs, but at the present time the coal tar dye is practically eliminated and eggs are used, as they should be.

The adulteration of spices developed into an art some fifteen or twenty years ago. It is perhaps safe to say that more than half of the spices on the market were adulterated to the extent of 50 per cent or 60 per cent with roasted flour and ground cocoanut shells. This practice has entirely disappeared in the spices sold at retail, although some manufacturers still use cereals in their spices sold to certain restaurants, hotels, etc. The spices in such cases are labeled to indicate that they are a mixture of cereal and spice and therefore, they are not subject to the penalties of the food law. So today the spices are very free from adulteration, although in some cases inferior grades of spice may appear.

It was once common to find numerous brands of syrup labeled "Pure Maple Syrup," "Pure Vermont Syrup," etc., which syrups contained perhaps less than 10 per cent of maple, the balance being made of cane sugar syrup and glucose. Such syrups today are labeled "Cane and Maple Syrup," "Granulated and Maple Sugar Syrup," etc. The present labels may be more or less deceptive in that none of these samples, so far as we have analyzed them, show more than 20 per cent of maple and the majority of them show about 10 per cent of maple. There are a few brands of genuine maple syrup sold in this state.

Vinegar made from acetic acid, water and burnt sugar colorings was once commonly labeled and sold as pure cider vinegar. This practice has been almost entirely corrected so that today vinegar sold under the name of "Vinegar," "Cider Vinegar," "Apple Vinegar," is reasonably sure to be the product of apples.

Numerous mineral waters were formerly adulterated and mislabeled in that in many cases the water was not mineral water, and were mislabeled because the labels indicated that the water would cure various ailments, whereas the water did not have the necessary therapeutic qualities to effect the cures as claimed. Some of these waters were

nothing more than tap water from the city supply labeled to indicate that they came from mineral springs.

Many other examples might be given but the above will show in a general way the nature of improvements which have been made in regard to adulteration and mislabeling of foods and drugs.

SUMMARY.

The work of the food and drug laboratory for the present biennial period included the analysis of 4813 samples of foods and drugs. Of this number 2142 samples were collected officially under the foods and drugs acts. Of this 2142 official samples 1190 were found sufficiently adulterated or mislabeled to warrant action under the food and drug laws and this number of cases were brought before the State Board of Health for a private preliminary hearing. Five hundred and twenty-three cases heard by the State Board of Health were continued indefinitely for the reason that the difficulty had been corrected and 667 cases were referred to the district attorneys throughout the state for action in the courts. Of these 667 cases referred to district attorneys, 415 have been convicted by courts or juries; 72 cases were not prosecuted on account of lack of evidence, bankruptcy, migration, death, etc.; 46 cases were dismissed and 107 cases are still pending. The fines imposed by the courts for the biennial period amount to \$11,065. Three million one hundred and nine thousand two hundred and ninety-six pounds of decomposed or unfit food has been condemned as not fit for human food and a large amount of it has been destroyed.

	Year ending June 30, 1921	Year ending June 30, 1922
Total samples analyzed, foods, drugs, state institutions and cold storage.....	2,822	1,991
Food and drug samples, official.....	1,300	842
Cases reported to State Board of Health for action..	514	676
Cases continued by State Board of Health on account of correction of violation or material destroyed....	225	298
Cases referred to district attorneys for prosecution..	289	378
Cases convicted by court or jury.....	213	202
Cases not prosecuted on account of lack of evidence, bankruptcy, migration, death, etc.....	40	32
Cases dismissed.....	25	21
Cases pending.....		107
Fines imposed.....	\$5,380 00	\$5,685 00
Decomposed food destroyed or condemned.....	2,038,068 lbs.	1,071,228 lbs.

Report on Official Food Samples for the Biennial Period, July 1, 1920. to June 30, 1922.

BEVERAGES.

1920-1921.

Legal samples-----126 | Illegal samples-----117 | Total samples-----243

The beverage samples consisted of 13 varieties of soft drinks. The principal violations occurred in the articles sold as apple cider and drinks sold as grape, lemon, orange, strawberry, raspberry, pineapple and banana. All of these illegal drinks consisted in whole or in part of imitation products, such as citric acid, imitation flavors and coal tar dye. The violations were due to the use of artificial color to conceal inferiority, imitation products represented as genuine and deceptive wording on the labels. Saccharin was found in a few of the soda waters.

1921-1922.

Legal samples..... 24 | Illegal samples..... 92 | Total samples.....116

The illegal samples represented above were similar in character to those of the previous year; 41 of the 92 illegal samples consisted of so-called orange drinks, such as orangeade, orange crush, orange squeeze, orange nip and orange punch. The majority of these so-called orange drinks were entirely imitations consisting of citric acid, sugar, water, orange extract and coal tar dye. The coal tar dye used was similar in color to orange juice. A few of the drinks contained a small amount of orange juice, but in practically every case where orange juice was used the amount of actual orange product in the finished drink was less than 1 per cent. Some of these drinks which claimed orange juice as an ingredient contained actually less than one-half of 1 per cent of any orange products in the finished drink.

BREAD.

1920-1921.

Legal samples..... 6 | Illegal samples..... 0 | Total samples..... 6

1921-1922.

Legal samples..... 0 | Illegal samples..... 48 | Total samples..... 48

The illegal samples consisted partly of samples labeled or sold as milk bread but containing either no milk at all or a very small amount of skim milk. Following a conference with the Bakers' Association, the bakers agreed to discontinue the name of milk bread for the reason that none of them used whole milk in their bread and they did not desire to use sufficient whole milk to justify the name milk bread.

CHEESE.

1921-1922.

Legal samples..... 1 | Illegal samples..... 4 | Total samples..... 5

Three of the illegal samples were deficient in butter fat and one of the illegal samples represented a large quantity of cheese that was putrid.

CHOCOLATE AND COCOA.

1920-1921.

Legal samples..... 1 | Illegal samples..... 7 | Total samples..... 8

The illegal samples of chocolate consisted of sweetened cocoa labeled and sold as chocolate. These articles contained from 50 per cent to 60 per cent of sugar and the balance was cocoa.

Chocolate is a product which contains not less than 45 per cent of cocoa fat. This product can not be powdered on account of the large amount of fat. Therefore, no product of this character in a powdered form is chocolate. If the chocolate or cocoa contains sugar, this fact should be indicated on the label. Some manufacturers make a powdered product labeled "Chocolate and Cocoa." This product is as it stands, cocoa, because it does not contain 45 per cent cocoa fat. The manufacturers claimed the right to use the term "Chocolate and Cocoa" for the reason that in manufacturing this product they use a certain amount of chocolate mixed with a large amount of cocoa. However, the resultant product is cocoa.

1921-1922.

Legal samples..... 0 | Illegal samples..... 6 | Total samples..... 6

The violations in chocolate represented above were similar to those of the previous year.

COFFEE.

1920-1921.

Legal samples..... 1 | Illegal samples..... 5 | Total samples..... 6

The illegal samples of coffee consisted of coffee adulterated with chicory.

CONDIMENTS.

1920-1921.

Legal samples..... 19 | Illegal samples..... 27 | Total samples..... 46

These condiments consisted of horseradish, mustard, pepper sauce, relishes, salad dressing and tomato catsup. The principal violations occurred in the tomato catsup. Twenty of the 32 samples examined were adulterated in that they were made partly from decomposed and rotten tomatoes. A few of the violations in the condiment line consisted in the use of an inferior grade of bulk goods to refill bottles which represented a better quality of goods. For example, it is not uncommon for some restaurant proprietors to purchase a case of high-grade catsup, the label of which contained the name of a manufacturer in good standing. He will also buy a keg or barrel of bulk catsup, and when the original bottles are emptied they are refilled with bulk catsup, which is usually cheaper and inferior in quality.

1921-1922.

Legal samples..... 10 | Illegal samples..... 25 | Total samples..... 35

Five of these illegal samples consisted of mayonnaise dressing adulterated with starch. Two samples were mustard deficient in mustard and contained added coloring matter to make the product appear of normal strength. Fourteen of the illegal samples were catsup. Some were refilled bottles and the remainder were cases of adulteration due to the use of decomposed and rotten tomatoes. The bad catsup samples represent either shipments from eastern states or old stock made in California. None of the California canners were found using bad tomatoes in their catsup during this year. In fact, the California canners put up one of the cleanest and finest packs in all grades of tomato products this year that we have ever known. There was only one small canner in the whole State who put up tomato products sufficiently bad to warrant prosecution. This firm manufactured tomato paste from rotten tomatoes. They were subsequently convicted in court and a fine of \$500 was imposed.

CONFECTIONERY.

1920-1921.

Legal samples..... 12 | Illegal samples..... 35 | Total samples..... 47

The illegal samples of confectionery consisted of maple fudge without maple, raspberry drops containing imitation flavor and coal tar dye but no raspberry, and in general candy artificially colored and flavored, which was labeled as fruit candy. One of the most flagrant violations occurred in a product known as "Charms." This product was put up in about fourteen varieties labeled cherry, raspberry, banana, butter, etc. The majority of the varieties contained no fruit products whatsoever, but were artificially colored with coal tar dye in imitation of the fruit. This candy was put up in small packages and labeled to indicate that the product was made from genuine fruit. Another variety of adulterated and mislabeled candy similar to the "Charms" was labeled and sold as "Nifties."

1921-1922.

Legal samples..... 3 | Illegal samples..... 19 | Total samples..... 22

The violations in confectionery represented above were similar to those of the previous year.

CREAM.

1920-1921.

Legal samples..... 10 | Illegal samples..... 1 | Total samples..... 11

The illegal sample of cream was deficient in butter fat.

1921-1922.

Legal samples..... 3 | Illegal samples..... 3 | Total samples..... 6

EGGS.

1920-1921.

Legal samples..... 9 | Illegal samples..... 28 | Total samples..... 37

Twenty of the illegal samples were labeled or sold as fresh eggs, but on examination were found to contain more or less stale, decomposed or rotten eggs. The illegal dried

eggs consisted of a mixture of dried yolk and dried egg white in which an excessive amount of dried egg yolk was used and the product sold and labeled as dried whole egg. In this connection it may be stated that dried egg white is commercially more valuable than the egg yolk and, therefore, the violation consisted in substituting an excess of the cheaper article for the more expensive. Two of the illegal samples were frozen eggs which were decomposed and filthy. In previous years many thousands of pounds of frozen eggs have been condemned and destroyed for the reason that they were prepared from decomposed and even rotten eggs. In some cases the dealers in such eggs bought the culled stocks which consisted of cracked, broken, stale, sour, mouldy or rotten eggs. Incubator eggs which did not hatch were also used for this purpose. Conditions in respect to the use of these bad eggs have improved a great deal, but there are still a few dealers who persist in this disgusting business. Cull eggs, used in the preparation of the poorer qualities of frozen eggs, have sometimes been bought as cheaply as fifty cents per case. This fact makes it possible for the dealer in such eggs to reduce his price below the market and still make enormous profits.

1921-1922.

Legal samples----- 21 | Illegal samples----- 30 | Total samples----- 51

The comments on the previous year apply to the 30 illegal samples of this year.

EXTRACTS.

1920-1921.

Legal samples----- 4 | Illegal samples----- 4 | Total samples----- 8

Two of the illegal samples consisted of imitation vanilla sold as genuine vanilla; one was imitation strawberry and one was lemon extract deficient in lemon oil.

1921-1922.

Legal samples----- 3 | Illegal samples----- 3 | Total samples----- 6

The illegal samples were similar to those of the previous year.

FISH.

1920-1921.

Legal samples----- 8 | Illegal samples----- 14 | Total samples----- 22

Twelve of the illegal samples consisted of decomposed fish such as tuna, salmon and yellowtail.

1921-1922.

Legal samples----- 5 | Illegal samples----- 2 | Total samples----- 7

The two illegal samples consisted of decomposed canned fish.

FRUIT.

1920-1921.

Legal samples----- 15 | Illegal samples----- 22 | Total samples----- 37

Of the 22 illegal samples 3 consisted of wormy and decomposed dried apples; canned apricots containing decomposed fruit; dried apricots with worms, mold, etc.; decomposed canned blackberries; moldy and wormy figs; moldy and wormy pears; moldy and wormy raisins.

1921-1922.

Legal samples----- 5 | Illegal samples----- 42 | Total samples----- 47

Thirty-two of the 42 illegal samples consisted of frozen oranges. The orange orchards in Southern California were severely injured by frost this year and large quantities were shipped both to the eastern states and throughout California. Frosted oranges rapidly deteriorate in both sugar and citric acid. The pulp cells dry up and in general the fruit contains very little flavor or food value.

GELATIN.

1920-1921.

Legal samples----- 5 | Illegal samples----- 8 | Total samples----- 13

The illegal samples of gelatin consisted of very inferior grades of gelatin commonly known as glue. These low grades of gelatin usually carry heavy materials such as copper, zinc or arsenic, which are sometimes present in quantities sufficient to be deleterious.

1921-1922.

Legal samples----- 5 | Illegal samples----- 8 | Total samples----- 13

The illegal samples were similar in nature to those reported for the previous year.

HONEY.

1920-1921.

Legal samples----- 5 | Illegal samples----- 2 | Total samples----- 7

The two illegal samples of honey contained dirt and filthy material which rendered it unfit for human consumption.

ICE CREAM.

1920-1921.

Legal samples----- 28 | Illegal samples----- 6 | Total samples----- 34

The violations in ice creams consisted of the use of imitation flavors and artificial color in products sold as fruit ice cream; the use of rancid and moldy nut meats in nut ice cream and ice cream which was deficient in butter fat.

1921-1922.

Legal samples----- 13 | Illegal samples----- 12 | Total samples----- 25

The illegal samples were similar in nature to those reported for the previous year.

JAMS AND JELLIES.

1920-1921.

Legal samples----- 19 | Illegal samples----- 31 | Total samples----- 50

The illegal samples of jams and jellies consisted largely of apple, blackberry, fig, loganberry, strawberry, raspberry and mixtures of apple with the more expensive fruits. The majority of the violations consisted in the use of moldy and decomposed fruit, while in other cases cheaper or inferior fruit or fruit juice was substituted for a more expensive variety. For example, a product labeled raspberry jelly, which in fact consisted largely of apple juice and sugar with very little raspberry.

1921-1922.

Legal samples----- 5 | Illegal samples----- 5 | Total samples----- 10

The illegal samples were similar in character to those reported for the previous year.

LARD.

1921-1922.

Legal samples----- 0 | Illegal samples----- 3 | Total samples----- 3

These violations consisted in the substitution of beef tallow in part for lard.

MEATS.

1920-1921.

Legal samples----- 34 | Illegal samples----- 53 | Total samples----- 87

Forty-four of the 53 illegal samples consisted of chopped meat or so-called hamburger steak which contained a prohibited preservative, namely, sodium sulfite. This preservative has the remarkable property of restoring the original red color of meat even though the meat has become darkened and tainted. It is, therefore, a dangerous practice to use sodium sulfite because bad meat may be used and the consumer can not judge the quality of meat when this preservative is present. Seven of the illegal samples consisted of pork sausage which contained added cereal and water. Cereal in sausage is regarded as an adulteration for the reason that cereal is much cheaper than meat and the cereal usually carries with it a considerable amount of water, which adds to the weight. Some butchers have stated that they can take fifty pounds of meat together with cereal and water and make from these products one hundred pounds of sausage.

1921-1922.

Legal samples----- 38 | Illegal samples----- 76 | Total samples-----114

Thirty-eight of the 76 illegal samples consisted of chopped meat in which the prohibited sodium sulfite was used as a preservative. Twenty-two of the illegal samples contained cereals and water as adulterants without this fact being made known to the purchaser. Fifteen of the illegal samples consisted of decomposed meat unfit for human consumption. These samples were collected from hotels, restaurants and butcher shops. In one large and prominent hotel 13 trays of spoiled food, including meat, vegetables, etc., were taken from the refrigerator where they had been stored for use.

MILK.

1920-1921.

Legal samples----- 8 | Illegal samples----- 8 | Total samples----- 16

Six of the illegal samples consisted of fresh milk either deficient in butter fat or containing dirt and foreign material. One sample of evaporated skim milk contained dirt and foreign material and this sample was also high in bacteria, indicating the use of a very poor quality of milk in the manufacture of this article.

1921-1922.

Legal samples----- 15 | Illegal samples----- 8 | Total samples----- 23

The eight illegal samples were all sold as fresh milk, but were either deficient in butter fat or they contained dirt or foreign matter.

NUTS.

1920-1921.

Legal samples----- 5 | Illegal samples----- 19 | Total samples----- 24

The nineteen samples of illegal nuts were mostly cull walnut meats consisting of rancid, wormy, shriveled, immature or decomposed meats, representing the refuse from the sorting tables of nut-cracking establishments, and were fit only for hog feed or chicken feed. Certain dealers and peddlers have for a number of years handled large quantities of such nut meats, which they sell to certain bakers and manufacturers of cheaper grades of candy. Some of these nut meats are used in ice cream.

1921-1922.

Legal samples----- 3 | Illegal samples----- 19 | Total samples----- 22

These illegal samples of nuts consisted largely of nut meats similar to those above reported, and 264,000 pounds of these walnut meats have been diverted from the channels of human food and made into chicken feed or hog feed. One of the illegal samples of nut meats consisted of filberts which were moldy and decomposed in the center of the meat. This decomposition could not be detected without cutting the nut.

OILS.

1920-1921.

Legal samples----- 2 | Illegal samples----- 3 | Total samples----- 5

One of the illegal samples consisted of olive oil adulterated with cottonseed oil. The other two illegal samples consisted of salad oil made from cottonseed oil without this fact being indicated on the label.

1921-1922.

Legal samples----- 1 | Illegal samples----- 2 | Total samples----- 3

The two illegal samples were made from cottonseed oil but labeled salad oil without declaring the nature of the oil.

ALIMENTARY PASTES.

1920-1921.

Legal samples----- 21 | Illegal samples----- 60 | Total samples----- 81

Forty of the 60 illegal samples consisted of macaroni, spaghetti and vermicelli made in whole or in part from soft wheat flour instead of semolina, and some of

them were artificially colored, whereby inferiority was concealed. The other 20 illegal samples consisted of egg noodles which were deficient in eggs. In some cases artificial color was used to make the article appear like egg noodles.

1921-1922.

Legal samples..... 22 | Illegal samples..... 11 | Total samples..... 33

Six of the illegal samples consisted of macaroni and spaghetti made from soft wheat flour instead of semolina, and part of the samples were artificially colored. Five of the illegal samples consisted of substandard egg noodles.

SPICES.

1920-1921.

Legal samples..... 16 | Illegal samples..... 0 | Total samples..... 16

No adulteration was detected in the official samples of spices collected this year. Apparently the coconut shell grinders and flour roasters have gone on a long vacation. May they never return.

SYRUPS (SODA WATERS).

1920-1921.

Legal samples..... 5 | Illegal samples..... 23 | Total samples..... 28

The 23 illegal samples consisted of cherry, orange, raspberry, strawberry and vanilla syrups which were imitation products artificially flavored, artificially colored, or both, and such facts were not indicated on the label.

1921-1922.

Legal samples..... 3 | Illegal samples..... 69 | Total samples..... 72

The illegal samples this year were similar to those of the previous year in that they consisted largely of imitation syrups labeled or sold as fruit syrups.

SYRUPS (TABLE).

1920-1921.

Legal samples..... 5 | Illegal samples..... 8 | Total samples..... 13

Five of the illegal samples consisted of maple syrup adulterated with cane sugar syrup. Three of the illegal samples were labeled to indicate maple flavor, whereas imitation maple flavor was used.

1921-1922.

Legal samples..... 4 | Illegal samples..... 12 | Total samples..... 16

Eight of the illegal samples were sold as maple or cane and maple and were adulterated in that very little, if any, maple was used. Four of the illegal samples consisted of syrups, indicating that they were flavored with maple when in fact an imitation maple flavor containing no maple whatsoever was used.

VEGETABLES.

1920-1921.

Legal samples..... 18 | Illegal samples..... 126 | Total samples..... 144

The illegal samples of vegetables are divided as follows: 14 samples horse beans, wormy; 3 samples canned pumpkin, decomposed; 2 samples spinach, decomposed; 11 samples tomatoes, decomposed and rotten; 90 samples tomato paste made from decomposed and rotten tomatoes; 3 samples tomato pulp made from decomposed and rotten tomatoes; 1 sample tomato puree made from decomposed and rotten tomatoes.

1921-1922.

Legal samples..... 24 | Illegal samples..... 36 | Total samples..... 60

The illegal samples of vegetables are divided as follows: 2 samples horse beans, wormy; 6 samples decomposed tomatoes; 13 samples decomposed tomato paste; 3

samples decomposed tomato puree; 12 samples celery containing an excessive amount of poisonous residue which resulted from spraying the celery with lead arsenate or copper sulphate. Large quantities of such celery were destroyed as it contained sufficient poison to be dangerous.

VINEGAR.

1920-1921.

Legal samples----- 44 | Illegal samples----- 5 | Total samples----- 49

The 5 illegal samples consisted of vinegar which did not conform to the standard, that is, it was low in acetic acid, or the composition did not conform to the product indicated by the label.

1921-1922.

Legal samples----- 5 | Illegal samples----- 0 | Total samples----- 5

MINERAL WATER.

1920-1921.

Legal samples----- 0 | Illegal samples----- 2 | Total samples----- 2

One of these mineral waters was labeled Olaxo Mineral Water, bottled only at the Radium Sulphur Springs. This water was partly artificial and none of it was really a mineral water. The other sample was labeled Arada Mineral Water, bottled at the Radium Sulphur Springs and Hot Baths. This water was largely artificial and contained no radium.

1921-1922.

Legal samples----- 0 | Illegal samples----- 3 | Total samples----- 3

Two of these samples were labeled Spring Table Water and the label contained false and misleading statements with reference to the quality of the water. The other sample was a spring water containing only a very small amount of mineral salts and the label contained false claims as to the therapeutic qualities of the water.

DRUGS.

1920-1921.

Legal samples----- 41 | Illegal samples----- 83 | Total samples-----124

The illegal samples of drugs are divided as follows: 10 samples camphorated oil, deficient in camphor; 4 samples spirits of camphor, deficient in camphor; 1 sample cancer treatment, false claims on label; 2 samples elixirs, false claims on label; 5 samples essence jamaica ginger, deficient in strength; 2 samples iodine, deficient in strength; 1 sample liniment, false claims on label; 27 samples citrate of magnesia, deficient in strength; 1 sample sweet spirits of nitre, deficient in strength; 6 samples sweet oil in which cottonseed oil was substituted for olive oil; 1 pile remedy, false claims on label; 1 toothache remedy containing chloroform which was not declared on label; 1 sample medicinal water with false claims on label; 24 miscellaneous remedies, among which were a number of so-called roup remedies, containing false claims with reference to the curing of roup, diphtheria, etc., in chickens. The miscellaneous drugs also covered a number of stock remedies such as Pratt's Hog Cholera Specific, Pratt's Animal Regulator, Kow Kure made by the so-called Dairy Association Company of Lyndonville, Vermont. The labels on these stock remedies contain many false and misleading statements with respect to their therapeutic properties.

1921-1922.

Legal samples----- 7 | Illegal samples----- 29 | Total samples----- 36

The illegal samples were divided as follows: 3 camphorated oil, deficient in camphor; 1 sample essence of ginger, deficient in strength; 6 samples citrate of magnesia, deficient in strength; 18 miscellaneous samples of drugs, including some roup remedies for chickens and a variety of cure-alls recommended for rheumatism, liver, stomach, etc.

FEEDING STUFFS.

The California Commercial Feeding Stuffs Act passed by our legislature in 1919 became effective on November 1, 1919. The California act in general conforms to most of the provisions of the present feeding stuffs laws in our most progressive states. Registration of feeding stuffs is not required for the reason that it did not seem necessary in this state. No license is required and dealers are not required to purchase official tags or stamps. The feeding stuffs law operates very much similar to the pure food law and it is only necessary for the manufacturers to use wholesome materials and declare certain ingredients correctly on the tag or label. The requirements for the tag or label are set forth in section 3 of the act, as follows:

Sec. 3. Every lot or parcel of commercial feeding stuffs sold, offered or exposed for sale or distributed within this state shall have affixed thereto a tag or label, in a conspicuous place on the outside thereof, containing a legible and plainly printed statement in the English language, clearly and truly certifying:

- (a) The net weight of the contents of the package, lot or parcel;
- (b) The name, brand or trade-mark;
- (c) The name and principal address of the manufacturer or person responsible for placing the commodity on the market;
- (d) The minimum per centum of crude protein;
- (e) The minimum per centum of crude fat;
- (f) The maximum per centum of crude fiber;
- (g) The maximum per centum of ash;
- (h) The specific name of each ingredient used in its manufacture.
- (i) The per centum of such ingredients as corn cobs, corn bran, oat hulls, barley hulls, rice hulls, ground light rice, alfalfa meal or similar materials, when such constitute a portion of the package, lot or parcel.
- (j) In the case of poultry feeds, the per centum of grit or mineral matter they contain.

Paragraph "i," requiring the percentages of such ingredients as corn cobs, ground rice hulls, etc., has proven a great benefit to the users of commercial feeds for the reason that practically all of the worthless adulterants mentioned in this paragraph have been eliminated from the feeds in California. About the time this act went into effect, one dealer had accumulated enormous quantities of corn cobs and had provided machinery for grinding these cobs and mixing the product with rolled barley. Shortly after the food inspectors had made a few visits to this establishment the whole premises, including the corn cobs, burned.

Numerous inspections have been made of feed manufacturing plants and in most all cases the feeds have been in good condition and the requirements of the law were carried out. During the fiscal year ending June 30, 1921, 102 samples of feeding stuffs were analyzed with the result that only 9 did not conform to requirements. The violations in these 9 cases were mostly due to omissions on the tag, although a few samples did not conform in composition to the declared analysis on the tag. During the fiscal year ending June 30, 1922, a great many inspections of feed mills and stores were made but only 27 official samples were collected for analysis. Seven of these samples were illegal, due either to a slight deficiency in ingredients, or because the tags did not conform to the requirements.

It may be said with great credit to the feed manufacturers of this state that none of the regular manufacturers of grain feeds have been prosecuted under the Feeding Stuffs Act. The minor violations which occurred have been adjusted through correspondence and inspection.

The only cases which have been prosecuted were a few manufacturers of rice products who sold material labeled rice bran which contained, in one case, as high as 53 per cent of ground limestone. Some of the rice mills use ground limestone in processing rice. It was formerly the practice to permit more or less of this limestone to enter by-products such as rice bran, rice middlings, etc.

SOFT DRINKS.

At the present time there appears to be far more violation of the food law in the line of soft drinks than in any other class of materials under the jurisdiction of the Pure Foods Act. It is true that a certain amount of improvement has been made with regard to adulteration and mislabeling of soft drinks since the food law became effective in 1908. Harmful colors, harmful flavors and saccharine have been practically eliminated, but by far the greater proportion of soft drinks consist either wholly or largely of imitation concoctions which masquerade as fruit drinks.

The labels of these products are usually designed in such a way that the name of a fruit or the picture of fruit is the most conspicuous part of the label and, frequently, they are the only features which catch the eye of the consumer. In some cases, by carefully scrutinizing the label, further information may be found to the effect that the article contains many substances which are entirely foreign to fruit and the analysis of the product may disclose that little or none of the fruit is present.

It is not alone the labels which are deceptive, but extensive advertising, usually more deceptive than the labels, is conducted by the use of bill boards, placards, circulars, newspapers, etc. For example: A beverage labeled "Orange Squeeze" was advertised on bill boards by the use of a picture of a hand squeezing orange juice into a glass. This design prominently featuring fruit was made very attractive by appropriate colors and the natural inference from seeing the advertisement would be that the product called "Orange Squeeze" consisted essentially of orange juice. The facts in the case are that the so-called "Orange Squeeze" consisted of citric acid, sugar, water, orange oil flavoring from the peel of the orange, and the entire mixture was colored with coal tar dye in imitation of an orange juice product.

A beverage labeled "Orange Crush," which has also been extensively advertised, was originally composed of ingredients similar to the above. More recently a small proportion of orange juice has been included, but the amount is so small that the finished drink contains less than one-half of one per cent of any product from the orange. The original labels for the so-called "Orange Crush" contained no information to the effect that the article was almost entirely an imitation. The newer labels, however, declare in small print the various ingredients present, but the advertising of this article on bill boards, placards and in newspapers still carries the idea that the drink is made from oranges.

A beverage labeled "Orange-Nip," "Prepared from Pure Orange Juice," has recently been analyzed by this bureau and found to consist entirely of sugar, water, citric acid, orange flavor and orange peel, coal tar dye and less than one-half of one per cent of orange juice.

Numerous other examples might be mentioned, such as "Orangeade," "Cherry Smash," "Grape Punch," etc., which are largely, if not entirely, imitation products.

This subject may seem of minor importance, and yet in the aggregate it has been estimated that the annual expenditure for these beverages in the United States is over five hundred million dollars. The industry has swelled in a few years to enormous proportions. Formerly confined to the small local soda-pop manufacturer and circus lemonade vendor, it now supports numerous large plants, many of which do a national business on an extensive scale.

From the standpoint of healthfulness, toning qualities, and vitamins, soft drinks may be classified in two groups, namely, those which are made of fruit or fruit juice, and those which are not. The soft drinks which really consist of fruit juice are exceedingly scarce. The majority of the drinks are not even "near-fruit" drinks.

Pure fruit juices from certain fruits, such as grapes, loganberries, apples and pineapples, are bottled commercially. These genuine fruit juices are generally carried by grocers for family trade, and they may also be had in many places, such as dining cars, buffets, hotels, etc., where drinks are dispensed; but the business in the genuine fruit drinks is very small as compared with that in imitation drinks.

There has been a tendency during recent years to label as true fruit drinks certain preparations which contain a minute amount of highly concentrated extract or essence derived from the fruit; the other ingredients, forming the bulk of the drink, being imitation products. These fruit essences do not contain the healthful and nutritious properties of the fruit; they are simply the smell, and their use does not justify the labeling of the drink as a true fruit drink. Many of these concentrated true fruit essences are fortified with imitation essences derived from synthetic ethers.

Some of the so-called fruit drinks are first manufactured in the form of a concentrated syrup, containing a small amount of fruit juice and heavily loaded with coal tar dye. To these syrups the bottler adds an acid solution and then dilutes the mixture many times with water. When these drinks are finished for consumption the small amount of fruit juice present is diluted to such an extent that it has practically no bearing on the quality or value of the drink. These products, as usually manufactured, contain such a minute amount of fruit juice in the finished drink that they do not justify the labeling of the concoctions with the name of a fruit.

Pure Fruit Drinks.

Progress is being made in the manufacture of soft drinks from genuine fruits without the addition of acids or coal tar paint to imitate the fruits. The University of California has experimented along these lines and at the present time has prepared for exhibition purposes soft drinks made from strawberries, loganberries, raspberries, grapes, oranges and pomegranates.

These beverages are extremely palatable, have plenty of color from the natural fruit and, above all, they are healthful and nutritious, and their qualities are far superior to those of the imitation products.

It has been fully demonstrated that soft drinks can be prepared commercially from the fruit itself without any imitation ingredients, and that they can be manufactured at a cost which is not prohibitive.

California has an abundant supply of many different fruits, and it seems entirely reasonable and practicable to utilize more of these fruits

in the manufacture of soft drinks. Furthermore, the general use of soft drinks made of fruit instead of the imitation products would greatly benefit the health of consumers.

The pure food laws were designed to protect the public and the honest manufacturers. Our experience in the manufacturing, labeling and advertising of soft drinks seems to indicate that the public is not properly advised as to the nature of the soft drinks which they purchase. Artificial color, which, in the case of soft drinks, is usually coal tar dye, seems to be the principal agent that contributes to the deception. Many manufacturers have told us that they could not sell their beverages at all unless they used artificial color and, in fact, some of them have said that they could not continue in business if they did not use artificial color, because the consumers would not buy the drinks which did not have color.

In other words, a drink labeled with a fruit name and composed of citric acid, sugar, imitation flavor and water, without artificial color would not be accepted by consumers, but the identical mixture with the addition of a little artificial color would be favorably received. We are also advised by manufacturers that the word "imitation" on the label of soft drinks practically kills the sale of that drink; while the identical preparation without the word "imitation" on the label would have a normal sale.

It seems quite probable that many of the soft drinks are so artfully concocted and represented that they easily fool the public, and it is perhaps also true that the public depends too much on their eyes and not enough on their intellects in the selection of beverages. The elimination of artificial color from soft drinks would solve the whole problem so far as the public is concerned, but, under the present construction of the statutes, this is apparently impossible. The protection the public is entitled to can only be secured by amending the food laws so that they will be more specific.

FOODS AND FOOD PRODUCTS.

State Institutions.

About ten years ago the State Board of Control, in cooperation with the Bureau of Foods and Drugs of the State Board of Health, devised a system of inspection for food, drug and other supplies purchased for state institutions. This system is still in effect and is giving most excellent results. The food and drug laboratory has the necessary equipment and highly trained analysts to handle this subject in an efficient manner. Specifications are in effect for the majority of food products, although in some cases foods are purchased through competitive bids, the samples being submitted to the food and drug laboratory for analysis, after which the contracts are awarded on a basis of the lowest price for the best quality. Some of the samples are sent in by the different institutions, others are collected by food and drug inspectors while on their tours of inspection.

As a result of this plan of checking state institution supplies, the general quality of foods has been materially improved; numerous deliveries have been rejected because they did not conform to specifications and a very large saving in money has been made to the state. For the fiscal year ending June 30, 1921, 806 samples were examined for the state institutions. Fifty-six of the deliveries represented by these samples were

either rejected or paid for on the basis of the actual value of the grade of material delivered. For the fiscal year ending June 30, 1922, 534 samples were examined and 23 of this number were below the requirements and either rejected or paid for on the basis of the actual value of the material delivered. The rejected items include butter, which was of a quality inferior to that required by the contracts; cheese, which in several cases was far inferior to the quality named in the specifications; chocolate, not up to standard; coffee, inferior in quality; tomato catsup, made from decomposed and rotten tomatoes; lemon extract, which was below the required standard; vanilla extract, containing imitation products; commercial feeding stuffs which did not conform to the guaranteed analysis; flour, which was inferior to the quality specified; dried fruit, such as apples and pears, which were wormy or decomposed; honey, containing foreign material which rendered it unfit for human consumption; frankfurter sausage, adulterated with cereal and water; macaroni, spaghetti and vermicelli, made from inferior materials; spices, poorer in quality than specified; syrups, not conforming to specifications; beans, containing excessive dirt, spoiled beans, etc., and tomatoes which were decomposed and unfit for human consumption.

The attempts on the part of dealers and contractors to furnish substandard supplies are fewer at the present time than they were formerly and the fact that the system is in operation makes the dealers far more careful, as the dealer not only loses the business, but he is also out the charges for freight in two directions. A detailed table of state institution samples for the biennial period appears elsewhere in this report.

COLD STORAGE.

The table of material held in cold storage at the end of each quarter has been published in the State Board of Health Bulletins and therefore it is not reproduced in this biennial report. Copies of these cold storage reports may be had on application to the State Board of Health, Sacramento, Cal.

ANALYTICAL WORK.
FOODS AND DRUGS.
(Official.)

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Baking powder.....	--	--	--	1	--	1
Beverages:						
Apple cider.....	19	10	29	6	7	13
Cream soda.....	1	--	1	--	--	--
Champagne cider.....	1	--	1	--	--	--
Ginger ale.....	20	10	30	2	2	4
Grape drinks.....	17	6	23	1	16	17
Iron beverages.....	--	5	5	1	--	1
Lemon beverages.....	13	6	19	3	5	8
Miscellaneous beverages.....	16	35	51	4	16	20
Orange beverages.....	14	34	48	5	41	46
Root beer.....	3	--	3	--	--	--
Sarsaparilla.....	3	--	3	--	--	--
Soda waters.....	4	1	5	--	--	--
Strawberry beverages.....	15	10	25	2	5	7
Bread.....	6	--	6	--	48	48
Butter.....	1	--	1	1	1	2
Cheese.....	--	--	--	1	4	5
Chocolate and cocoa.....	1	7	8	--	6	6
Coffee.....	1	5	6	--	--	--
Condiments:						
Horseradish.....	1	1	2	--	--	--
Mustard.....	--	1	1	--	--	--
Pepper sauce.....	1	--	1	--	--	--
Mustard.....	3	1	4	1	2	3
Pickles.....	1	--	1	--	2	2
Relish.....	1	--	1	--	--	--
Salad dressing.....	--	--	--	--	5	5
Sauces, tomato.....	--	4	4	3	2	5
Catsup.....	12	20	32	6	14	20
Confectionery.....	12	35	47	3	19	22
Cream.....	10	1	11	3	3	6
Eggs.....	3	20	23	9	22	31
Dried eggs.....	6	4	10	12	5	17
Egg compound.....	--	2	2	--	--	--
Frozen.....	--	2	2	--	3	3
Extracts:						
Lemon.....	4	1	5	--	1	1
Ginger.....	--	--	--	1	--	1
Strawberry.....	--	1	1	--	--	--
Vanilla.....	--	2	2	2	2	4
Feeds-stock.....	93	9	102	20	7	27
Fish:						
Canned.....	7	12	19	3	2	5
Smoked.....	--	1	1	--	--	--
Sardines.....	1	1	2	2	--	2
Flour-soy bean.....	--	1	1	1	--	1
Fruit:						
Apples.....	8	3	11	4	4	8
Apricots.....	3	4	7	--	--	--
Blackberries.....	2	1	3	--	--	--
Cherries.....	1	--	1	--	1	1
Currants.....	--	--	--	--	1	1
Figs.....	--	2	2	--	1	1
Miscellaneous.....	--	4	4	--	1	1
Oranges.....	--	--	--	--	32	32
Pears.....	--	1	1	--	1	1
Prunes.....	--	1	1	--	--	--
Raisins.....	--	5	5	1	--	1
Raspberries.....	--	1	1	--	--	--
Strawberries.....	1	--	1	--	1	1
Gelatin.....	5	8	13	5	8	13
Honey.....	5	2	7	--	--	--
Ice cream.....	28	6	34	13	12	25

ANALYTICAL WORK—Continued.

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Jams and jellies:						
Apple	3	7	10	--	1	1
Apricot	--	--	--	2	1	3
Blackberry	5	8	13	--	--	--
Currant	--	--	--	1	--	1
Fig	1	3	4	--	--	--
Loganberry	2	1	3	--	--	--
Miscellaneous	2	10	12	--	3	3
Orange	2	--	2	--	--	--
Peach	1	--	1	--	--	--
Raspberry	2	1	3	1	--	1
Strawberry	1	1	2	1	--	1
Lard	--	--	--	--	3	3
Meats:						
Chopped meat	17	44	61	24	38	62
Miscellaneous meats	11	--	11	--	15	15
Miscellaneous sausage	1	2	3	11	13	24
Frankfurters	--	--	--	--	4	4
Pork sausage	5	7	12	3	5	8
Ham	--	--	--	--	1	1
Milk:						
Buttermilk	2	--	2	--	--	--
Evaporated	3	1	4	1	--	1
Whole milk	3	7	10	14	8	22
Miscellaneous material	17	13	30	5	13	18
Nuts	5	19	24	3	19	22
Oils:						
Olive	2	1	3	1	--	1
Salad	--	2	2	--	2	2
Olives	--	--	--	--	2	2
Pastes—alimentary:						
Macaroni	10	36	46	7	5	12
Miscellaneous	--	--	--	2	--	2
Noodles	9	20	29	11	5	16
Spaghetti	1	2	3	2	--	2
Rice	--	--	--	--	1	1
Vermicelli	1	2	3	--	--	--
Poultry:						
Spring chicken	--	1	1	--	--	--
Soup	--	1	1	--	--	--
Spices:						
Cloves	2	--	2	1	--	1
Mace	3	--	3	--	--	--
Mustard	1	--	1	--	--	--
Black pepper	2	--	2	--	--	--
Red pepper	2	--	2	--	--	--
White pepper	6	--	6	--	--	--
Sugar	--	--	--	--	2	2
Maple sugar	--	--	--	1	--	1
Syrup—soda water:						
Banana	--	--	--	1	3	4
Cherry	--	5	5	--	26	26
Lemon	--	--	--	--	2	2
Miscellaneous	4	2	6	--	17	17
Orange	--	3	3	--	8	8
Raspberry	--	6	6	2	5	7
Strawberry	--	5	5	--	7	7
Vanilla	1	2	3	--	1	1
Syrups—table:						
Cane and maple	1	--	1	--	--	--
Maple	2	5	7	--	8	8
Miscellaneous	2	3	5	4	4	8
Vegetables:						
Beans	6	14	20	1	2	3
Corn	1	--	1	--	--	--
Miscellaneous	--	--	--	12	12	24
Potatoes	--	--	--	1	--	1

ANALYTICAL WORK—Continued.

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Pumpkin	2	3	5	--	--	--
Spinach	--	2	2	--	--	--
Tomatoes	--	11	11	1	6	7
Tomato paste	8	90	98	9	13	22
Tomato pulp	--	5	5	--	--	--
Tomato puree	1	1	2	--	3	3
Vinegar	44	5	49	5	--	5
Water:						
Mineral	--	2	2	--	2	2
Table	--	--	--	--	1	1
Totals	537	639	1,176	243	563	806

DRUGS.

(Official.)

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Camphor compounds:						
Camphorated oil	10	10	20	3	3	6
Spirits of camphor	4	1	5	--	--	--
Cancer treatment	--	1	1	--	--	--
Elixirs	--	2	2	--	--	--
Ginger compounds	5	5	10	--	1	1
Grip tablets	1	--	1	--	--	--
Iodine	4	2	6	1	--	1
Liniment	1	1	2	--	--	--
Magnesia—citrate	11	27	38	3	6	9
Miscellaneous	2	24	26	--	18	18
Malt	--	--	--	--	1	1
Nitre compounds	2	1	3	--	--	--
Oils—sweet	--	6	6	--	--	--
Pile remedy	--	1	1	--	--	--
Quinine capsules	1	--	1	--	--	--
Tootache drops	--	1	1	--	--	--
Water—Nipisan med.	--	1	1	--	--	--
Totals	41	83	124	7	29	36

ANALYTICAL WORK—Continued.

FOODS AND DRUGS.

(Unofficial.)

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Beverages:						
Apple cider.....	1	--	1	1	--	1
Beer.....	3	--	3	--	--	--
Ginger ale.....	4	2	6	--	--	--
Grape drinks.....	1	--	1	--	--	--
Lemon beverages.....	1	--	1	1	--	1
Miscellaneous beverages.....	1	1	2	--	--	--
Orange beverages.....	--	1	1	--	--	--
Soda waters.....	1	--	1	--	--	--
Bread	1	--	1	--	--	--
Butter	--	--	--	1	1	2
Cheese	1	--	1	--	4	4
Chocolate	1	--	1	1	1	2
Coffee	2	--	2	--	--	--
Condiments:						
Salad dressing.....	--	--	--	2	1	3
Mayonnaise.....	--	--	--	1	1	2
Sauces—tomato.....	14	10	24	50	23	73
Catsup.....	25	39	64	20	43	63
Confectionery.....	9	8	17	2	1	3
Cream	1	3	4	--	--	--
Eggs:						
Frozen.....	--	1	1	1	1	2
Dried.....	4	2	6	2	--	2
Extracts:						
Raspberry.....	1	--	1	--	--	--
Strawberry.....	1	--	1	1	--	1
Vanilla.....	1	--	1	--	1	1
Feeds—stock	11	6	17	18	5	23
Fish—canned	11	1	12	3	7	10
Sardines.....	5	2	7	1	2	3
Flour:						
Miscellaneous.....	2	--	2	1	--	1
White.....	5	--	5	1	--	1
Fruit:						
Apples.....	--	4	4	2	17	19
Apricots.....	3	2	5	--	--	--
Blackberries.....	7	10	17	--	--	--
Currants.....	1	--	1	--	--	--
Figs.....	4	8	12	--	1	1
Miscellaneous.....	11	1	12	--	--	--
Oranges.....	--	--	--	2	--	2
Peaches.....	4	--	4	1	--	1
Plums.....	2	--	2	--	--	--
Prunes.....	1	1	2	--	--	--
Raisins.....	2	7	9	--	--	--
Raspberries.....	--	1	1	--	--	--
Strawberries.....	2	1	3	--	1	1
Gelatin	3	--	3	7	--	7
Honey	7	--	7	3	--	3
Ice cream	20	10	30	1	3	4
Jams and jellies:						
Apple.....	10	1	11	1	--	1
Apricot.....	1	--	1	--	--	--
Blackberry.....	6	5	11	1	--	1
Currant.....	1	--	1	--	--	--
Fig.....	4	4	8	2	1	3
Loganberry.....	2	--	2	--	--	--
Miscellaneous.....	18	20	38	--	1	1
Orange.....	1	--	1	--	--	--
Peach.....	1	1	2	--	--	--
Quince.....	1	--	1	--	--	--
Raspberry.....	3	1	4	--	--	--
Strawberry.....	2	1	3	--	--	--

ANALYTICAL WORK—Continued.

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Meats—canned	1	--	1	--	--	--
Chopped meat	--	--	--	1	--	1
Minced meat	1	--	1	--	--	--
Dried beef	1	--	1	--	--	--
Milk:						
Evaporated	--	--	--	1	--	1
Malted	--	1	1	--	--	--
Whole	3	2	5	2	--	2
Miscellaneous material	17	3	20	6	5	11
Nuts	16	11	27	1	8	9
Oils:						
Olive	1	--	1	2	--	2
Salad	--	--	--	1	--	1
Olives	3	10	13	--	--	--
Pastes—alimentary:						
Noodles	--	1	1	3	--	3
Vermicelli	--	--	--	--	1	1
Rice	--	--	--	3	3	6
Sugar	1	--	1	1	--	1
Syrups—soda water:						
Miscellaneous	1	1	2	--	--	--
Syrups—table:						
Maple	--	1	1	3	--	3
Miscellaneous	1	--	1	4	3	7
Vegetables:						
Miscellaneous	1	1	2	20	4	24
Sweet potatoes	--	1	1	--	--	--
Pumpkin	--	2	2	--	--	--
Spinach	1	2	3	--	--	--
Squash	--	--	--	1	--	1
Tomatoes	6	--	6	79	--	79
Tomato paste	10	122	132	36	31	67
Tomato puree	96	12	108	85	58	143
Vinegar	2	--	2	4	--	4
Water:						
Distilled	--	--	--	1	--	1
Table	1	--	1	1	--	1
Totals	387	324	711	382	228	610

DRUGS.

(Unofficial.)

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Miscellaneous	3	1	4	5	--	5
Epsom salts	1	--	1	--	--	--
Totals	4	1	5	5	--	5

ANALYTICAL WORK—Continued.

FOODS.

(State Institutions.)

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Ammonia	2	--	2	2	--	2
Baking powder.....	11	--	11	9	--	9
Baking soda.....	10	--	10	8	--	8
Butter.....	44	6	50	48	2	50
Cereals:						
Pearl barley.....	6	--	6	3	--	3
Bran-table.....	1	--	1	--	--	--
Corn meal.....	11	--	11	8	--	8
Miscellaneous.....	2	--	2	3	--	3
Oats.....	21	--	21	13	--	13
Wheat.....	15	--	15	10	--	10
Cheese.....	13	--	13	2	3	5
Chocolate and cocoa.....	20	1	21	12	--	12
Cleansers.....	1	--	1	--	--	--
Cocoonut.....	2	--	2	5	--	5
Coffee.....	21	1	22	14	--	14
Coffee substitute.....	5	--	5	5	--	5
Condiments:						
Pickles.....	1	--	1	--	--	--
Sauces—tomato.....	2	--	2	3	--	3
Worcestershire.....	2	--	2	2	--	2
Catsup.....	9	1	10	5	1	6
Crackers.....	4	1	5	2	--	2
Eggs.....	--	--	--	1	--	1
Extracts:						
Lemon.....	7	1	8	6	--	6
Vanilla.....	10	4	14	8	--	8
Feeds—stock.....	40	4	44	36	2	36
Fish:						
Oysters.....	8	--	8	6	--	6
Sardines.....	6	--	6	2	--	2
Flour:						
Miscellaneous.....	6	--	6	8	--	8
White.....	40	11	51	26	3	29
Fruit:						
Apples.....	22	7	29	8	3	11
Apricots.....	4	--	4	2	--	2
Blackberries.....	1	--	1	--	--	--
Cherries.....	2	--	2	1	--	1
Currants.....	3	--	3	2	--	2
Figs.....	11	--	11	6	--	6
Peaches.....	24	--	24	11	--	11
Pears.....	19	1	20	11	1	12
Plums.....	1	--	1	--	--	--
Prunes.....	11	--	11	6	--	6
Raisins.....	5	--	5	5	--	5
Gelatin.....	4	--	4	3	--	3
Honey.....	3	1	4	--	--	--
Jams and jellies:						
Apple.....	2	--	2	--	--	--
Miscellaneous.....	2	--	2	1	--	1
Lard.....	1	--	1	--	--	--
Lard substitute.....	4	--	4	6	--	6
Meats:						
Sausage and frankfurters.....	2	1	3	6	1	7
Miscellaneous sausage.....	1	--	1	2	--	2
Milk:						
Buttermilk.....	1	--	1	--	--	--
Whole.....	--	1	1	--	--	--
Miscellaneous material.....	14	--	14	14	--	14
Oils:						
Olive.....	4	--	4	4	--	4
Salad.....	16	--	16	7	--	7

ANALYTICAL WORK—Continued.

Material	1920-1921			1921-1922		
	Legal samples	Illegal samples	Total samples	Legal samples	Illegal samples	Total samples
Pastes—alimentary:						
Macaroni	6	2	8	5	1	6
Spaghetti	5	1	6	6	1	7
Vermicelli	2	1	3	2	--	2
Preservative	1	--	1	1	--	1
Rice	12	--	12	5	--	5
Salt	17	--	17	8	1	9
Spices:						
Allspice	3	--	3	--	--	--
Cinnamon	4	5	9	4	3	7
Cloves	2	--	2	1	--	1
Ginger	1	--	1	1	--	1
Mace	1	--	1	2	--	2
Mustard	13	--	13	6	--	6
Nutmeg	4	--	4	2	--	2
Paprika	1	--	1	--	--	--
Black pepper	16	--	16	9	--	9
White pepper	5	--	5	6	--	6
Red pepper	--	--	--	2	--	2
Sage	3	--	3	--	1	1
Starch—common	11	--	11	9	--	9
Sugar	12	1	13	6	--	6
Syrups—table:						
Cane and maple	1	--	1	--	--	--
Miscellaneous	41	1	42	24	--	24
Tallow	1	--	1	--	--	--
Tapioca	7	--	7	4	--	4
Tea	25	--	25	25	--	25
Tobacco	6	--	6	6	--	6
Vegetables:						
Beans	24	3	27	13	--	13
Corn	10	--	10	6	--	6
Hominy	4	--	4	--	--	--
Miscellaneous	1	--	1	--	--	--
Peas	16	--	16	7	--	7
Tomatoes	1	1	2	--	--	--
Vinegar	17	--	17	9	--	9
Totals	750	56	806	511	23	534

MATERIALS CONDEMNED AND DESTROYED.

Material	1920-1921 Amount	1921-1922 Amount
Beans—horse	483 sacks	
Butter		60 lbs.
Candy—scrap candy	25 lbs.	75 lbs.
Parisian fig bar	58 pieces	
Catsup	1,072 bottles	3,334 bottles
	276 gals.	1,407 cans
	5,124 cases	2,465 cases
	4 bbls.	
Cheese	200 lbs.	1,068 lbs.
Chocolate and cocoa	13 lbs.	
Dried fruits:		
Apples	10 cases	1,590 lbs.
Figs	8,050 lbs.	425 lbs.
Pears		3 tons
Drugs—hog cholera cure	93 pails	
Eggs	43 cases	
	4 cases	5 cases
Frozen egg yolks	15 cans	
Whole dry egg	32½ lbs.	
Frozen egg meats	120 lbs.	3,377 lbs.
Frozen egg whites	270 lbs.	
Feeds—cottonseed cake and meal		70 tons
Fish:		
Halibut		28,300 lbs.
Holland herring		1,800 lbs.
Lobsters		300 lbs.
		15 boxes
Salmon	7,100 lbs.	
Salmon—canned	167 cases	
Salt fish	106,900 lbs.	
Shrimps		6,009 cans
Tuna		26 tons
Flour	1,047 lbs.	
Fruit:		
Apples	95 boxes	
Frozen blackberries	5,650 lbs.	
Blackberries	3 bbls.	
Grapes		238 boxes
Lemons		25 boxes
Loganberries	4 bbls.	
Berries	4 cans	
Olives	11 bottles	9 bottles
Oranges		3,119 boxes
Pears	45 boxes	
Pineapples		288 cans
Prunes	1,800 lbs.	
Pumpkin—canned		1,296 cans
Raisins	1,580 bbls.	
	43 boxes	
Gelatine		2,000 lbs.
Jams and jellies:		
Apple butter	71 glasses	
	225 cases	
Assorted jam	326 jars	
	432 glasses	57 lbs.
Blackberry jam	326 jars	
	54 cases	451 cases
		4 cans
Blackberry preserves		29 cans
Fig jam	4,000 lbs.	48 jars
Guava jam	1,630 cans	
Preserves	1,540 lbs.	
	300 qts.	

MATERIALS CONDEMNED AND DESTROYED—Continued.

Material	1920-1921 Amount	1921-1922 Amount
Meat:		
Bacon	204 lbs.	330 lbs.
Beef	20 lbs.	40 lbs.
Beef—canned	36 cans	-----
Chopped meat	10 lbs.	-----
Frankfurters	13 lbs.	-----
Lamb	75 lbs.	-----
Pork sausages	10 lbs.	-----
Poultry	225 lbs.	146 lbs.
Rabbits	-----	200 lbs.
Veal	10 lbs.	-----
Milk—skim	152 lbs.	-----
Miscellaneous:		
Cow special remedy	-----	66 bottles
Apple juice	-----	47 gals.
Fruits and vegetables	33,000 cases	-----
Taters and 'lasses	6 cases	-----
Nuts:		
Almonds	24 sacks	-----
Walnuts	117,910 lbs.	4,128 lbs.
Walnut meats	13 sacks	32 sacks
Walnut meats	7,260 lbs.	264,656 lbs.
Peanuts	604 cases	8 bbls.
Peanuts	175 lbs.	-----
Paste:		
Fig paste	20 lbs.	-----
Tomato paste	86 lbs.	25,000 lbs.
Tomato paste	73 cases	92 cans
Spices—essence of ginger	-----	108 bottles
Tomato puree	-----	1,662 cans
Tomato puree	-----	218 cases
Tomato sauce	13,800 cans	6,336 cans
Tomato sauce	-----	2,915 gals.
Tomato sauce	-----	700 cases
Tomatoes	3 cans	-----
Tomatoes	3 cases	-----
Vegetables:		
Celery	-----	25,000 stalks
Celery	-----	441 crates
Celery	-----	$\frac{1}{2}$ acre
Corn	450 lbs.	-----
Corn—canned	3 cases	-----
Assorted vegetables	-----	84 cans
Sardines	-----	35,800 lbs.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES.

JULY 1, 1920, to JUNE 30, 1922.

ANNA C. JAMME, R.N., Director.

The period embraced in this report, namely, from July, 1920, to July, 1922, marks the most constructive era in the work of the bureau since its establishment in 1913. From 1913 to the beginning of the war period in 1917, organization of schools of nursing on an educational basis was being effected; requirements for the schools were formulated on a somewhat tentative plan with recommendations looking forward to the development of a more permanent plan. The development proceeded slowly and as the schools were able to meet the positive requirements. With the onset of the war and the acute need of nurses, the period from 1917 to 1920 was one of general disturbance in the schools. Many executives and teaching nurses were called into war service and, although there was a perceptible increase in the students entering, the teaching and general administration of the schools suffered. Following the close of the war and up to July, 1920, saw the schools very largely depleted of students, as the enthusiasm and hope of war service had ceased and the commercial world called the young student to more alluring employment. With the advent of the summer of 1920, the general situation became more steady; the schools saw the need of adopting different policies from those heretofore used in administration, with the consequence that greater confidence was established and more students entered. Therefore, from the beginning of the period of 1920 there was a marked change in this work in California.

Changes in the Law.

The most outstanding feature during this biennial period has been the change in the law made by the legislature of 1921. The examination and certification fee was raised to \$15 from \$10, the latter not being sufficient to cover expenses of administering the work, as there is no appropriation from state funds and the support comes entirely from the fees paid by the nurses; the minimum course of instruction was reduced to twenty-eight months from thirty-six months; schools wishing to give a more extended course are permitted by the act to do so under certain provisions; the yearly renewal of certificate was required and a fee of \$1 for this provided, which is for the purpose of maintaining and publishing a complete and up-to-date list of the registered nurses of the state; the section pertaining to certificate without examination of nurses registered in other states or foreign countries was changed, enabling such nurses to be certificated without examination provided they met the requirements of the law of California, irrespective of the requirements of the law of other states or foreign countries. This has operated so well that many more nurses are able to be certificated who otherwise would have been required to pass an examination.

Changes in the Curriculum.

The changes in the act relating to the length of course necessitated a complete reorganization of the curriculum. It seemed that the time was ripe to inaugurate the heretofore recommendations into positive requirements and the new course arranged on the basis of having a

definite and uniform time to admit students and a preparatory period of four months, during which time the preliminary instruction would be given to groups of students before they were permitted to take any responsible part in the nursing care of patients in the hospital. Following this preparatory term is a period of twenty-four months, arranged in six sessions and including two intersessions, during which night duty, vacation and affiliation may occur. The hours of instruction and practice work in various services is definitely stated, all of which will have to be completed and records submitted before the eligibility of the applicant for examination can be established. Additional courses, covering a period of four months, are allowed by the act for schools having facilities for conducting such courses, such schools to be approved by the State Board of Health for this purpose.

Certification of Applicants for Schools of Nursing.

The law of 1921 provides that applicants for examination must present evidence of preliminary education, which is satisfactory to the board. It became necessary that a standard of preliminary education should be established by the board and that applicants should submit their educational qualifications before entrance to a school and not wait until the time for examination. Consequently, this is anticipated and students receive a qualifying certification from the bureau before they begin their course of training, which insures this part of the qualification for examination when their course is completed. Students changing from one accredited school to another are also certificated and credits adjusted by the bureau to coincide with the arrangement of the course.

Certifications.

July, 1920-July, 1921-----	1,272 issued.
July, 1921-July, 1922-----	2,045 issued—60.69 per cent increase.

Requirements for Accredited Schools of Nursing.

I. THE HOSPITAL.

The hospital with which the school is connected shall have a capacity of not less than fifty beds and a daily average of twenty-five patients.

It shall provide experience in medical, surgical and obstetrical nursing and nursing in the diseases of children. Each student should have the care of not less than twelve maternity cases, including labor and delivery and the care of the infant.

II. THE SCHOOL.

A. Proper and adequate facilities must be provided for class instruction, such as

(1) A classroom which must be light and well ventilated, provided with equipment as outlined on page 15 of this pamphlet, and such additional teaching material as the school may be able to afford.

(2) A demonstration room with equipment, as outlined on page 15 of this pamphlet.

(3) A laboratory provided with the necessary equipment for classes, laboratory work or demonstrations in the teaching of chemistry, bacteriology, analysis of urine, drugs and solutions. A dietetic laboratory.

Schools unable to provide for the teaching of all or any one of these

subjects will arrange for such course or courses with a high school, college, technical school or another accredited school.

(4) A library in which is included modern nursing text and reference books, pamphlets on allied subjects, nursing periodicals and good general literature such as current magazines, a daily newspaper.

B. Students' Residence.

(1) *Living quarters.* Proper living conditions must be provided. These must include a building erected for the purpose, or, where this is not possible, one suitable and adequate. Dormitories in upper story or basement of hospital will not be considered. There must be individual sleeping rooms, or where rooms are sufficiently large, two may occupy the same room; sleeping porches are strongly recommended in addition to the regular sleeping rooms; sufficient furniture and one closet for each student; one bath and one toilet for every ten students; a reception room, a library, and when possible a good sized recreation room.

The nurses' home should be attractively but not expensively furnished. The service should be sufficient to maintain it in an orderly manner. Provision should be made for the social life of the school.

(2) *Dining room.* This room should be clean, well lighted and suitably furnished. The service should be prompt and efficient during the meals. There should be at least one waiter, or waitress, to every twenty students except when cafeteria plan is used.

(3) *Diet.* The diet should be adapted to the needs of the students engaged in mental and physical work of an exacting character. This should be carefully selected, well cooked, and ample. Special attention should be given to seasonal variety.

C. Faculty.

A sufficient teaching force must be maintained to conduct the instruction herein specified and shall consist of:

(1) *Superintendent of nurses* and principal of the school, who is a registered nurse under the laws of the State of California, who possesses qualifications for administration of the school and direction of the nursing work of the hospital. She must be competent to maintain a high standard of educational and moral efficiency.

(2) A full time *nurse instructor* in a school of twenty-five students or over. She must be a registered nurse under the laws of the State of California; have teaching ability and practical experience in the branches she is teaching. It is desirable that she should have had some experience and training in teaching.

(3) A graduate *night supervisor*, who is a registered nurse under the laws of the State of California and who is capable of assuming the responsibilities of the hospital and nursing force at night and of teaching the students under her direct supervision.

(4) A graduate *operating room supervisor*, who is a registered nurse under the laws of the State of California and who is capable of directing an operating room and of teaching the students in operating room technique.

(5) A graduate *dietitian*.

(6) A necessary staff of *head nurses* who are qualified to carry on the administration and to supervise the nursing work of their special

departments; who are registered nurses under the laws of the State of California and who, as part of the faculty, should be capable of teaching the students under their supervision.

(7) A staff of *medical and other lecturers*.

D. Admission of Students.

(1) For admission to an accredited school of nursing, the applicant must present the following evidence:

(a) That she is eighteen years of age.

(b) That she has successfully completed at least one year's course in an accredited high school, showing credit for the same or an educational equivalent.

(c) That she has received an Educational Certification issued by the Bureau of Registration of Nurses.

(d) Certificate showing that she is in good physical condition.

(e) Such evidence as required by the school, showing that she is of good moral character.

(2) *Educational Certification.*

For educational certification, applicants will apply to the Bureau of Registration of Nurses, 213 Lachman Building, San Francisco, and will forward their credits for High School, College, University, or other educational institutions which they have attended. A form for this purpose will be furnished on application to the Bureau.

Students presenting credits in Science subjects taken in an approved secondary school or institution of higher education and which apply to the regular course of instruction may be accorded theoretical credit for such work. This will not affect the duration of the course.

(3) *Physical Examination.*

Students should have a complete physical examination before entrance, and at the end of the first year. Should conditions arise such as loss of weight or undue fatigue, the student should again be examined. Physical condition of students should be observed throughout the course.

(4) *Periods of Admission.*

Schools shall admit students at definite periods and not more frequently than at intervals of four months, presumably in September, January and May. If one is omitted, it will be the May interval.

(5) *Preparatory period.*

Classes will commence October first, February first, and June first. Students must be under instruction immediately on entrance to school. Instruction in the preparatory period shall be completed before the student begins the work of the next period. Students shall be on duty in the hospital for not more than four hours daily during the preparatory period of four months.

(6) *Transfer of students.*

Students transferring from one accredited school to another will not be admitted except at the regular periods of admission. Such students must have completed the work of any given session before they may

receive credit. Students withdrawing during any one session will not be accorded credit for the incomplete work of that session.

Students may not be accorded credit for theory or practice work taken in a non-accredited school.

E. Records.

There must be a good system of keeping records showing educational certification, physical condition, character, instruction, attendance at lectures, classes, demonstrations, practice and efficiency in class and bedside work. If services are mixed, that is when medical, surgical and obstetrical patients are not segregated, the time will have to be grouped under a heading "General Nursing." When this is the case, it is recommended that students keep a daily case record and send in a summary to their superintendent at the end of each month. By this means it can be readily ascertained if the student is obtaining the required experience. This complete record of each student must be kept from time of admission to completion of course. Immediately on the completion of the course, a copy of this record must be made on the form provided and forwarded to the Bureau of Registration of Nurses and a copy given to the student.

Should the student withdraw or be dismissed during the course, a record of the work she has taken must be given to her and a copy of the same sent to the Bureau.

COURSE OF INSTRUCTION.

The law provides that the course of instruction shall cover a period of twenty-eight months. This is divided into seven sessions of four months each: Preparatory Period, First Junior Session, Second Junior Session, First Senior Session, Second Senior Session and two Intersessions. The work of the Preparatory Period must be fully completed before the student will enter upon the work of the First Junior Session. During the Intersessions night duty and affiliations may be given.

The law further provides that a school may maintain a course of instruction in addition to the twenty-eight months course, provided the school is connected with a hospital having a daily average of not less than one hundred beds and shall provide for such additional course theoretical and practical teaching in such subjects as may be determined by the board. Additional courses are arranged on a basis of four months each with the object of preparing the student for work in special lines.

ARRANGEMENT OF COURSE.

Preparatory Period (16 weeks).

THEORY.	Hours	PRACTICE.
Applied Chemistry-----	16	4 Hours Daily. Bedmaking Care of Patient's Room, Bath, Bedside Tables Cleaning Utensils Surgical Supply Room Bed Baths Patients' Evening Toilet Taking Temperature, Pulse, Respiration Giving Enemata and Douches Serving Meals
Anatomy and Physiology-----	32	
Bacteriology-----	8	
Personal Hygiene-----	8	
Nutrition and Cookery-----	32	
Nursing Procedures (including bandaging)-----	64	
Drugs and Solutions-----	16	
Ethics of Nursing-----	8	
-----	—	
Total-----	184	
		Total, 448 hours.

First Junior Session (16 weeks).

THEORY.	Hours	PRACTICE.
Anatomy and Physiology.....	16	7-8 Hours Daily.
Medical Nursing (including Diseases of the skin).....	16	General Medical and Surgical Nursing Diet Kitchen
Materia Medica.....	16	Total, 768 hours.
Diet in Disease.....	8	
Surgical Nursing.....	8	
Total.....	64	

Intersession (16 weeks).

PRACTICE.
7-8 Hours Daily.
General Medical and Surgical Nursing
Night Duty—1 month
Vacation—2 weeks
Total, 768 hours.

Second Junior Session (16 weeks).

THEORY.	Hours	PRACTICE.
Surgical Nursing (including Ortho- pedics and Gynecology).....	12	7-8 Hours Daily.
Operating Room Technique.....	8	Surgical Nursing
Elements of Clinical Pathology (in- cluding Examination of Urine).....	8	Dressing and Emergency Rooms Operating Room
Communicable Diseases (including Tu- berculosis and Venereal Diseases).....	12	Total, 768 hours.
Eye, Ear, Nose and Throat.....	6	
Total.....	46	

First Senior Session (16 weeks).

THEORY.	Hours	PRACTICE.
Obstetrical Nursing.....	16	7-8 Hours Daily.
Pediatrics (including Infant Feeding).....	16	Obstetrical Department
Mental and Nervous Diseases.....	8	Out-patient Department
Total.....	40	Total, 768 hours.

Intersession (16 weeks).

PRACTICE.
7-8 Hours Daily.
Children's Services
Night Duty—1 month
Vacation—2 weeks
Total, 768 hours.

Second Senior Session (16 weeks).

THEORY.	Hours	PRACTICE.
Hygiene and Public Sanitation.....	8	7-8 Hours Daily.
History and Development of Nursing.....	8	Contagious Service
Social Aspects of Nursing.....	4	Tuberculosis (if possible) or
Introduction to Branches of Nursing:		Psychiatric (if possible) or
Public Health Nursing.....	2	Social Service Department (if possible)
Administrative Work.....	2	Incomplete Services
Instructor's Work.....	2	Total, 768 hours.
Private Nursing.....	2	
Total.....	28	
Grand total.....	360	Grand total, 4,992 hours.

ADDITIONAL COURSES.

EIGHT MONTHS.

ADVANCED SURGICAL WORK.

THEORY.	Hours	PRACTICE.	Months
Emergency and First Aid.....	5	Out-patient Department.....	
Special Surgical Problems.....	5	Operating Room.....	4
Operating Room Management.....	5		

ADVANCED OBSTETRICS.

THEORY.	Hours	PRACTICE.	Months
Social Aspects and Infant Mortality..	5	Out-patient and Maternity Nursing..	
Special Obstetrical Problems.....	5	Delivery Room.....	
Management of Maternity Department	5	Assistant to Maternity Supervisor...	4

ADVANCED PEDIATRICS.

THEORY.	Hours	PRACTICE.	Months
Social Aspects.....	5	Out-patient or Welfare Station.....	
Orthopedic Problems.....	5	Children's Hospital.....	
Nutrition Problems.....	5	Nutrition Clinic.....	4

PSYCHIATRY.

THEORY.	Hours	PRACTICE.	Months
Lectures, Classes and Clinics.....	15	In Psychiatric Department or State Hospital.....	4

ADVANCED DIETETICS.

THEORY.	Hours	PRACTICE.	Months
Research Work, Food Composition, Its Application to Diet, Digestion, Metabolism, Menu Planning.....	15	Food Laboratory: Follow up Work in Wards, Field Work.....	4

ADMINISTRATION.

THEORY.	Hours	PRACTICE.	Months
Ward Management.....	5	Head Nurse.....	
Records and Record Keeping.....	5	Supervisor (day or night).....	
Hospital Housekeeping.....	5	Office Assistant.....	4

LABORATORY TECHNIC.

THEORY.	Hours	PRACTICE.	Months
Equipment, Solutions, Reagents.....		Pathological.....	
Routine Methods, Tests.....	15	Laboratory.....	4

PUBLIC HEALTH NURSING.

	Months
Course given at University of California, Berkeley.....	8

Schools proposing to give one or more additional courses must have the necessary facilities and must be approved by the State Board of Health before such course or courses can be given.

Inspection of Schools of Nursing.

Inspection of the schools and guidance of the teaching form an important function of the bureau. Formal inspection is made at least once each year, which includes inspection of the hospital with which the school is connected, the school itself and the conditions surrounding

the students during their training. The inspection and report is based on the following general points:

1. Administrative staff of hospital and school.
2. Policies of the school.
3. Hospital services and facilities for experience.
4. Faculty of school.
5. Teaching facilities.
6. Teaching methods and supervision of work.
7. Records.
8. Housing and maintenance of students.
9. Admission requirements.

Following the inspection a report is made to the California State Board of Health, a copy of which is forwarded to the Hospital and the school with the request that it be kept on file for the information of administrators of the hospital and school.

Accredited Schools of the State.

In accordance with the act, schools maintaining in full the requirements, as set forth by the California State Board of Health, are placed upon the accredited list by action of the board and such list is published. During this biennial period, four schools have closed, making at present a total of sixty-six accredited schools. Following is the list published July 1, 1921:

LIST OF ACCREDITED SCHOOLS.

Hospital with which school is connected	Location
1. Army School of Nursing—Letterman General	Presidio, San Francisco
2. Alameda County Hospital	San Leandro
3. Alameda Sanatorium	Alameda
4. Alta Bates Sanitarium	Berkeley
5. Angelus Hospital	Los Angeles
6. Burnett Sanitarium	Fresno
7. California Lutheran	Los Angeles
8. Children's	Los Angeles
9. Children's	San Francisco
10. Clara Barton	Los Angeles
11. Columbia	San Jose
12. Dameron	Stockton
13. East Bay	Oakland
14. Emanuel	Turlock
15. Fabiola	Oakland
16. Franklin	San Francisco
17. French	San Francisco
18. Fullerton	Fullerton
19. Glendale Sanitarium	Glendale
20. Good Samaritan	Los Angeles
21. Hahnemann	San Francisco
22. Lane (Stanford University)	San Francisco
23. Loma Linda Sanitarium	Loma Linda
24. Los Angeles County Hospital	Los Angeles
25. Mary's Help	San Francisco
26. Mater Misericordiae	Sacramento
27. Mercy Hospital	Bakersfield
28. Methodist Hospital	Los Angeles
29. Mount Zion	San Francisco
30. O'Connor Sanitarium	San Jose
31. Orange County	Orange
32. Pacific	Los Angeles
33. Paradise Valley Sanitarium	National City
34. Pasadena	Pasadena
35. Pomona Valley	Pomona
36. Providence	Oakland
37. Riverside Community	Riverside
38. Redlands	Redlands
39. Sacramento County	Sacramento
40. Samuel Merritt	Oakland
41. San Antonio	Upland
42. San Bernardino County Hospital	San Bernardino
43. San Diego County	San Diego
44. San Francisco	San Francisco
45. San Joaquin General	French Camp
46. San Luis Sanitarium	San Luis Obispo
47. Santa Ana Community	Santa Ana
48. Santa Barbara Cottage	Santa Barbara
49. Santa Clara County Hospital	San Jose
50. Seaside Hospital	Long Beach
51. Sequoia Hospital	Eureka
52. St. Francis Hospital	San Francisco
53. St. Francis Hospital	Santa Barbara
54. St. Helena Sanitarium	Sanitarium
55. St. Joseph's Hospital	Eureka
56. St. Joseph's Hospital	San Diego
57. St. Joseph's Hospital	San Francisco
58. St. Joseph's Hospital	Stockton
59. St. Luke's Hospital	San Francisco
60. St. Mary's	San Francisco
61. St. Vincent's	Los Angeles
62. Temple	Berkeley

63. Union Labor Hospital.....	Eureka
64. University of California Hospital.....	San Francisco
65. White Hospital.....	Sacramento
66. White Memorial Hospital.....	Los Angeles

Examinations for Certificate as Registered Nurse.

During the biennial period, examinations have been held on the Third Wednesday and Thursday of February, June and October, simultaneously on the same days in Sacramento, San Francisco and Los Angeles. The following table shows the dates of examinations, the number entered, passed and failed:

Dates	Number entered	Passed	Failed	Percentage of successful applicants
October, 1920.....	331	302	29	91.23
February, 1921.....	206	172	34	83.49
June, 1921.....	253	240	13	94.86
October, 1921.....	390	334	56	85.64
February, 1922.....	229	209	20	91.26
June, 1922.....	211	195	16	92.41
Totals.....	1,620	1,452	168	

The subjects of examination and the arrangements for each day are:

First Day.

A. M.	P. M.
1. Anatomy and Physiology	1. Dietetics
2. Hygiene, Bacteriology and Communicable Diseases	2. Materia Medica and Nursing in Medical Diseases

Second Day.

A. M.	P. M.
1. Pediatrics	1. Urinalysis and Nursing in Surgical Diseases
2. Ethics	2. Obstetrics

Registrations.

From July, 1920, to July, 1922, 1850 were granted certificates as Registered Nurse. Of this number 1452 were issued on examination and 398 without examination, in accordance with the provisions of the act, whereby nurses registered in other states or foreign countries who meet the requirements of the law of California may be registered in this State without examination. Nurses who are not registered under the provisions of the act are unable to call themselves registered nurses in this State or to use the letters R.N. after their name. The following table shows the complete registration during the biennial period, also the comparison in number with the former period 1918-1920.

Years	On examination	Without examination	Total
July 1, 1918, to July 1, 1920.....	1,007	159	1,166
July 1, 1920 to July 1, 1922.....	1,452	398	1,850
Increase in last biennial, 63.02 per cent.			

Annual Renewal of Certificate.

The law of 1921 requires an annual renewal of the certificate. This became effective in August, 1921, consequently the first year is now

on record. The total number renewing their certificate to July, 1922, is 4461. This furnishes a complete list of nurses together with their addresses, which may be obtained on request.

Affiliation With Universities and Colleges.

Connection of schools of nursing with universities or colleges for the purpose of combining the courses of instruction which would lead to the degree of B.S. or B.A. and Graduate Nurse has been approved as meeting the requirements of the law for examination and registration. The length of this combined academic and professional course covers a period of five years, including two years in the school of nursing. The object has been to make it possible for young women desiring a college course to cover the preliminary scientific subjects in the university or college, called the pre-nursing course, and the practical work in the school of nursing in five years, which without such combination would necessitate seven years. The following universities and colleges are giving the pre-nursing course:

- University of California.
- Stanford University.
- Mills College.
- College of the Pacific.
- Occidental College.

The following schools of nursing are approved to receive students entering into this combined arrangement:

- University of California Hospital School of Nursing.
- Stanford University School of Nursing (Lane Hospital).
- Pasadena Hospital.
- Children's Hospital, San Francisco.

Status of Nursing Education.

The report of this biennial period shows definite steps in the re-organization of methods and requirements for schools of nursing and the certification of nurses. While the law imposes specific duties upon the California State Board of Health and the Bureau of Registration of Nurses in order to comply with its dictates, the bureau becomes virtually an educational department and its work should function cooperatively with the departments of education, as likewise with the departments of health. In functioning with the departments of education, the Bureau has kept in close touch with the high schools of the state, by correspondence, personal interviews and assembly talks, with the object of suggesting early preparation by the student who contemplates the study of nursing following her high school course, showing her how her studies may be guided toward this end. The bureau has received the most cordial cooperation from the principals who have recommended to their students the subjects suggested, such as chemistry, biology, physiology, physics, nutrition and cookery, with the result that many students now entering the schools are eligible for credit in these subjects. Further than this, several high schools, notably Oakland Technical, San Jose, Sacramento, San Diego, Polytechnic of Los Angeles, Eureka, Stockton, have formed classes of students now in training in

the schools in their localities, have provided special teachers and are giving chemistry, bacteriology, personal hygiene, physiology, nutrition and cookery. This method of centralizing the instruction of the preparatory period brings together students of the schools of nursing under group teaching and in well-equipped laboratories, with the result that uniform knowledge, less waste of teaching force and increased interest on the part of the student is obtained.

The reduction of the length of the course from three years to twenty-eight months has come in for considerable criticism on the ground that this is lowering the standard of nursing education by not giving sufficient time in the hospital. The main consideration in this has been to preserve all the essential features of instruction and to allow sufficient time in each service, embracing experience in the care of medical, surgical, obstetrical patients and sick children and eliminating all the nonessential and noneducational routine which characterized the three-year course. It is believed that a satisfactory nurse may be produced who will be intelligent and safe in the care of the sick in hospitals and homes by the twenty-eight months course. For training in preparation for more advanced work, the law makes definite provision and states the conditions under which this additional training may be given. The schools so far approved for this, namely, University of California Hospital, Lane Hospital or Stanford University School of Nursing, Pasadena Hospital, Good Samaritan Hospital, have established courses where students may receive additional training beyond the basic course in public health nursing, administration of schools of nursing, teaching in schools of nursing. There are also places where students may obtain additional training in pediatrics, tuberculosis, contagious diseases, laboratory technic, and, as time progresses, courses will be developed giving special preparation for various fields of nursing work.

It is apparent that with the new stimulus in nursing and the advent in the schools of a larger proportion of high school and college graduates, who with definite aim and a clearer understanding of what nursing involves, direct demand is placed upon the schools.

The trend of health education calls for a well qualified teaching body and in carrying out the program as required by the law, the most serious problem confronting us is the lack of sufficiently well prepared teachers. In realization of this need, during the spring of 1922, Stanford University offered a course during the Summer Session covering five weeks or one-half semester, which was in progress at the close of the biennium. Taking this course were thirty-five teachers of nurses, under the direction of Miss Helen Wood, B.S., R.N., and several special instructors. During the Summer of 1921, an institute of three days was conducted at San Francisco under the auspices of the bureau and the State League of Nursing Education. One hundred and twenty-five nurses in teaching work, connected with hospitals and schools of nursing, attended. We earnestly hope that the response on the part of our teachers to take advantage of every opportunity offered to obtain further knowledge in their special branch of work will induce the establishment of a year's course at one of our universities for the object of preparing administrators and teachers of nursing to fill this need in our California schools.

As the biennium closes, we receive from the Rockefeller Foundation the preliminary report of the Committee for the Study of Nursing

Education. This committee was appointed by the Foundation in 1919 to conduct a study of nursing education, with a view of developing, on the basis of such a study, a program of minimum standards for the United States. This study and the recommendations will, no doubt, have influence on the entire question of hospital service and the training of nurses. The schools in California are generally prepared to go forward in carrying a program of study and training which will fill the need for more adequate nursing service in the various branches of work in this state.

REPORT OF THE BUREAU OF CHILD HYGIENE.

ETHEL M. WATERS, M.D., Director.

JULY 1, 1920-JUNE 30, 1922.

During this biennial period more than 5000 children have been examined by the members of the staff of the Bureau of Child Hygiene in more than 100 conferences which have been held in nearly every county in this state. The only counties in which the bureau has not held conferences are Del Norte, Lassen, Plumas, Sierra, Yuba, Sutter, Lake, Napa, Alpine, Mono, Mariposa, Merced and Inyo.

Forty per cent of the children examined have been found without physical defects. The most common defects noted were decayed teeth, diseased tonsils, malnutrition and adenoids. In some sections of the state hypertrophied thyroid glands were common in children.

A public health nurse, Mary K. Clary, was added to the staff of the bureau in April, 1920. A dental hygienist, Elma W. Platt, entered upon her work with the bureau in September, 1921. The entire field work of the bureau during the biennial period was accomplished by the director, with the assistance of the public health nurse and dental hygienist.

PUBLIC HEALTH NURSING.

A large amount of child welfare work in California is being accomplished through the public health nurse. These workers have the support of women's organizations, the cooperation of local health organizations, including health officers and unofficial organizations; physicians also are assisting public health nurses in this sort of work with an increasing degree of interest; school organizations are also instrumental in furthering the work of the public health nurse. The educational value of her work is appreciated more and more. She is engaged in a wide variety of activities. It has been the experience of the bureau that the public health nurse is capable of arranging conferences, preparing programs and performing many other duties that belong to the administrative side of child hygiene work. The bureau, in adding a public health nurse to its staff, believes that it is following correct procedure in organized child hygiene work. The public health nurse has made many valuable contacts with members of her profession throughout the state, and the status that public health nursing has been given in the Bureau of Child Hygiene has proved an asset in the promotion of this character of work throughout California.

DENTAL HYGIENE.

There has been a growing realization of the importance of dental hygiene, not only in prenatal work but also among children of preschool age. The dental hygienist has made an important contribution to the work of improving the health and welfare of mothers and children. While her work has been very largely educational she has performed a valuable service in determining defects in the teeth of both mothers and children. Her prenatal advice to mothers relative to dietary and nutrition have been of special benefit. The dental hygienist's advice to mothers concerning unerupted teeth in infants has also constituted a valuable contribution to child welfare work throughout the state wherever conferences have been held.

PUBLICATIONS.

The demand for the bureau's publications has been constantly increasing during the biennial period. The following publications of the bureau have been in wide circulation as well as the publications of the Children's Bureau of the U. S. Department of Labor:

Clothes for California Children.

Your Baby—How to Keep It Well.

Mental Training of the Young Child.

Diet Slips (three leaflets).

Height and Weight tags.

Physical Examination cards.

Prenatal Care.

Infant Care.

Child Care.

The Children's Bureau has supplied these pamphlets without cost and the distribution of such excellent publications as Prenatal Care, Infant Care and Child Care have gone far in providing standards for better child hygiene throughout the state. The bureau is also indebted to the Children's Year Committee, the nucleus which resulted in the development of this bureau, for the excellent material now used in its publications, notably "Clothes for California Children." This publication has been in active demand since the time that it was first prepared for publishing in 1918. The demand for it is still brisk and there is hardly a day that requests for copies of this pamphlet, so typical of California, do not come into the office.

EDUCATIONAL WORK.

The posters belonging to this bureau and other exhibit material have been in active demand during the past two years and thousands of people have seen this material in the various local exhibits that have been conducted throughout the state.

At the request of the San Francisco Tuberculosis Association the Bureau of Child Hygiene prepared an itinerary for Cho-Cho, the health clown, who came to California under the auspices of the Child Health Organization of America. Cho-Cho entertained thousands of children throughout the state and diverted considerable attention toward child welfare work.

A large number of addresses to various organizations, including parent-teacher associations, women's clubs, etc., have been given during the past two years by the director and other members of the staff. Following is a list of the conferences held during the past two years:

CONFERENCES HAVE BEEN HELD IN THE FOLLOWING
COMMUNITIES.

1920.

I. O. O. F. Orphanage, Gilroy.	Santa Rosa.
Chico.	Davis.
Salvation Army Industrial School.	Woodland.
Lytton.	Ukiah.
San Jose.	Shafter.
Ord.	Ellen Stark Ford Memorial Home, S. F.
Oilfields.	Shandon.
Mountain View.	San Miguel.
Colusa.	Paso Robles.
Williams.	Santa Margarita.
Weaverville.	Santa Monica.
Hayfork.	Sawtelle.
Redding.	State Fair, Sacramento.
Montgomery Creek.	Hollister.
Hat Creek.	Riverside.
Ruth.	San Rafael.
McArthur.	

1921.

San Anselmo Presbyterian Orphanage.	Paynes Creek.
San Anselmo.	Manton.
Pittsburg.	Montgomery Creek.
Martinez.	Hat Creek.
Odd Fellows Home, Gilroy.	Fall River Mills.
Mt. Hamilton.	Arcata.
Colfax.	Fortuna.
Suisun.	Shandon.
Vallejo.	Estrella.
Chico.	San Miguel.
Oilfields.	Paso Robles.
Coalinga.	San Luis Obispo.
David Margaret Home, Los Angeles.	San Diego Orphanage, San Diego.
Douglas.	Jewish Orphans Home, Los Angeles.
Williams.	Riverside Fair, Riverside.

1922.

Oceanside.	Chino.
Ranona.	Fullerton.
El Cajon.	St. Francis Orphanage, Watsonville.
Nestor.	Pacific Grove.
Brawley.	Monterey.
Calexico.	King City.
Holtville.	Salinas.
El Centro.	Soledad.
Indio.	Watsonville.
Banning.	Valencia.
Elsinore.	Corralitos.
Corona.	Hollister.
Bartow.	San Juan.
Victorville.	Santa Cruz.
East Highlands.	Soquel.
Upland.	

REPORT OF THE BUREAU OF VITAL STATISTICS.

1920-1921.

L. E. Ross, State Registrar

A comparison of the figures for the present biennium with those for previous years shows

First, there has been little, if any, improvement in the total death rate; but the figures for deaths by age periods indicate a trend toward longer life, lessening of mortality at both the younger and older ages with little indicated improvement in the main adult groups;

Second, a steadily improving infant mortality, indicated by the general mortality figures as well as by the computed infant mortality rate;

Third, an increase in the birth rate with a substantial excess of births over deaths;

Fourth, a slight falling off in the marriage rate following the heavy increases occurring at the close of the war.

BIRTHS IN THE TOTAL POPULATION.

Since 1906, which was the first complete year of state registration of births, there has been a steady increase in both the number of registered births and the computed birth rate, with the single exception of 1919. Beginning with a registered rate of only 10.3 in 1906 the figure has advanced year by year to 20.2 in 1921. This does not mean that there has necessarily been any great change in the actual rate of reproduction in California. Rather it is a measure of the advancement in birth registration. Although the actual birth rate has doubtless varied from year to year the probabilities are that the fluctuations have been within narrow limits. Birth registration is still incomplete, but it is believed that the 1921 computed rate is fairly representative of California conditions. Indications are that approximately 93 per cent of all the births are registered. Assuming this proportion, there was a total of about 77,500 births in this state registered and unregistered, during 1921, giving a crude rate of 21.6 and it is not believed the actual rate is much in excess of this figure.

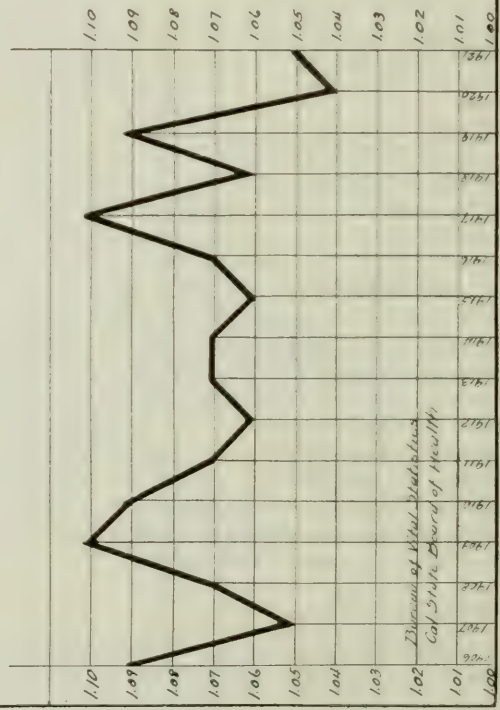
Birth Sex Ratio.

The ratio of male to female children born fluctuates from year to year, but there appears to be no decided tendency toward a permanent change. More males than females are born. The ratio in California is about 107 males per 100 females, but in 1920 this dropped to 104. Prior to this the ratio has been quite constant, varying only between 106 and 110. Although more males are born, more die; and by comparing the total death and infant mortality sex ratios it will be seen that the ratio of male births does not by any means keep pace with the ratio of male deaths. Among infants the deaths of males are about 131 per 100 females and for the total population the ratio is in the neighborhood of 140. Nevertheless we find 112 males per 100 females in the total population. About three-fourths of the people in California have

Graph No. 1.

Births Ratio of Male to Female California 1906-1921.

1906	1.09
1907	1.05
1908	1.07
1909	1.10
1910	1.09
1911	1.07
1912	1.06
1913	1.07
1914	1.07
1915	1.06
1916	1.07
1917	1.10
1918	1.06
1919	1.09
1920	1.04
1921	1.05



1906	1.09
1907	1.05
1908	1.07
1909	1.10
1910	1.09
1911	1.07
1912	1.06
1913	1.07
1914	1.07
1915	1.06
1916	1.07
1917	1.10
1918	1.06
1919	1.09
1920	1.04
1921	1.05

come here from other states or foreign countries and the character of this migration largely determines the character of our population.

Birth Rate Adjustment.

The Vital Statistics Act requires that births be registered where they occur. On account of the fact that many mothers go to hospitals in the larger towns for confinement the computed birth rate for most of the cities is somewhat higher than would be the case if the births to non-resident mothers were deducted.

In order to determine the effect of migration of mothers to the city hospitals, a record was kept during 1921. In each case where the birth certificate gave the residence of the mother as other than the place where the birth occurred, two entries were made; a debit to the place of birth and a credit to the place of residence. This was carried out as between the rural territory and those cities for which separate compilations are made. The result shows an almost uniform debit to cities and a credit to the rural. The principal exception was for San Jose where by reason of the location of hospitals outside the city limits a substantial credit shows for the city. A study of the figures shows quite clearly the effect of better hospital facilities in the larger towns,—or at least the belief among prospective mothers that they are better. San Francisco and Oakland draw cases from all the territory around the bay, including Alameda, Berkeley, San Leandro, Richmond and Vallejo. In Imperial County, El Centro receives an excess of cases from outside, including Brawley and Calexico. In Los Angeles County the effect is not so uniform, due probably to the distribution of the population. All the cities receive an excess of outside cases except Glendale, Redondo, South Pasadena and Venice, while the rural territory receives the highest credit of any county in the state.

Our studies show that during 1921 over 8 per cent of all mothers were confined at other than their place of residence. The net figures are given in Table No. 5.

Natural Increase and Migration.

When the registration of births is complete, calculation of the excess of births over deaths gives not only the status of natural increase, but throws much light on the matter of migration. Defective birth registration causes erroneous results, but in turn is measured to some extent by these same calculations. For instance in the following table the excess of births over deaths for the series of years since 1906 illustrates clearly the progress in birth registration. The natural increase (excess of births over deaths) varies from year to year, like other natural phenomena, but within narrow limits. It has taken sixteen years to attain the present degree of registration of births. In 1906 deaths exceeded the registered births by 8329. In 1921 the births were 25,058 in the lead. Births exceeded deaths for the first time in 1911 and have steadily gained ever since, except for 1918 when the influenza turned the tables.

Year	Births	Deaths	Births exceeded deaths	Deaths exceeded births
1906	20,974	29,303	-----	8,329
1907	24,674	31,095	-----	6,421
1908	28,077	31,287	-----	3,210
1909	30,882	30,985	-----	103
1910	32,138	32,398	-----	260
1911	34,828	34,012	816	-----
1912	39,330	36,709	2,621	-----
1913	43,852	38,599	5,253	-----
1914	46,012	37,537	8,475	-----
1915	48,075	39,026	10,049	-----
1916	50,638	39,860	10,778	-----
1917	52,230	42,084	10,146	-----
1918	55,992	57,683	-----	1,691
1919	56,521	45,991	10,530	-----
1920	67,198	47,124	20,074	-----
1921	72,438	47,379	25,058	-----

Between the last two censuses the population of California increased at the average rate of 108,084 per annum and this figure is used to estimate the increase for postcensal years. According to the above table slightly over 25,000 of this annual increase is at present due to excess of births over deaths, leaving about 83,000 due to excess of arrivals over departures, or nearly 7000 permanent residents per month among persons coming to California in excess of those moving away.

INFANT MORTALITY.

The California infant mortality rates for the last several years can be taken as fairly indicative of the actual infant mortality situation in this state. During the early years of registration birth returns were too incomplete to give satisfactory figures for infant mortality rates since the infant mortality rate is the number of decedents under one year of age divided by the registered births in thousands. The registration of deaths has been practically complete for many years and this with incomplete birth figures has resulted in infant mortality rates far in excess of the actual facts. Birth registration is still incomplete enough to have a material effect on the infant mortality rate. Nevertheless the rate for 1921 is the lowest we have ever had and compares favorably with other states. As shown in Table No. 9 the computed rate is 66.3 based on registered births. Assuming that 93 per cent of the births are registered, there were actually 62 infant deaths per 1000 live births.

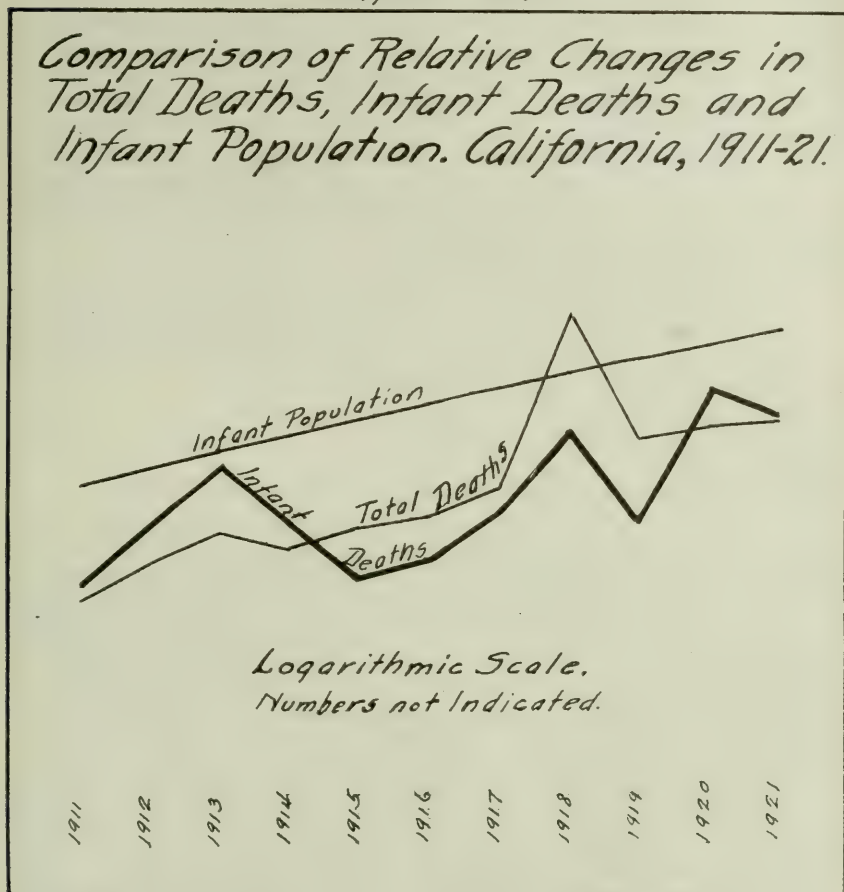
There has been a distinct decrease in our infant mortality for a number of years. This is indicated by the general mortality returns without special reference to the computed infant mortality rate. Between 1905 and 1913 there was not much improvement, the relative increase in the infant deaths about keeping pace with the general death increase; since 1913, however, there has been a distinct improvement, the rate of increase of deaths in the total population being considerably greater than that for infant deaths.

The death rate computed from the estimated infant population and infant deaths also shows the downward trend experienced during the last ten years, as will be seen by reference to Graph No. 6.

During the influenza pandemic of 1918 infants under one year did not suffer as much as the young adult age groups. Although the infant

deaths increased appreciably during 1918 the increase was not as noticeable as that which occurred during 1920.

Graph No 2.



Infant Mortality—Sex Ratio.

The birth returns show that during 1920 there were 104 males per 100 females born. The death returns show that among infants, males died at the rate of 131 per 100 females. The effect of this difference in sex composition of births and deaths may be better understood by assuming 2040 children born January 1, 1920, of which 1040 were males and 1000 were females. Applying the infant mortality rate, 153 of these infants died during the year, of which 87 were males and 66 females, leaving a male ratio of only 102 among the survivors. In 1921 the male birth ratio was 105.2 and the infant death ratio 134. Applying the same principle as above the male ratio among the survivors at the end of the year was reduced to 103.

Maternal Nativity.

The highest infant mortality rates are for infants born to foreign mothers. California born mothers come next with mothers from other states occupying the most favorable position. An inspection of the percentage of births and infant deaths by maternal nativity also shows the same condition. This does not mean that the infant mortality rate for American born mothers is high. On the contrary the rates are low and if the rate for the foreign born mothers can be reduced to the same degree, California will enjoy a remarkably low infant mortality rate. In 1920 California born mothers show 28.9 per cent of the births and 24.2 per cent of the infant deaths. Mothers born in other states, 38.3 per cent of the births and 28.7 per cent of the infant deaths. Foreign born mothers, 32.8 per cent of the births and 44.4 per cent of the infant deaths. From this the unfavorable position of the foreign born mother is apparent. In 1921 the figures were

California mothers 27.4 per cent of births, 22.8 per cent of infant deaths; mothers from other states, 38.9 per cent of births, 30.0 per cent of infant deaths; foreign born mothers 33.7 per cent of births, 44.2 per cent of infant deaths,

continuing the ratios shown for 1920.

Need for Infant Welfare Work in Certain Sections.

The fact that California born mothers lose more of their babies than mothers born in other states may be partly explained through a study of maternal nativity by counties. It is observed that for the most part the counties where the native mother is in the majority are those which are more or less removed from the principal centers of population, although San Francisco and Alameda are notable exceptions. Without doubt one of the principal reasons for reduction of infant mortality is the child welfare work done by various organizations during past years; and while some of this has been performed in the outlying counties the principal effort has been made in the more populous regions where the native mother is usually in the minority. Persons migrating to California appear to seek the more settled portions of the State and while there has been a very distinct shifting of population from the mountain counties to the valleys during the last ten years as shown by the census returns, this movement among natives has not been sufficient to offset the influx from other states. Infant welfare work has been done where the material was most available and our statistics show that those mothers remaining in the outlying counties have not all as yet been reached.

Another matter which materially affects the infant mortality among children born to native mothers, is that of national groups. For instance there are many Mexican mothers who were born in this state. In the several investigations conducted by this Bureau to verify the completeness of birth registration it was found that Mexicans contribute materially to the infant mortality rate while contributing very few registered births. Infant welfare work among these people presents special problems which must be approached from the Mexican rather than the American point of view with reference to both language and methods and apparently the present status of infant mortality among the California Mexicans unduly increases the rate for native mothers, as well as adding to the total infant mortality rate.

Causes of Infant Deaths.

Half the babies that die are less than one month old and of these about three-fourths have lived less than ten days. After the first month the infant's chance of living increases rapidly and continues to increase until he has passed his ninth birthday.

The large proportion of early infant deaths is due principally to congenital causes. In 1920, 2315 or 45.9 per cent of all deaths under one year of age were due to these causes, while in 1921 the number was 2473 or 51.5 per cent of the total. These congenital causes include congenital debility, malformations, premature birth, venereal diseases and injury at birth.

Diseases of the digestive system are responsible for the largest number of deaths of infants dying from causes acquired after birth. The principal item in this group is infantile diarrhea and enteritis, which took off 917 babies in 1920 and 819 in 1921. The incidence is heaviest during the first month, but does not diminish materially until after the third month of life.

Next to congenital and digestive causes come diseases of the respiratory system. Pneumonia is the largest item in this group and stands third on the list as a cause of infant deaths. It caused 682 such deaths in 1920 and 605 in 1921. The incidence reduces quite rapidly during the first four months of life and thereafter remains at about the same level.

Communicable diseases (other than pneumonia) caused 11.5 per cent of the infant deaths during 1920 and 7.9 per cent in 1921. Whooping cough is the largest item in this group, having taken off 236 babies in 1920 and 122 in 1921. Few infants under one month of age die of whooping cough as there must be a definite exposure to infection and an incubation period. With the incubation period and the duration of the illness even those babies infected with this disease during the first few days of life reach the second month before they die. The highest mortality occurs during the second month of life and decreases for each month thereafter, although in 1920 there was a sharp increase at ages ten and eleven months, due to epidemic conditions.

In 1921 there was a material reduction in the proportion of infant deaths from communicable, respiratory and digestive diseases, with relative and numerical increases in congenital and other causes.

The age distribution for 1921 shows a heavy increase in the proportion of deaths during the first month of life with reductions for the other eleven months.

On the whole the infant mortality situation was much better in 1921 than during the preceding year. The number of infant deaths decreased notwithstanding an increase in the number of births.

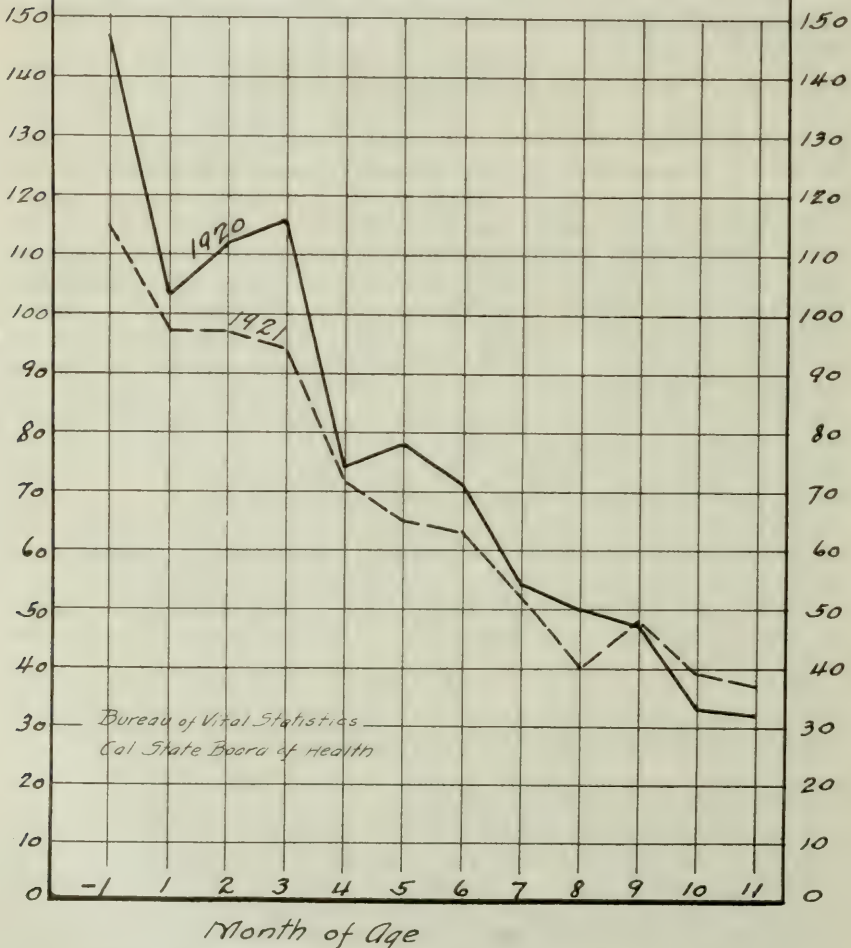
Adjustment of Infant Mortality Rates.

It appears that there should be some adjustment of infant mortality rates for various cities and counties due to the migration of expectant mothers for confinement. Since about 8 per cent of the 1921 mothers were confined away from home, mostly in hospitals located in or near the larger towns, the births appearing in the tables for a locality where such a hospital is located are too high and do not represent the reproductive rate of the residents of that locality. Table No. 5 mentioned in the discussion of births above, gives the adjustment of births and rates for

1921. In this adjustment there is obtained a new figure for the number of births creditable to a given locality; and since the infant mortality rate is based on the number of births, a new infant mortality rate should be computed.

Graph No 3

*Diarrhea and Enteritis
Infant Deaths by Month of Age
California 1920-21.*

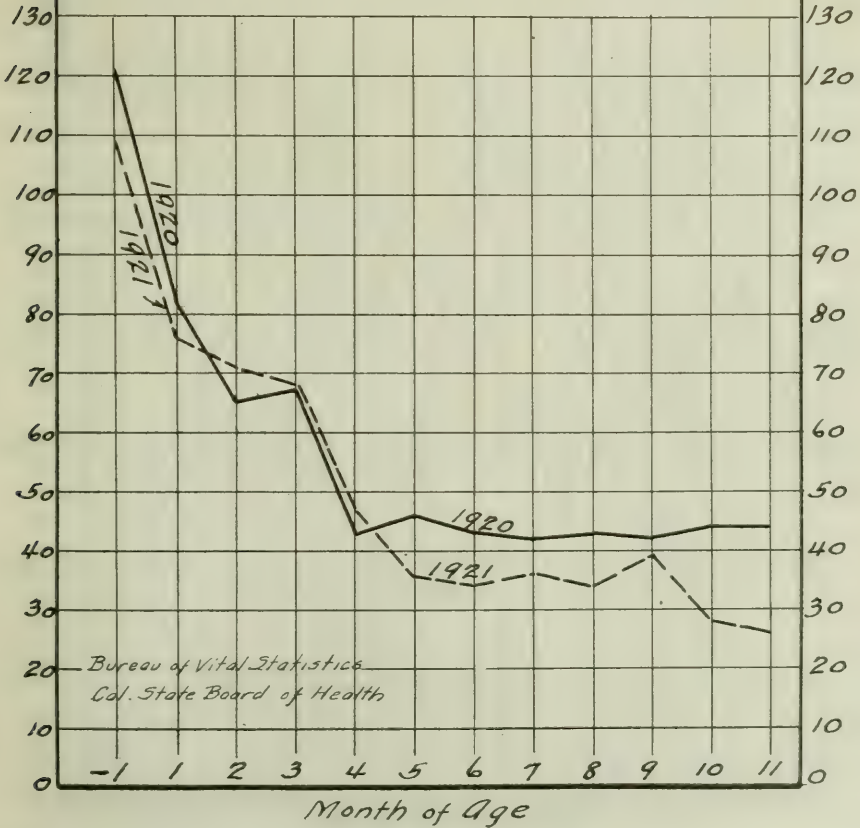


In making the birth rate adjustments it was found that for the most part the rural rates were increased and the urban rates decreased.

This means that the rural infant mortality rates are too high and the urban rates too low, since increasing the births decreases the infant mortality rate if the deaths remain constant, and vice versa.

Graph No 4

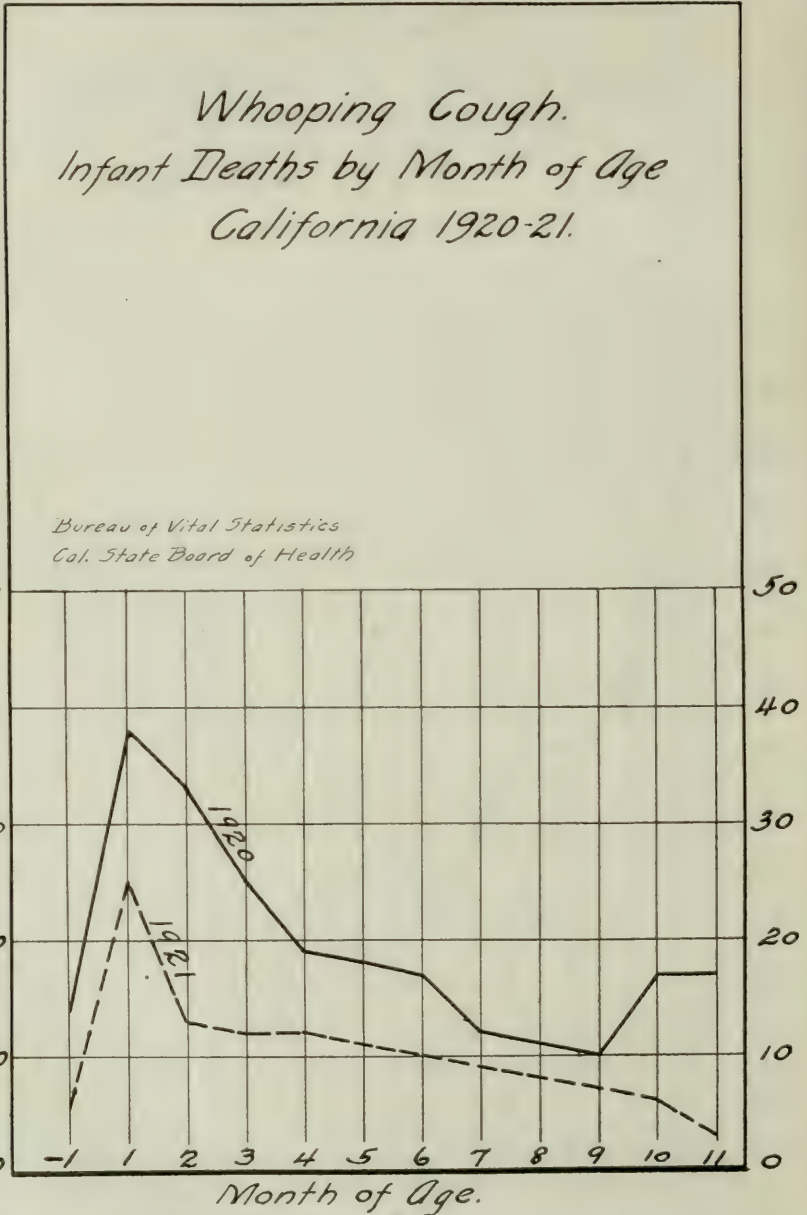
*Pneumonia
Infant Deaths by Month of Age
California 1920-21.*



For all of the localities for which separate vital statistics are compiled, adjusted infant mortality rates for 1921 have been computed based on the adjusted births given in Table No. 5, and the results are presented

in Table No. 10. In four cases the rural rate has been increased, the highest being for Santa Clara County, 10 points. City rates were increased in thirty-eight cases, with only thirteen decreases, the greatest being for Venice.

Graph No 5



Before adjustment the rural infant mortality rate was 74.4. After adjustment it was 68.1. The urban rate increased from 61.7 to 65.1 in the process of adjustment.

Some consideration was given to the matter of adjusting infant deaths in the same manner as was done for births. During this year 42 per cent of all infant decedents were less than 10 days old. It is safe to say that practically all of these died at the place of birth and in case the mother had been confined at a place other than her residence the birth had been credited to the place of residence and deducted from the place of birth as per Table No. 5. At first glance it might appear that the death should also be charged to the place of parental residence and deducted from the locality of birth. But in such cases the decedent has lived his entire life at the place of birth and has never been a resident of the place where his parents may reside. It is scarcely equitable to charge a death to a locality when the decedent has passed his whole life miles away in an entirely different locality. The proper adjustment of deaths as between localities in the same state is at present impossible and will probably never be accomplished. The correct basis is according to the location where the causative agent was acquired—where the decedent contracted the disease or affection causing death—and this is so involved with other considerations such as length of residence, travel, living conditions and contributory causes that even an approximate adjustment would involve special investigation of every case.

In the case of infants born to mothers who have migrated for confinement, if the death occurs during the first ten days of life it probably occurs at the place of birth. After that age, it probably takes place at the residence of the mother. Determination of the factors influencing assignment of infant deaths to a locality other than the place of death is probably more difficult than for adult deaths; for even if the death occurred at the place of parental residence it might be due to some condition acquired at the place of birth and therefore chargeable to that locality. On the other hand, deaths during the first ten days of life may or may not be chargeable to the place of parental residence. It is true that in 1921, of all infants dying during the first ten days of life 89 per cent died from congenital causes and conditions peculiar to early infancy. But correct assignment of even these deaths requires much more information than can be gleaned from a death certificate.

In computing the adjusted infant mortality rates no adjustment has been made for the infant deaths. If the death occurred in a given locality it was left there. It requires a large number of events to affect the final result and for most localities the effect is not appreciable. If we consider the deaths involved are those for infants whose parents reside elsewhere only 8 per cent of the infant deaths are included. Of these 42 per cent will die before being taken home, reducing the number to 3.4 per cent.

Probably 89 per cent of this 3.4 per cent die from congenital causes and conditions peculiar to early infancy and these are probably the only ones that could be assigned elsewhere; and of these not more than half could be correctly assigned, leaving about 1.5 per cent of the infant deaths charged to the larger localities that might be more correctly shown elsewhere. Unless the number of infant deaths is large this small proportion can have but little effect on the final rate.

Stillbirths.

There was a slight decrease in the stillbirth rate during 1921. While the total number increased from 2059 in 1920 to 2204 in 1921, this was not proportionately as great as the increase in the registered births. For 1920 the rate was 30.6 and for 1921 it was 30.5 per 1000 live births. This is a stillbirth rate that compares favorably with other states and countries, but is nevertheless far too high. Its reduction is one of our urgent problems. The composition of the above stillbirth rates by nativity of the mother is as follows:

Percentage of Stillbirths by Maternal Nativity.

Year	Mother born in—		
	California	Other U. S.	Foreign
1920-----	30.3	27.6	34.4
1921-----	26.8	30.4	33.2

The foreign mothers have the greatest proportion of stillbirths as well as other infant mortality. Between 1920 and 1921 the rates reversed for native California mothers and those from other states.

DEATHS IN THE TOTAL POPULATION.

The registration of deaths in California is practically complete and with the adjustment of population estimates based on the 1920 census the computed rates can be taken as fairly reliable. The total rate has not varied much, except for 1918, and shows a uniformly favorable situation. For 1920 the rate was 13.5 and for 1921 it was 13.2.

Age.

There is, however, a distinct movement of mortality with reference to age of decedents. The total number of deaths have, of course, shown a steady increase from year to year with the growth of the population; but the mortality in the different age periods has been undergoing a change. There has been an improvement in the mortality among infants, discussed under infant mortality, the improvement being shown independent of the computed infant mortality rate which is based on the number of registered births.

In the next age period, one to four years, there is also a distinct improvement in the mortality when rates are computed with the estimated population as a base, but the proportion of deaths to the total mortality does not show the trend to so great an extent. Apparently this section of the population has increased more rapidly than the total population and while the fluctuations in the death rate have been relatively large, the tendency toward reduction is nevertheless evident. The years 1914, 1915 and 1918 show the highest rates with 1916 and 1917 lowest. In general, with the exception of the influenza, the mortality in this age period has been very favorable during the last six years.

In the age group 5 to 14 years there has been a loss of ground for a number of years. The proportion of deaths to the total shows this quite distinctly as do also the specific death rates. The rates for the last two years are higher than for any year during the last decade, except 1918. Since this is the only age group which shows a serious increase in mortality, an effort has been made to determine the causes

of death that have been producing the change. An analysis indicates that among the communicable diseases the principal increases have occurred in Diphtheria, Tuberculosis of the Lungs and Pneumonia. Other communicable diseases have made temporary gains, but these three are the only ones that exhibit an increasing trend greater than the increase in the population in this age group. Other causes of death contributing materially to the total increase are diseases of the circulatory system, nephritis, diseases of the digestive system (except dysentery) and external violence. During the last two years the numerical importance of these causes in this age period has been as follows:

1. Diphtheria 568 deaths
2. Violence 547 deaths
3. Tuberculosis, lungs, 434 deaths
4. Digestive diseases, 326 deaths
5. Pneumonia, 279 deaths
6. Circulatory diseases, 179 deaths
7. Nephritis, 81 deaths

(See Tables 14 and 15.)

There has been practically no improvement in the mortality of age period 15 to 24 years. The deaths and population have about kept pace with the total for the state, the mortality fluctuating practically in synchronism with the younger age groups with no improvement indicated. The feature of mortality in this group is the acute influenza peak in 1918. The last two years, however, have shown some reduction, the rate for 1921 being the lowest since 1917; but a considerable reduction is needed to equal the record of 1916, which was a record year for all the younger age groups.

Age group 25-34 was the greatest sufferer from the influenza in 1918. The death rate rose from 6.7 to 16.8, by far the greatest increase for any age period. Prior to that time there appeared to be a slightly increasing trend in the mortality although 1916 and 1917 showed low rates along with the younger age groups. Since 1918 the rate has fallen rapidly and is now lower than ever before. However, on the whole there appears to be little if any general reduction in the trend of mortality of this age period.

Age group 35-44 has shown a steady improvement during the last ten years and indications point to a continued improvement. The influenza peak is not as acute for this group as for the 25 to 34 year period—in fact the incidence begins to disappear at this point. This group displays none of the fluctuations common to all the younger age periods. The rise in 1915 and 1914 is entirely absent as are also the low rates for 1916 and 1917. The mortality steadily declined until 1918 and the last two years show added improvement.

In age group 45 to 54 years there is a slight downward trend in mortality, but the reduction is not as apparent as in the next younger group. The conditions producing increased mortality at the young ages during 1915 were evidently felt in this group also. The incidence of influenza was low at these ages and since 1918 the mortality has been considerably reduced although 1921 shows an upward turn. The rates for the present period, however, are lower than they have ever been.

For ages 55 to 64 the trend during the last decade has been toward improvement. The rate for 1915 was quite high and the preceding

years showed a gradual increase. Since then the improvement has been steady with only slight incidence of influenza in 1918. The rates for the present biennium are the lowest for ten years.

For the population 65 years of age and over the mortality has reduced materially. There was a sharp reduction in the rates for 1914 and 1915 followed by a return to the higher rates. The reduction then continued until 1920. The last two years show an upward turn in mortality, but the rates are still far below those prevailing ten years ago. The influenza did not cause any unusual mortality in this group—in fact the reduction in the death rate was greater during 1918 than the year before.

In general, during the last decade there has been a material improvement in mortality for children of pre-school age. For ages 5 to 24 there has not only been no improvement, but the indications are in the opposite direction with increasing death rates. For ages 25 to 34 the situation has remained about stationery with little evidence of change either way. After age 35 improvement has again been apparent with steadily decreasing death rates for the higher ages.

One evidence of this movement of mortality in the various age periods is the increased average age at death. In 1911 the arithmetical average was 45.7 years. In 1920 it was 46.2 years and in 1921, 47.5 years. In 1918 the average was reduced to 42.5 years by the heavy incidence of influenza in the younger age groups with comparative immunity for the old people.

DEATHS PER 1,000 POPULATION BY AGE PERIODS, 1911-1921, CALIFORNIA.

Year	Total	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
1911.....	13.6	84.0	8.7	2.5	5.0	7.1	9.8	14.3	26.3	67.6
1912.....	14.0	90.8	9.6	2.5	5.0	7.3	9.6	15.2	26.5	68.0
1913.....	14.2	96.7	9.3	2.5	4.9	7.4	9.5	15.1	26.6	66.7
1914.....	13.3	85.8	12.4	2.7	6.7	7.8	9.2	15.0	27.0	44.8
1915.....	13.3	75.0	11.4	2.7	6.6	7.6	9.0	15.5	27.7	47.1
1916.....	13.1	75.1	7.6	2.2	4.0	6.5	8.6	14.6	25.9	60.8
1917.....	13.3	81.0	8.3	2.5	4.3	6.7	8.7	14.5	25.8	59.8
1918.....	17.7	90.3	12.0	3.8	9.6	16.8	14.3	16.3	26.7	57.2
1919.....	13.6	74.7	6.9	2.7	5.2	8.9	9.5	14.3	25.3	55.0
1920.....	13.5	92.4	9.2	3.1	5.0	7.0	8.3	13.2	24.9	56.0
1921.....	13.1	85.8	8.4	3.1	4.5	5.9	7.6	13.6	24.9	57.0

Sex Ratio.

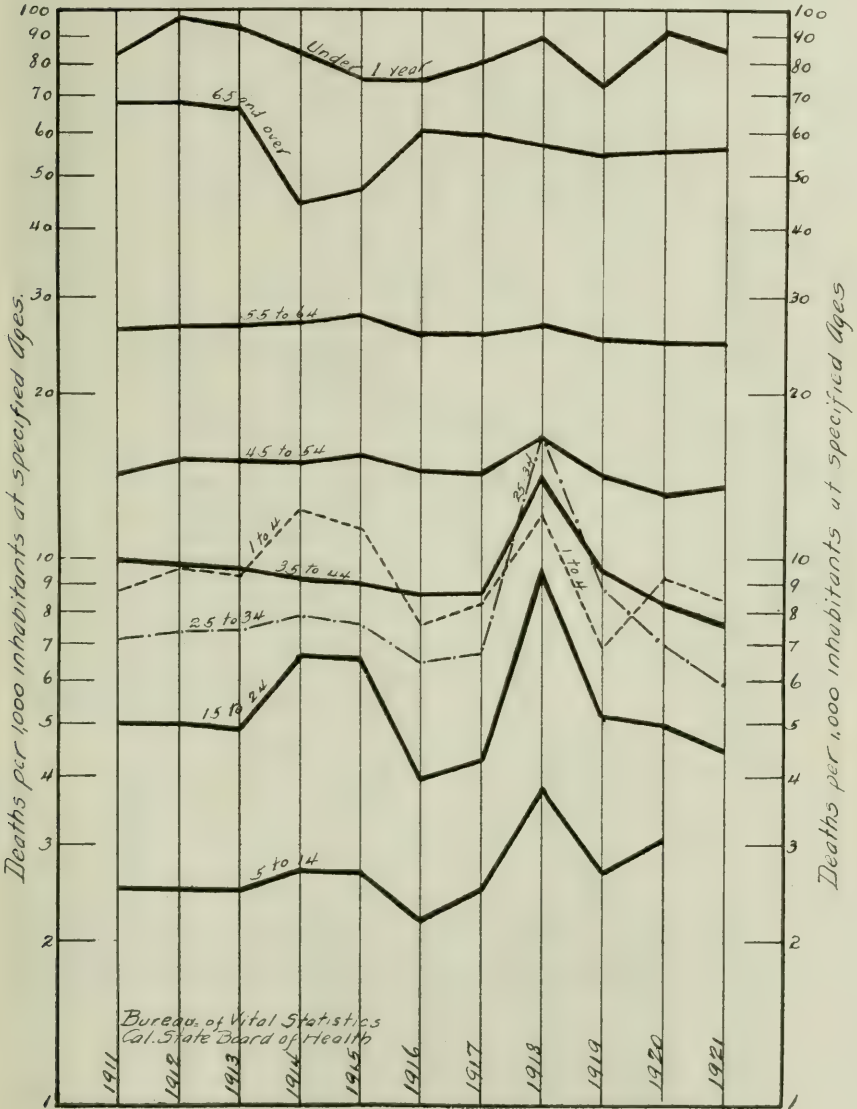
The ratio of male to female deaths has in a general way reflected the gradual relative increase in the female population. In 1910 there were 125 males per 100 females in California. In 1920 the ratio of males had fallen to 112. That is, there is a movement toward equalization of the sexes in the population. This same trend has been observed in the deaths although the male ratio of deaths is uniformly higher than the population figure. The highest figure was for 1907, 172 male deaths per 100 female. The reduction has been fairly steady to 137 male per 100 female deaths in 1920. For 1921 the ratio was 141.2

Apparently males suffered more than females in the influenza pandemic of 1918. During that year the ratio of male deaths increased

sharply, going to 165. In the following year it dropped to 144, the lowest up to that time.

During 1920 the total death rate for males was 14.8 and in 1921 it was 14.7. The rate for females was 12.1 in 1920 and 11.6 in 1921.

Death Rates by Age Periods California 1911-1921.



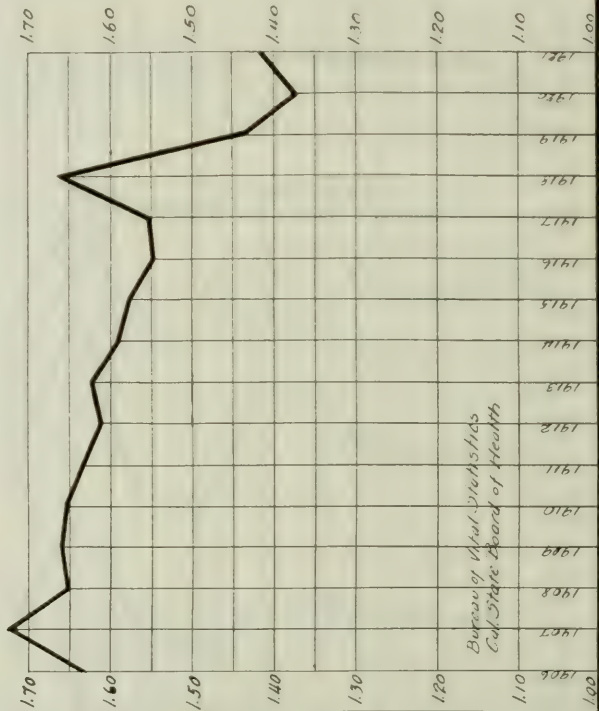
(Ratios by Logarithmic Scale)

Graph No. 6.

Graph No. 7.

Deaths. Ratio of Male to Female California 1906-1921.

1906	1.63
1907	1.72
1908	1.65
1909	1.66
1910	1.65
1911	1.63
1912	1.61
1913	1.62
1914	1.58
1915	1.57
1916	1.55
1917	1.55
1918	1.65
1919	1.44
1920	1.37
1921	1.41



Bureau of Vital Statistics
Cal. State Board of Health

Life Table for California.

A life table for the total population of California is presented herewith, (Table No. 2) based upon the population and mortality of 1920. A table based upon the experience of a longer period than a single year would doubtless have given more stable results, but the data here given represent California conditions with fair accuracy. The calculation of a life table for a given population is a matter involving considerable labor even when the original material is in satisfactory condition. Additional difficulties were encountered in the present instance due to the method of grouping the population by ages on the part of the Census Bureau and a lack of distribution of mortality by age periods in our statistics beyond age 65. In compiling the age distribution of our population the Census Bureau departed radically from the method employed in 1910 and special measures were necessary in the interpolation of age periods preliminary to beginning work on the life table calculations. The determination of deaths by age for the older groups was also a matter of considerable trouble and labor. Following the preliminary work mentioned the population and mortality were separately interpolated for the number living and the number dying at each age and the respective curves smoothed by graphic method. The interpolated population is 0.9 per cent greater than the census figure. The usual radix of 100,000 was adopted and calculations made for number of survivors, (l_x), number dying, (d_x), mortality rate, (q_x), complete expectation of life, ($e^{\circ}x$), probability of surviving one year, (p_x), total years lived, (T_x), and most probable after lifetime (vie probable). The survivors reduced to zero at age 102.

The table shows the complete expectation of life at birth to be 54.83 years, the greatest expectation being 59.40 years at age 2 years. The lowest death rates occur at ages 8 and 9 years. The survivors are reduced to half at age 63. Upon receipt of a copy of the United States Life Tables, recently published by the Census Bureau, comparison was made with the table for the original registration states. It indicates that the expectation of life was greater in California for 1920 than in the Registration Area for 1910, for all ages.

TABLE No. 1. 1905 to 1921. Births, Deaths and Marriages.

Year	Births		Deaths		Marriages	
	Total	Rate	Total	Rate	Total	Rate
1921	72,438	20.2	47,379	13.2	46,972	13.1
1920	67,198	19.3	47,124	13.5	46,564	13.4
1919	56,521	16.8	45,992	13.6	38,830	11.5
1918	55,922	17.1	57,683	17.7	32,487	10.0
1917	52,230	16.5	42,084	13.3	36,283	11.5
1916	50,638	16.5	39,860	13.1	30,996	10.2
1915	48,075	16.3	39,026	13.3	31,451	10.7
1914	46,012	16.2	37,537	13.3	31,902	11.3
1913	43,852	16.1	38,599	14.2	31,383	11.5
1912	39,330	15.0	36,709	14.0	31,276	12.0
1911	34,828	13.9	34,012	13.6	27,303	10.9
1910	32,138	13.4	32,398	13.5	24,937	10.4
1909	30,882	13.4	30,985	13.4	22,917	9.9
1908	28,077	12.7	31,287	14.1	21,739	9.8
1907	24,674	11.6	31,095	14.6	22,005	10.8
1906	20,974	10.3	29,303	14.4	21,317	10.5

TABLE No. 2. 1920. Life Table for Both Sexes, California.

Age interval, years	Survivors at beginning of age interval lx	Persons dying during age interval dx	Death rate 1000qx	Complete expectation of life, years e'x
0-1	100,000	9,055	90.55	54.83
1-2	90,945	1,764	19.40	59.24
2-3	89,181	776	8.70	59.40
3-4	88,405	531	6.00	58.92
4-5	87,874	351	3.99	58.27
5-6	87,523	298	3.40	57.50
6-7	87,225	267	3.05	56.70
7-8	86,958	251	2.88	55.87
8-9	86,707	245	2.82	55.03
9-10	86,462	245	2.82	54.18
10-11	86,217	247	2.85	53.34
11-12	85,970	255	2.96	52.49
12-13	85,715	267	3.10	51.64
13-14	85,448	281	3.28	50.80
14-15	85,167	296	3.46	49.80
15-16	84,871	314	3.69	49.14
16-17	84,557	335	3.95	48.32
17-18	84,222	358	4.24	47.51
18-19	83,864	380	4.52	46.71
19-20	83,484	402	4.81	45.92
20-21	83,082	425	5.11	45.14
21-22	82,657	446	5.39	44.37
22-23	82,211	467	5.67	43.61
23-24	81,744	483	5.90	42.86
24-25	81,261	492	6.05	42.11
25-26	80,769	499	6.17	41.36
26-27	80,270	500	6.22	40.62
27-28	79,770	506	6.33	39.87
28-29	79,264	514	6.48	39.12
29-30	78,750	523	6.63	38.37
30-31	78,227	533	6.80	37.62
31-32	77,694	545	7.01	36.88
32-33	77,149	557	7.21	36.14
33-34	76,592	568	7.41	35.40
34-35	76,024	582	7.64	34.66
35-36	75,442	594	7.86	33.92
36-37	74,848	603	8.04	33.18
37-38	74,245	613	8.25	32.45
38-39	73,632	620	8.41	31.72
39-40	73,012	627	8.58	30.98
40-41	72,385	636	8.77	30.25
41-42	71,749	645	8.98	29.51
42-43	71,104	656	9.21	28.77
43-44	70,448	669	9.49	28.03
44-45	69,779	689	9.86	27.29
45-46	69,090	712	10.29	26.56
46-47	68,378	746	10.90	25.83
47-48	67,632	774	11.44	25.11
48-49	66,858	810	12.10	24.40
49-50	66,045	839	12.70	23.69
50-51	65,209	869	13.32	22.99
51-52	64,340	895	13.90	22.29
52-53	63,445	921	14.50	21.60
53-54	62,524	950	15.18	20.91
54-55	61,574	973	15.80	20.23
55-56	60,601	1,012	16.70	19.54
56-57	59,589	1,062	17.82	18.87
57-58	58,527	1,113	19.00	18.20
58-59	57,414	1,160	20.20	17.54
59-60	56,254	1,204	21.40	16.89
60-61	55,050	1,249	22.68	16.25
61-62	53,801	1,286	23.90	15.62
62-63	52,515	1,319	25.10	14.99
63-64	51,196	1,347	26.30	14.36
64-65	49,849	1,378	27.63	13.73

TABLE No. 2—Concluded.

Age interval, years	Survivors at beginning of age interval lx	Persons dying during age interval dx	Death rate 1000qx	Complete expectation of life, years e ⁰ x
65-66	48,471	1,406	29.00	13.11
66-67	47,065	1,458	30.97	12.50
67-68	45,607	1,516	33.24	11.89
68-69	44,091	1,623	36.80	11.28
69-70	42,468	1,717	40.42	10.69
70-71	40,751	1,787	43.83	10.12
71-72	38,964	1,861	47.76	9.56
72-73	37,103	1,933	52.09	9.01
73-74	35,170	1,982	56.35	8.48
74-75	33,188	2,025	61.02	7.96
75-76	31,163	2,099	67.34	7.44
76-77	29,064	2,177	74.90	6.94
77-78	26,887	2,223	82.68	6.47
78-79	24,664	2,270	92.04	6.00
79-80	22,394	2,284	101.98	5.56
80-81	20,110	2,330	115.86	5.14
81-82	17,780	2,281	128.30	4.74
82-83	15,499	2,204	142.25	4.37
83-84	13,295	2,102	158.10	4.01
84-85	11,193	1,986	177.45	3.67
85-86	9,207	1,811	196.70	3.35
86-87	7,396	1,644	222.22	3.05
87-88	5,752	1,438	250.00	2.77
88-89	4,314	1,208	280.00	2.54
89-90	3,106	956	307.69	2.33
90-91	2,150	744	346.15	2.15
91-92	1,406	517	367.82	2.02
92-93	889	333	375.00	1.90
93-94	556	228	410.00	1.74
94-95	328	145	443.00	1.61
95-96	183	87	475.00	1.49
96-97	96	49	508.00	1.40
97-98	47	25	537.00	1.33
98-99	22	12	568.00	1.27
99-100	10	6	593.00	1.20
100-101	4	2	624.00	1.25
101-102	2	1	660.00	1.00
102-103	1	1	702.00	.50
103-104	0			

TABLE No. 3. 1923—1921. Births, Deaths and Marriages by Month of Occurrence.

Month	1920			1921		
	Births	Deaths	Marriages	Births	Deaths	Marriages
Total	67,198	47,124	46,564	72,438	47,379	46,972
January	5,725	4,609	3,418	6,038	4,526	3,596
February	5,308	5,854	3,120	5,536	4,027	3,161
March	5,768	4,552	2,909	6,235	4,198	3,463
April	5,277	3,662	3,662	6,000	4,070	3,802
May	5,460	3,741	3,417	5,933	3,855	3,499
June	5,494	3,471	5,418	5,864	3,676	5,657
July	5,694	3,510	4,120	6,167	3,584	4,208
August	5,952	3,435	3,911	6,184	3,652	4,057
September	5,603	3,172	4,281	6,292	3,535	4,107
October	5,716	3,469	3,974	6,095	3,720	4,011
November	5,500	3,608	3,928	5,932	4,064	3,825
December	5,701	4,041	4,316	6,252	4,472	3,586

	330	24 1	226	16 5	11	32 3	54 0	298	21 3	228	16 3	17	54 0
Pomona.....													
Redondo Beach*													
Santa Ana.....	317	20 3	248	15 9	10	30 6		70	13 4	61	11 7	4	56 8
South Pasadena*								405	24 7	280	17 1	21	49 3
Venice.....								23	2 8	97	11 8	1	41 7
Whittier*								73	6 3	87	7 6	1	13 5
Madra.....	283	22 6	141	11 4	7	24 4	171	187	21 9	84	9 9	10	182
Marin (exclusive of)	101	8 7	186	8 5	3	15 5	652	302	23 6	153	12 0	30	32 1
San Rafael.....	115	21 0	116	21 1	1	8 6	8	205	9 2	209	9 4	6	28 4
Mariposa.....	27	9 9	29	10 7	1	35 7	24	117	21 5	96	17 5	4	33 1
Mendocino.....	380	16 1	350	14 5	5	12 7	203	337	17 5	26	16 0	1	40 0
Merced.....	402	19 6	204	8 1	10	19 9	261	423	20 5	230	8 8	15	34 2
Modoc.....	108	19 8	48	8 8	2	18 2	55	533	20 5	327	13 5	15	205
Mono.....	2	2 2						99	17 8	42	3 8	4	38 8
Monterey (exclusive of)	587	20 8	352	12 5	21	34 5	302	497	17 4	259	11 3	19	36 8
Montezuma*								173	31 1	66	11 9	5	28 1
Napa (exclusive of)	125	9 0	433	31 1	3	23 4	333	133	9 6	401	28 8	1	7 5
Napa.....	184	27 0	116	17 0	6	31 6	86	104	23 8	117	17 0	7	40 9
Nevada.....	194	18 2	151	14 2	2	10 2	1,975	167	16 3	166	16 2	5	29 1
Orange (exclusive of)	1,155	24 6	697	14 2	36	31 2	1,975	1,142	26 6	574	13 4	40	85
Anaheim*								212	35 5	111	18 6	2	9 3
Santa Ana.....	352	22 2	225	14 2	9	24 9	118	251	27 2	202	12 2	13	28 8
Placer.....	417	22 4	299	16 1	11	25 7	118	473	25 4	361	19 4	7	14 6
Plumas.....	67	11 7	68	11 9	1	14 7	26	83	14 4	83	14 4	3	34 9
Riverside (exclusive of)	592	18 7	320	10 1	17	27 9	1,093	591	18 1	398	12 2	9	29 5
Riverside.....	427	21 8	392	15 4	6	13 9	1,737	446	22 3	338	17 0	17	28 0
Sacramento (exclusive of)	696	21 0	211	8 4	8	13 0	1,737	563	23 3	198	7 8	10	16 6
Sacramento.....	1,587	23 7	1,179	17 6	56	34 1	1,077	1,656	23 9	1,082	15 6	59	34 4
San Benito.....	172	19 0	109	12 1	7	33 4	1,198	187	20 5	114	12 5	5	26 0
San Bernardino (exclusive of)	836	19 6	743	16 3	31	33 4	1,198	889	22 7	608	15 5	20	22 0
San Bernardino.....								218	28 1	142	18 3	6	36 8
Redlands.....	105	20 5	167	17 5	8	39 4		106	20 8	163	17 3	4	20 0
San Bernardino (exclusive of)	484	25 4	396	20 8	18	35 9	1,985	528	26 9	378	19 2	16	29 4
San Diego (exclusive of)	507	13 2	438	11 1	20	38 0		632	15 8	495	12 4	13	20 2
San Diego.....	1,646	21 5	1,231	17 2	63	36 9	7,498	1,842	23 0	1,380	17 2	76	39 6
San Francisco.....	9,093	17 7	7,258	14 2	362	38 5	7,498	9,175	17 6	7,026	13 5	293	30 9
San Francisco (exclusive of)	773	19 2	542	13 5	16	20 3	1,211	1,000	24 5	889	14 4	19	18 6
Stockton.....	991	24 1	838	20 4	2	19 6	312	1,095	25 5	618	14 4	23	28 4
San Luis Obispo (exclusive of)	398	19 1	149	10 0	0	16 3		321	19 7	143	8 6	6	48 3
San Luis Obispo.....	139	26 8	114	10 2	1	16 3		143	23 5	112	18 6	6	40 3
San Mateo (exclusive of)	614	16 5	456	12 2	8	12 9	611	304	11 3	366	11 4	15	30 6
San Mateo.....								214	34 3	100	16 0	4	18 3
San Mateo*.....	438	20 0	219	10 0	10	22 3	518	409	38 2	210	10 2	10	27 9
Santa Barbara (exclusive of)	433	21 8	257	13 1	23	50 4		488	25 0	261	22 0	14	23 0
Santa Barbara.....	1,302	21 2	1,195	19 5	34	25 4	1,654	1,131	22 4	1,014	20 9	33	26 4
Santa Clara (exclusive of)								172	28 1	81	13 2	3	1 7
Palo Alto.....	722	18 0	493	12 3	13	17 7		779	18 9	478	11 0	15	18 9
San Jose.....								86	16 1	52	9 5	8	51 3
Santa Clara (exclusive of)	307	20 0	193	12 5	13	40 6	366	13 9	14 4	136	13 2	7	32 0
Santa Cruz (exclusive of)	187	17 1	209	19 2	13	6 0		212	19 5	208	19 1	7	40 0
Santa Cruz.....								1 8	32 9	63	12 3	7	40 0
Watsonville*.....								213	17 0	203	16 2	12	53 3
Shasta.....	221	16 9	162	12 4	15	63 6	162						163

*Not separately compiled in 1920. Included in rural. **Marriages are given for county as a whole. †Stillbirth rates are based on total births, i. e., live births plus stillbirths.

TABLE No. 4. 1920-1921. Births, Deaths and Stillbirths in Cities and Counties and Marriages in Counties, with Rates - Concluded.

County or city	1920						1921									
	Live births		Deaths		Stillbirths		Marriages**		Live births		Deaths		Stillbirths		Marriages**	
	No.	Rate	No.	Rate	No.	Rate † per 1000 births	No.	Rate	No.	Rate	No.	Rate	No.	Rate † per 1000 births	No.	Rate
Sierra.....	23	13.8	23	14.2	7	16.7	6	3.6	25	17.6	27	19.0	1	38.3	1	38.3
Siskiyou.....	413	222.3	212	11.4	11	40.7	277	14.9	452	24.4	222	12.0	13	28.0	231	12.5
Solano (exclusive of Yuba).....	250	1.2	163	8.3	11	40.7	349	8.5	311	17.0	145	7.3	13	15.8	379	8.9
Vallejo.....	376	17.4	319	14.8	9	23.4	629	12.0	406	12.0	236	10.4	12	28.7	612	11.6
Sonoma (exclusive of Petaluma).....	461	19.4	515	13.8	13	23.4	629	12.0	486	12.0	449	11.9	15	28.9	612	11.6
Petaluma.....	166	26.6	80	12.8	6	31.9	629	12.0	185	29.7	90	14.3	9	46.4	612	11.6
Santa Rosa.....	218	24.8	164	18.6	5	22.4	518	11.6	211	23.7	138	17.7	6	27.6	528	11.3
Stanislaus (exclusive of Modesto).....	995	22.3	509	11.4	28	27.4	518	11.6	981	18.5	269	7.3	16	23.0	528	11.3
Butter.....	140	13.6	77	7.5	2	14.1	46	4.5	378	37.6	265	20.4	13	33.2	52	4.9
Tehama.....	241	18.6	199	13.7	8	32.1	46	4.5	148	13.8	91	8.5	2	13.3	120	9.1
Tribunite.....	30	11.9	22	8.7	1	32.5	142	10.9	273	20.8	165	12.6	3	16.9	13	5.3
Tulare (exclusive of Visalia).....	1,342	22.3	580	9.7	36	26.1	604	10.0	18	7.4	37	15.1	2	100.0	637	10.2
Visalia.....	118	15.4	123	16.1	5	40.7	46	6.0	1332	23.5	460	8.1	47	34.1	637	10.2
Tyrolume.....	577	23.1	343	11.7	23	32.9	46	6.0	197	33.2	154	26.0	8	39.0	56	7.5
Ventura.....	372	21.0	190	11.4	13	33.8	133	13.3	146	19.7	125	16.8	6	39.5	465	15.3
Yuba.....	59	12.0	31	6.3	1	16.7	151	14.5	656	21.6	378	12.5	21	31.0	153	8.8
Yuba (exclusive of Marysville).....	141	23.8	97	17.8	9	60.0	134	14.5	51	10.3	224	12.8	7	20.1	127	12.2

**Not separately compiled in 1920. Included in rural.

***Marriages are given for county as a whole.

†Stillbirth rates are based on total births, i. e., live births plus stillbirths.

TABLE No. 5. 1921. Birth Rates for Counties and Cities Adjusted According to Residence of Mothers, California.

	Mothers		Net		Effect on rate		Adjusted birth rate
	Non-resident	Resident confined elsewhere	Debit	Credit	Subtract	Add	
Total	6,062	6,062					
Alameda (exclusive of)	111	164		53		1.4	19.6
Alameda	110	122		12		.4	19.0
Berkeley	247	300		53		.9	18.4
Oakland	616	429	187		8		17.3
San Leandro	4	35		31		5.1	24.5
Alpine							
Amador	1		1		1		12.1
Butte (exclusive of)	7	39		32		1.6	20.3
Chico	41	6	35		3.4		21.0
Calaveras		10		10		1.8	15.4
Colusa	2	19		17		1.9	19.3
Contra Costa (exclusive of)	9	116		107		2.7	21.4
Richmond	14	36		22		1.2	20.8
Del Norte							16.0
El Dorado	1	8		7		1.1	15.3
Fresno (exclusive of)	39	175		136		1.5	25.7
Fresno	182	72	110		2.3		28.7
Glenn	2	24		22		1.7	17.1
Humboldt (exclusive of)	5	79		74		3.0	17.6
Eureka	83	6	77		5.9		21.9
Imperial (exclusive of)	1	46		45		1.6	20.4
Brawley	1	21		20		3.3	23.7
Calxico	1	20		19		2.7	23.9
El Centro	38	14	24		4.0		24.1
Inyo		5		5		7	22.8
Kern (exclusive of)	7	149		142		3.8	26.5
Bakersfield	114	34	80		4.1		31.7
Kings (exclusive of)	6	26		20		1.2	18.8
Hanford	28	8	20		3.3		34.4
Lake	1	6		5		.9	14.1
Lassen		4		4		4	18.1
Los Angeles (exclusive of)	252	793		541		3.0	23.5
Alhambra	67	34	33		3.4		23.0
Glendale	65	69		4		3	20.5
Long Beach	118	48	70		1.1		16.6
Los Angeles	907	385	522		.8		19.8
Monrovia	31	10	21		3.6		16.5
Pasadena	122	78	44		.9		18.0
Pomona	63	15	48		3.4		17.9
Redondo Beach	3	17		14		2.7	16.1
Santa Monica	132	22	110		6.7		18.1
South Pasadena	1	54		53		6.5	9.3
Venice	3	91		88		7.6	13.9
Whittier	26	18	8		.9		21.0
Madera	5	11		5		4	24.0
Marin (exclusive of)	6	124		119		5.3	14.8
San Rafael	29	11	18		3.3		18.2
Mariposa	1	4		3		1.2	10.4
Mendocino	6	20		14		6	18.1
Merced	6	29		23		9	21.4
Modoc	1	7		6		1.1	18.9
Mono		2		2		2.5	2.5
Monterey (exclusive of)	7	26		19		8	18.2
Monterey	9	11		2		4	31.5
Napa (exclusive of)	10	25		15		1.1	10.7
Napa	22	13	9		1.3		22.5
Nevada	3	4		1		1	16.4
Orange (exclusive of)	35	107		72		1.7	28.3
Anaheim	47	18	29		4.8		30.7
Santa Ana	49	19	30		1.8		25.4
Placer	7	50		43		2.3	27.7
Plumas	4	12		8		1.4	15.8
Riverside (exclusive of)	7	94		87		2.7	20.8
Riverside	76	15	61		3.1		19.2
Sacramento (exclusive of)	13	97		84		3.3	26.6
Sacramento	210	31	179		2.6		21.3
San Benito	7	6	1		1		20.4
San Bernardino (exclusive of)	45	91		46		1.2	23.9
Ontario	26	6	20		2.6		25.5
Redlands	22	21	1		1		20.7
San Bernardino	52	17	35		1.8		25.8
San Diego (exclusive of)	18	134		116		2.9	18.7
San Diego	161	25	136		1.7		21.3
San Francisco	667	122	545		1.0		16.6
San Joaquin (exclusive of)	76	117		41		1.0	25.1
Stockton	131	78	53		1.2		24.3

TABLE No. 5. 1921. Birth Rates for Counties and Cities Adjusted According to Residence of Mothers, California
—Concluded.

	Mothers		Net		Effect on rate		Adjusted birth rate
	Non-resident	Resident confined elsewhere	Debit	Credit	Subtract	Add	
San Luis Obispo (exclusive of)	11	21		10		.6	20.3
San Luis Obispo	22	12	10		1.7		22.1
San Mateo (exclusive of)	5	179		174		5.4	16.7
San Mateo	93	6	87		14.0		20.3
Santa Barbara (exclusive of)	12	86		74		3.3	21.5
Santa Barbara	76	20	56		2.7		20.9
Santa Clara (exclusive of)	204	70	134		2.6		19.8
Palo Alto	35	21	14		2.3		25.8
San Jose	58	185		127		3.1	22.0
Santa Clara		15		15		2.8	18.9
Santa Cruz (exclusive of)	7	23		16		1.6	16.0
Santa Cruz	30	11	19		1.7		17.8
Watsonville	13	7	6		1.2		31.7
Shasta	1	5		4		.3	17.3
Sierra	2		2		1.4		16.2
Siskiyou	3	5		2		1	24.3
Solano (exclusive of)	4	49		45		2.3	17.9
Vallejo	18	42		24		1.1	19.0
Sonoma (exclusive of)	11	56		45		1.2	14.1
Petaluma	27	12	15		2.4		27.1
Santa Rosa	41	11	30		3.4		20.3
Stanislaus (exclusive of)	20	75		55		1.5	20.0
Modesto	64	22	42		4.2		33.4
Sutter	3	21		18		1.7	15.5
Tehama	7	9		2		.2	21.0
Trinity		2		2		.8	8.2
Tulare (exclusive of)	21	41		20		.4	23.9
Visalia	16	16					33.2
Tuolumne		5		5		.7	20.4
Ventura	18	18					21.6
Yolo	8	27		19		1.1	20.6
Yuba	13	36		23		2.2	19.9

TABLE No. 6. 1920—1921. Births by Race and Nativity of Mother (Stillbirths Excluded).

Maternal nativity.

Race of mother	1920				1921			
	Total	California	Other U. S.	Foreign	Total	California	Other U. S.	Foreign
Total	67,198	19,454	25,769	21,975	72,438	19,883	28,182	24,373
White	61,078	19,108	25,309	16,661	65,583	19,427	27,504	18,652
Negro	496	79	410	7	749	112	614	23
Indian	123	105	16	2	188	164	17	7
Chinese	504	152	8	344	609	163	12	434
Japanese	4,971	10	25	4,936	5,275	17	34	5,224
Other	26		1	25	34		1	33

TABLE No. 7. 1920-1921. Births by Race of Mother and Number of Previous Issue.

Race of mother	Total	Previous issue									
		0	1	2	3	4	5	6	7	8	9+
1920											
Total.....	67,198	24,003	16,478	10,218	6,182	3,714	2,311	1,536	1,005	665	1,086
White.....	61,078	22,229	14,965	9,064	5,400	3,274	2,088	1,413	944	629	1,042
Negro.....	496	173	108	68	49	30	22	21	9	6	10
Indian.....	123	42	23	12	9	5	5	4	3	3	5
Chinese.....	504	90	87	75	74	49	48	32	18	13	18
Japanese.....	4,971	1,469	1,258	982	642	351	148	66	31	13	11
Other.....	26	0	7	8	5	5	0	0	0	1	0
1921											
Total.....	72,438	27,008	17,086	10,679	6,646	4,029	2,506	1,569	1,060	722	1,133
White.....	65,583	24,975	15,476	9,457	5,792	3,509	2,225	1,431	986	665	1,004
Negro.....	749	267	160	89	80	43	33	19	19	7	20
Indian.....	188	72	29	22	18	14	12	6	2	3	10
Chinese.....	609	138	99	90	85	61	42	33	24	14	23
Japanese.....	5,275	1,549	1,315	1,012	665	400	191	80	28	19	16
Other.....	34	7	7	9	0	2	1	0	1	1	0

TABLE No. 3. 1920-1921. Births by Age of Mother and Number of Previous Issue, California.

Age of mother	Total	Previous Issue									
		0	1	2	3	4	5	6	7	8	9+
1920 total	67,198	24,063	16,478	10,218	6,182	3,714	2,311	1,536	1,005	665	1,086
15 to 20 years	9,576	7,227	1,899	356	175	12	2	3	1		1
21 to 25 years	20,348	9,402	6,112	2,943	1,181	399	135	58	17	6	5
25 to 30 years	18,475	4,920	3,608	2,350	1,262	79	327	327	166	79	47
31 to 35 years	11,089	1,682	2,368	1,639	1,639	1,145	789	519	330	197	226
36 to 40 years	6,094	586	809	955	836	718	560	483	373	261	513
41 to 45 years	1,511	92	129	152	186	172	148	138	112	117	265
46 years and over	97	2	7	9	14	6	11	8	6	5	29
Unknown	8	2	3	1	1		1				
1921 total	72,438	27,008	17,086	10,679	6,646	4,029	2,506	1,569	1,060	722	1,133
15 to 20 years	10,819	8,371	1,959	389	82	15	2	1			2
21 to 25 years	21,948	10,558	6,325	3,056	1,323	462	151	50	17	4	70
26 to 30 years	19,697	5,410	3,785	2,924	1,355	751	324	154	154	94	254
31 to 35 years	12,010	1,925	2,495	2,290	1,788	1,239	841	563	388	218	554
36 to 40 years	6,440	655	836	980	943	782	596	478	366	297	507
41 to 45 years	1,515	83	122	165	185	166	156	145	127	98	270
46 years and over	300	4	8	5	3	9	6	8	8	11	28
Unknown	9	2	1	1	1	1	3				2

TABLE No. 9. 1920-1921. Infant Deaths (Under 1 Year of Age) by Month of Occurrence (Stillbirths Excluded) with Infant Mortality Rates.

	1920			1921		
	Infant deaths	Live births	Infant deaths per 1000 live births	Infant deaths	Live births	Infant deaths per 1000 live births
Total.....	5,043	67,198	75.0	4,804	72,438	66.3
January.....	423	5,725	73.9	487	6,038	80.7
February.....	472	5,308	88.9	378	5,536	68.3
March.....	468	5,768	81.1	413	6,235	66.2
April.....	399	5,277	75.6	421	6,000	70.2
May.....	445	5,460	81.5	385	5,933	64.9
June.....	450	5,494	81.9	376	5,864	64.1
July.....	466	5,694	82.0	407	6,167	66.0
August.....	462	5,952	77.6	354	6,184	57.2
September.....	344	5,603	61.4	369	6,202	59.5
October.....	381	5,716	66.7	352	6,095	57.8
November.....	335	5,500	60.9	444	5,932	74.8
December.....	398	5,701	69.8	418	6,252	66.9

TABLE No. 10. 1920-1921. Infant Deaths (Under 1 Year of Age) in Cities and Counties (Stillbirths Excluded) with Infant Mortality Rates.

County or city	1920		1921		Adjusted infant mortality rate, see footnote
	Infant deaths	Infant mortality rate	Infant deaths	Infant mortality rate	
Total	5,043	75.0	4,804	66.3	66.3
Alameda (exclusive of)	71	102.2	60	91.9	85.0
Alameda	36	58.3	26	47.0	46.0
Berkeley	44	45.5	40	39.1	37.1
Oakland	297	71.7	216	51.6	54.0
San Leandro*			8	68.4	54.1
Alpine					
Amador	4	50.0	8	86.0	87.0
Butte (exclusive of)	44	73.9	16	44.6	40.9
Chico*			11	44.2	51.4
Calaveras	2	32.3	3	38.5	34.1
Colusa	6	33.7	8	47.8	43.7
Contra Costa (exclusive of)	49	68.2	50	68.8	60.0
Richmond	15	36.6	21	58.2	54.8
Del Norte	1	23.3	2	44.4	44.4
El Dorado	3	28.6	5	56.2	52.1
Fresno (exclusive of)	181	95.7	178	82.9	78.0
Fresno	133	100.2	122	81.7	88.2
Glenn	10	38.9	11	56.7	50.9
Humboldt (exclusive of)	21	60.7	22	60.4	50.2
Eureka	21	73.9	20	54.9	69.7
Imperial (exclusive of)	158	154.6	57	105.2	97.1
Brawley*			25	201.6	173.6
Calexico*			19	126.7	112.4
El Centro*			22	129.4	150.7
Inyo	6	55.6	10	64.1	62.1
Kern (exclusive of)	56	85.0	45	52.3	44.9
Bakersfield	48	82.1	58	82.9	93.5
Kings (exclusive of)	62	111.7	24	80.8	75.7
Hanford*			28	122.8	134.6
Lake	7	85.4	6	84.5	78.9
Lassen	5	35.5	14	87.0	84.8
Los Angeles (exclusive of)	343	93.1	313	83.4	72.9
Alhambra	9	48.6	14	54.5	62.5
Glendale*			14	45.6	45.0
Long Beach	62	60.1	59	54.2	58.0
Los Angeles	837	71.8	858	67.5	70.4
Monrovia*			8	69.0	84.2
Pasadena	26	32.5	28	31.0	32.6
Pomona	34	103.0	23	77.2	92.0
Redondo Beach*			3	42.9	35.7
Santa Monica	15	47.3	27	66.7	91.5
South Pasadena*					
Venice*			7	95.9	43.5
Whittier*			10	53.5	55.9
Madera	22	78.6	23	76.2	74.9
Marin (exclusive of)	13	68.1	9	43.9	27.8
San Rafael	6	52.2	7	59.8	70.7
Mariposa	2	74.1	3	125.0	111.1
Mendocino	25	64.3	17	40.2	38.9
Merced	48	97.6	41	76.9	73.7
Modoc	3	27.8	6	60.6	57.1
Mono					
Monterey (exclusive of)	39	66.4	26	52.3	50.4
Monterey*			11	63.6	62.9
Napa (exclusive of)	11	88.0	5	37.6	33.8
Napa	2	10.9	7	42.7	45.2
Nevada	9	46.4	15	89.8	89.3
Orange (exclusive of)	131	113.4	111	97.2	91.4
Anaheim*	31		14	66.0	76.5
Santa Ana	31	88.1	23	51.0	54.6
Placer	27	64.7	21	44.4	40.7
Plumas	4	59.7	5	60.2	54.9
Riverside (exclusive of)	52	87.8	80	135.4	118.0
Riverside	38	89.0	29	65.0	75.3
Sacramento (exclusive of)	36	59.4	24	40.5	35.5
Sacramento	133	83.8	121	73.1	81.9
San Benito	18	104.7	15	80.2	80.6
San Bernardino (exclusive of)	112	125.0	100	112.5	106.9
Ontario*			21	96.3	106.1
Redlands	16	82.1	15	76.5	76.9
San Bernardino	48	99.2	49	92.8	99.4

TABLE No. 10. 1920—1921. Infant Deaths (Under 1 Year of Age) in Cities and Counties (Stillbirths Excluded) with Infant Mortality Rates—Concluded.

County or city	1920		1921		Adjusted infant mortality rate, see footnote
	Infant deaths	Infant mortality rate	Infant deaths	Infant mortality rate	
San Diego (exclusive of).....	45	88.8	48	75.9	64.2
San Diego.....	85	51.6	107	58.1	62.6
San Francisco.....	559	61.9	470	51.2	54.5
San Joaquin (exclusive of).....	59	76.3	55	55.0	52.8
Stockton.....	80	80.7	81	74.0	77.7
San Luis Obispo (exclusive of).....	16	51.9	7	21.8	21.1
San Luis Obispo.....	8	50.3	13	90.9	97.7
San Mateo (exclusive of).....	36	58.6	31	85.2	57.6
San Mateo*.....	—	—	10	46.0	78.7
Santa Barbara (exclusive of).....	47	107.3	20	48.9	41.4
Santa Barbara.....	32	73.9	35	71.7	81.0
Santa Clara (exclusive of).....	103	79.1	84	74.3	84.3
Palo Alto*.....	—	—	6	34.9	38.0
San Jose.....	44	60.9	39	50.1	43.0
Santa Clara*.....	—	—	6	69.8	59.2
Santa Cruz (exclusive of).....	14	45.6	8	54.1	48.8
Santa Cruz.....	9	48.1	7	33.0	36.3
Watsonville*.....	—	—	10	59.5	61.7
Shasta.....	18	81.4	19	89.2	87.6
Sierra.....	—	—	2	80.0	87.0
Siskiyou.....	23	55.7	30	66.4	66.1
Solano (exclusive of).....	22	84.9	17	54.7	47.8
Vallejo.....	24	63.8	21	51.7	48.8
Sonoma (exclusive of).....	31	67.2	24	49.4	45.2
Petaluma.....	2	12.0	11	59.5	64.7
Santa Rosa.....	9	41.3	15	71.1	82.3
Stanislaus (exclusive of).....	89	89.4	31	45.5	42.1
Modesto*.....	—	—	31	82.0	92.3
Sutter.....	9	64.3	4	27.0	24.1
Tehama.....	18	74.7	18	65.9	65.0
Trinity.....	4	133.3	2	111.1	100.0
Tulare (exclusive of).....	104	77.5	103	77.3	76.2
Visalia*.....	—	—	25	126.9	126.9
Tuolumne.....	9	76.3	14	95.9	92.7
Ventura.....	82	121.1	76	115.9	115.9
Yolo.....	17	45.7	16	46.9	44.4
Yuba (exclusive of).....	3	50.8	3	58.8	—
Marysville.....	10	70.9	8	59.7	52.9

*Not separately compiled in 1920.

NOTE.—Adjusted infant mortality rates are those computed following adjustment of births according to residence of parents. See Table No. 5.

TABLE No. 11. 1920. Infant Deaths (Under 1 Year of Age) by Cause of Death and Age Periods (Stillbirths Excluded).

Cause of death	Total	Under 1 day	1 to 10 days	11 days to 1 mo.	1 mo.	2 mos.	3 mos.	4 to 6 mos.	7 to 9 mos.	10 to 11 mos.
Total	5,043	952	991	491	460	346	317	662	533	291
Malaria	2		1						1	
Smallpox	2				2					
Measles	40		2	4	2	1	2	5	15	9
Scarlet fever	6	1		2				1		
Whooping cough	236			14	43	33	25	54	41	26
Diphtheria	11	1					1	4	3	2
Influenza	116	5	8	5	11	7	7	29	26	18
Dysentery	19			1	1	1	1	8	5	2
Other epidemic diseases	26		1	6	7	1		3	7	1
Tuberculosis, lungs	37		1	2	3	1	4	9	9	8
Tuberculosis, other	75	1	1	2	7	3	5	19	23	14
Veneral diseases	68	5	18	11	14	4	8	4	2	2
Cancer	10	1		1	1	1		2	4	
Encephalitis lethargica	2		1	1						
Other general diseases	43		7	4	4	4	5	8	8	3
Cerebrospinal fever	20		1	2	2	3		5	6	1
Poliomyelitis	4			1			1			2
Other nervous system	95	4	13	8	3	4	9	21	25	8
Circulatory system	29		6	5	2	4	2	6	3	1
Pneumonia	682	3	51	67	82	65	67	132	127	88
Other respiratory system	100	1	9	12	17	7	7	22	20	5
Diarrhea and enteritis	917	4	52	91	103	112	116	223	151	65
Other digestive system	108		9	12	15	13	6	27	15	11
Nephritis	21		5	2	2	5	1	3	3	
Other genito-urinary	10	1		2				4	2	1
Diseases of skin	14			4	2	2	1	1	4	
Diseases of bones	4							3		1
Malformations	378	75	150	46	26	22	19	19	14	7
Diseases of early infancy	1,869	844	640	181	94	41	17	35	11	6
External causes	88	3	11	5	13	10	13	15	8	10
Ill-defined, unknown	11	3	4		4					

TABLE No. 12. 1921. Infant Deaths (Under 1 Year of Age) by Cause of Death and Age Periods (Stillbirths Excluded)

Cause of death	Total	Under 1 day	1 to 10 days	11 days to 1 mo.	1 mo.	2 mos.	3 mos.	4 to 6 mos.	7 to 9 mos.	10 to 11 mos.
Total	4,804	922	1,096	489	419	323	283	578	453	241
Typhoid fever	4						1			3
Malaria	2				1			1		
Smallpox	5		1	1		1		1	1	
Measles	25			1	1	2	1	3	6	11
Scarlet fever	4			2				1	1	
Whooping cough	122		1	5	25	13	12	35	24	7
Diphtheria	18			2	3	1	4	1	4	3
Influenza	29		1	6	4	2	4	5	3	4
Dysentery	30				4	2	1	11	10	2
Other epidemic diseases	52		12	11	8	5	4	5	5	2
Tuberculosis, lungs	24			1		1	2	10	6	4
Tuberculosis, other	51		1		3	5	3	12	18	9
Veneral diseases	78	7	17	16	13	7	4	9	2	3
Cancer	3		1							2
Encephalitis lethargica	4				1				1	2
Other general diseases	25		3		2		2	11	1	6
Cerebrospinal fever	8							1	5	2
Poliomyelitis	3							1	2	
Other nervous system	134	5	34	8	16	11	9	24	16	11
Circulatory system	41	1	11	5	2	5	1	8	7	1
Pneumonia	605		45	64	76	72	68	117	109	54
Other respiratory system	73		1	12	12	7	6	19	12	4
Diarrhea and enteritis	519	4	45	66	97	97	94	200	140	76
Other digestive system	122		15	14	15	13	13	23	22	7
Nephritis	18		2	1	2	3	1	6		3
Other genito-urinary	10		1	1	1	1	1	1	3	1
Diseases of skin	16		2	7	1	2	2	1	1	
Diseases of bones	6							2	1	1
Malformations	430	84	173	59	33	20	13	23	15	10
Diseases of early infancy	1,965	815	723	199	89	48	29	37	22	3
External causes	68	5	7	6	8	4	4	9	15	10
Ill-defined, unknown	10	1		2	2	1	2	1	1	

TABLE No. 13. 1920—1921. Infant Deaths (Under 1 Year of Age) by Race of Mother (Stillbirths Excluded) with Infant Mortality Rates.

Race of mother	1920		1921	
	Infant deaths	Infant mortality rates	Infant deaths	Infant mortality rates
Total.....	5,043	75.0	4,804	66.3
White.....	4,573	74.9	4,341	66.2
Negro.....	62	125.0	53	70.8
Indian.....	35	284.6	32	170.2
Chinese.....	33	65.5	53	87.0
Japanese.....	338	68.0	324	61.4
Other.....	2	76.9	1	29.4

TABLE No. 14. 1920. Deaths Classified According to Cause of Death and Age of Decedent (Stillbirths Excluded).

Cause of death	Age										65 years and over	Unknown
	Total	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over		
Total.....	47,124	5,043	2,066	1,684	2,746	4,137	4,916	5,271	6,515	14,737	9	
Typhoid.....	172	8	8	29	35	34	31	19	7	9		
Malaria.....	34	2	2	1	6	1	4	5	7	6		
Smallpox.....	7	2			1	1				2		
Measles.....	195	40	104	36	5	4	2	1	1	2		
Scarlet fever.....	90	6	30	29	12	5	5	1	1	1		
Whooping cough.....	401	236	144	15	1	2				3		
Diphtheria.....	451	11	152	233	32	6	11	3	3	255		
Influenza.....	2,715	116	149	125	336	697	608	266	163	11		
Dysentery.....	80	19	17	4	3	7	2	6	11	11		
Poliomyelitis (acute)* 63a (30 deaths)												
Encephalitis (lethargic)† 55a (59 deaths)												
Meningococcus meningitis* 61c (55 deaths)												
Tuberculosis, lungs.....	4,710	37	48	129	791	1,132	1,049	675	485	364		
Tuberculosis, other.....	687	75	113	98	105	99	74	53	36	34		
Venereal diseases.....	365	68	7	2	21	40	74	82	61	40		
Other general epidemic diseases.....	114	26	10	4	5	7	12	8	21	21		
Cancer.....	3,780	10	11	6	26	101	331	733	1,020	1,542		
Other general diseases.....	1,590	44	46	165	84	109	170	295	332	465		
Diseases of nervous system.....	4,907	119	114	121	112	167	339	508	913	2,154		
Diseases of circulatory system.....	8,023	31	14	86	114	265	416	869	1,472	4,816		
Pneumonia.....	3,546	680	364	138	198	282	300	268	331	984		
Other diseases of respiratory system.....	828	100	54	17	19	26	51	75	102	384		
Diarrhea and enteritis—under 2 years.....	1,119	917	202	29	15	25	35	46	39	119		
Diarrhea and enteritis—over two years.....	428	120	120	87	133	138	185	249	392	632		
Other diseases of digestive system.....	2,954	103	18	38	52	107	246	385	540	1,334		
Nephritis.....	2,745	26	18	2	17	65	70	65	80	257		
Other non-venereal—genito-urinary system.....	570	10	4	2	131	208	130	3	3	1		
The parental state.....	474											
Diseases of the skin and cellular tissue.....	102	14	3	4	9	6	8	12	11	35		
Diseases of the bones and organs of locomotion.....	8	4	4	16	13	5	8	7	6	16		
Malformations.....	422	378	30	8	3	1	1					
Early infancy.....	1,872	1,870	9									
Scalds.....	337											
Suffocation.....	665											
Other external causes.....	3,240	88	197	284	393	483	521	396	353	540		
Ill defined and unknown.....	45	11	4	2	2	1	2	4	9	8		

*Age distribution not separately compiled. Included in diseases of nervous system.

†Age distribution not separately compiled. Included in other general diseases.

TABLE No. 15. 1921. Deaths Classified According to Cause of Death and Age of Decedent (Stillbirths Excluded).

Cause of death	Total	Age										65 years and over	Unknown
		Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over			
Total	47,379	4,804	1,946	1,764	2,507	3,571	4,686	5,603	6,779	15,718	1		
Typhoid	147	4	12	24	41	21	27	8	6	4			
Malaria	43	2	5	4	1	3	3	3	10	12			
Smallpox	21	5	3	3	1	1	2	5	2	1			
Measles	127	25	70	24	4	1	1	2					
Scarlet fever	117	4	44	38	17	10	2						
Whooping cough	191	122	58	10	16	17	10	5	4				
Influenza	644	18	239	335	16	17	10	5	4				
Dysentery	339	29	29	27	27	43	30	42	38	77			
Poliomyelitis (acute)	101	30	28	3	2	2	2	7	3	22			
Encephalitis (lethargic)	49	3	8	30	3	2	2						
Meningococcus meningitis	84	4	10	19	5	12	12	9	9	4			
Tuberculosis, lungs	63	8	10	16	16	15	6	1	1				
Tuberculosis, other	4,708	24	43	116	817	1,039	681	505	407				
Veneral diseases	659	51	155	101	84	69	82	53	39	29			
Other general epidemic diseases	442	78	7	7	18	39	30	77	69	57			
Cancer	366	52	20	48	24	28	33	33	56	66			
Other general diseases	4,025	3	10	17	31	64	819	1,022	1,645				
Diseases of nervous system	1,545	25	20	72	70	97	178	262	369	446			
Diseases of circulatory system	5,162	134	100	102	88	132	358	562	931	2,735			
Pneumonia	8,370	41	26	87	163	225	456	927	1,552	4,893			
Other diseases of respiratory system	3,216	605	319	141	135	163	249	281	360	972			
Diarrhea and enteritis—under 2 years	623	73	45	23	18	31	45	57	73	258			
Diarrhea and enteritis—over two years	1,002	819	183	42	15	9	18	26	23	75			
Other diseases of digestive system	2,488	122	95	132	157	249	303	424	378	608			
Nephritis	3,692	18	24	43	68	110	278	483	681	1,897			
Other non-venereal—genito-urinary system	665	10	6	5	26	60	98	93	106	261			
The puerperal state	469				130	207	135	4	1				
Diseases of the skin and cellular tissue	118	16	4	3	8	10	13	11	12	41			
Diseases of the bones and organs of locomotion	81	2	2	12	12	10	6	7	10	16			
Malformations	468												
Ear infections	489												
Earv infection	1,973	1,965	8	14	1	2	1						
Synlity	452												
Suicide	852			7	72	187		3	6	442			
Other external causes	3,606	68	217	263	427	572	205	157	139	612			
All defined and unknown	68	10	11	2	4	10	7	9	6	8			

TABLE No. 16. 1920. Death by Cause, Sex, Race and Nativity of Decedent.

Cause of death	Sex		Race						Nativity				
	Total	Male	Female	White	Negro	Indian	Chinese	Japanese	Other	California	Other U. S.	Foreign	Unknown
Total	47,124	27,238	19,886	44,407	669	242	772	1,002	32	13,003	19,252	13,956	913
Typhoid	172	105	67	184	1	2	3	14	1	63	46	62	1
Malaria	34	22	12	31	1	1	1	1	1	11	6	16	1
Smallpox	7	5	2	5	1	1	1	1	1	2	1	4	1
Measles	185	113	82	182	1	2	4	7	1	167	20	7	1
Scarlet fever	80	44	40	80	1	1	3	24	1	58	25	7	1
Whooping cough	401	184	217	364	3	7	3	9	1	365	12	14	2
Diphtheria	451	246	205	434	5	3	3	24	1	323	114	12	2
Influenza	2,715	1,544	1,171	2,525	28	24	28	106	4	951	826	809	29
Dysentery	80	44	36	77	1	1	2	2	1	43	24	13	1
Poliomyelitis (acute)* 63a (30 deaths)													
Encephalitis (lethargic)† 55a (59 deaths)													
Meningococcus meningitis* 61c (55 deaths)													
Tuberculosis, lungs	4,710	2,919	1,791	4,258	129	55	163	98	7	1,019	1,045	1,659	87
Tuberculosis, other	687	374	313	603	20	13	6	6	3	340	188	156	3
Yeast diseases	385	283	112	351	20	5	13	6	1	120	143	127	5
Other general epidemic diseases	114	60	54	102	1	1	4	7	1	53	34	27	1
Cancer	3,780	1,794	1,986	3,674	23	3	53	26	1	442	1,944	1,364	30
Other general diseases	1,590	818	772	1,534	13	3	22	18	1	361	746	462	21
Diseases of nervous system	4,907	2,665	2,242	4,735	63	10	57	41	1	756	2,533	1,511	107
Diseases of circulatory system	8,023	4,778	3,245	7,732	106	14	146	25	1	725	4,197	2,920	181
Pneumonia	3,546	2,082	1,464	3,281	50	33	62	114	6	1,356	1,178	970	42
Other diseases of respiratory system	828	450	378	788	4	2	20	14	1	205	328	285	10
Diarrhea and enteritis—under two years	1,119	603	516	1,004	17	12	7	7	1	1,025	59	32	3
Diarrhea and enteritis—over two years	428	229	199	388	8	2	10	20	1	149	169	102	8
Other diseases of digestive system	2,254	1,275	979	2,143	31	9	32	39	2	536	1,002	678	38
Nephritis	2,745	1,123	2,618	46	6	6	57	16	2	370	1,392	947	36
Other non-venereal—genito-urinary system	579	316	263	558	10	6	3	8	1	79	298	106	6
The puerperal state	474	474	441	474	7	3	1	21	1	148	163	162	1
Diseases of the skin and cellular tissue	102	64	38	98	1	1	1	1	1	32	35	34	1
Diseases of the bones and organs of locomotion	80	56	24	76	1	1	1	2	1	25	42	12	1
Malformations	422	231	191	390	3	2	2	25	1	407	12	3	1
Early infancy	1,870	1,103	776	1,724	22	5	8	120	1	1,861	9	6	3
Senility	337	161	176	315	7	8	7	1	1	10	180	145	2
Suicide	685	538	157	655	4	3	14	21	1	118	249	232	76
Other external causes	3,240	2,478	762	3,037	44	16	43	91	9	863	1,212	956	209
All defined and unknown	45	32	13	41	1	1	1	1	1	20	10	10	9

*Age distribution not separately compiled.

†Age distribution not separately compiled.

Included in diseases of nervous system.

Included in other general diseases.

TABLE No. 17. 1921. Deaths by Cause, Sex, Race and Nativity of Decedent.

Cause of death	Total		Sex		Race							Nativity					
	Total	Male	Female	White	Negro	Indian	Chinese	Japa- nese	Other	Calif- ornia	Other U. S.	Foreign	Un- known				
		47,379	27,740											19,629	44,698	750	219	791	896	25	12,859	19,986	13,935	1,099
Typhoid	147	94	53	124	4									37	41	2	
Malaria	43	26	17	40	1									11	10	2	
Smallpox	21	14	7	17	2									11	7	1	
Measles	127	65	62	117	3									36	27	4	
Scarlet fever	191	83	108	115										83	29	5	
Whooping cough	644	352	292	651	4									176	14	6	
Diphtheria	339	181	158	318	6									461	155	22	
Influenza	101	54	47	92	1									118	129	89	3
Dysentery	49	25	24	48										59	24	18	
Poliomyelitis (acute)	84	46	38	78										35	14		
Encephalitis (lethargic)	63	48	15	49	1									33	37	14	
Meningococcus meningitis	4,768	3,091	1,677	4,328	129	43	160	100	8					30	13	19	1
Tuberculosis, other	659	374	285	577	19	7	10	46	2					895	1,902	1,794	77
Veneral diseases	442	320	122	385	25	4	15	12	1					320	199	138	2
Other general epidemic diseases	366	216	150	346	4									141	156	136	9
Cancer	4,025	1,887	2,138	3,888	58	8	46	25	138	126	94			487	2,044	1,465	29
Other general diseases	1,545	809	736	1,490	14									248	803	458	36
Diseases of nervous system	5,162	2,825	2,337	4,995	67	12	58	24	13					762	2,751	1,555	94
Diseases of circulatory system	8,370	4,895	3,475	8,079	126	20	109	35	1					797	4,289	3,080	204
Pneumonia	3,216	1,907	1,309	2,992	50	27	67	78	2					1,213	1,080	857	66
Other diseases of respiratory system	623	372	251	584	11									160	263	192	8
Diarrhea and enteritis—under 2 years	1,002	545	457	919	5	6	9	63	9					943	49	10	
Other diseases of digestive system	323	170	153	295	2	3	2	21	2					157	100	60	6
The purpural state	2,468	1,451	1,017	2,321	39	13	44	50	1					627	1,073	726	42
Diseases of the skin and cellular tissue	3,602	2,113	1,489	3,447	55	6	62	29	3					420	1,927	1,200	55
Diseases of the bones and organs of locomotion	665	368	297	628	22	2	4	9						104	350	204	7
Other non-veneral—genito-urinary system	469	249	220	441	5	3	1	19						131	206	130	2
The purpural state	118	82	36	111	1			4						35	51	29	3
Diseases of the skin and cellular tissue	81	56	25	79				1						25	36	20	
Diseases of the bones and organs of locomotion	468	282	186	430	3	4	5	26						454	11	3	
Malformations	1,973	1,150	823	1,801	29	10	16	120						1,964	4	2	
Early infancy	452	222	230	428	10	6	8							1,964	4	2	
Senility	982	788	194	925	9	3	19	25	1					147	257	175	14
Suicide	3,606	2,732	874	3,375	47	17	88	94	5					890	1,340	1,062	244
Other external causes	68	44	24	58	1	5	2	2						25	19	12	12

TABLE No. 22. 1920 and 1921. Marriages by Nativity of Groom and Bride.

Nativity of groom	Nativity of bride				Total grooms
	California	Other U. S.	Foreign	Unknown	
1920					
California.....	7,200	4,629	868	3	12,700
Other U. S.	6,408	15,582	1,682	3	23,675
Foreign.....	2,096	2,378	5,710	1	10,185
Unknown.....	2	2	0	0	4
Total brides.....	15,706	22,591	8,260	7	46,564
1921					
California.....	6,749	4,486	880	.....	12,115
Other United States.....	6,133	16,137	1,883	3	24,156
Foreign.....	1,796	2,544	6,358	2	10,700
Unknown.....	.....	.....	1	.....	1
Total brides.....	14,678	23,167	9,122	5	46,972

TABLE No. 23. 1920 and 1921. Marriages by Marital Condition of Groom and Bride.

Marital condition of groom	Marital condition of bride			Total grooms
	Single	Widowed	Divorced	
1920				
Single.....	29,851	2,928	3,568	36,347
Widowed.....	1,954	1,937	1,002	4,893
Divorced.....	2,301	1,108	1,915	5,324
Total brides.....	34,106	5,973	6,485	46,564
1921				
Single.....	29,637	2,689	3,884	36,210
Widowed.....	1,887	1,949	1,044	4,880
Divorced.....	2,540	1,165	2,177	5,882
Total brides.....	34,064	5,803	7,105	46,972

TABLE No. 24. 1920 and 1921. Marriages by Age of Groom and Bride.

1920	Under 15 years	15 to 20 years	21 to 25 years	26 to 30 years	31 to 35 years	36 to 40 years	41 to 45 years	46 and over	Total
Groom.....	.....	1,199	16,254	11,474	6,573	4,465	2,444	4,155	46,564
Bride.....	10	13,578	14,257	7,952	4,126	2,974	1,537	2,130	46,564
1921									
Groom.....	.....	1,190	15,907	11,549	6,797	4,564	2,575	4,390	46,972
Bride.....	3	13,716	14,098	7,987	4,252	3,015	1,657	2,244	46,972

California
Other U.
Foreign...
Unknown

Total

California
Other Un
Foreign...
Unknown

Total

Single...
Widowec
Divoreec

Total

Single...
Widowec
Divoreec

Total

1920

Groom.
Bride..

1921
Groom.
Bride..

CALIFORNIA

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OF THE

STATE CONTROLLER

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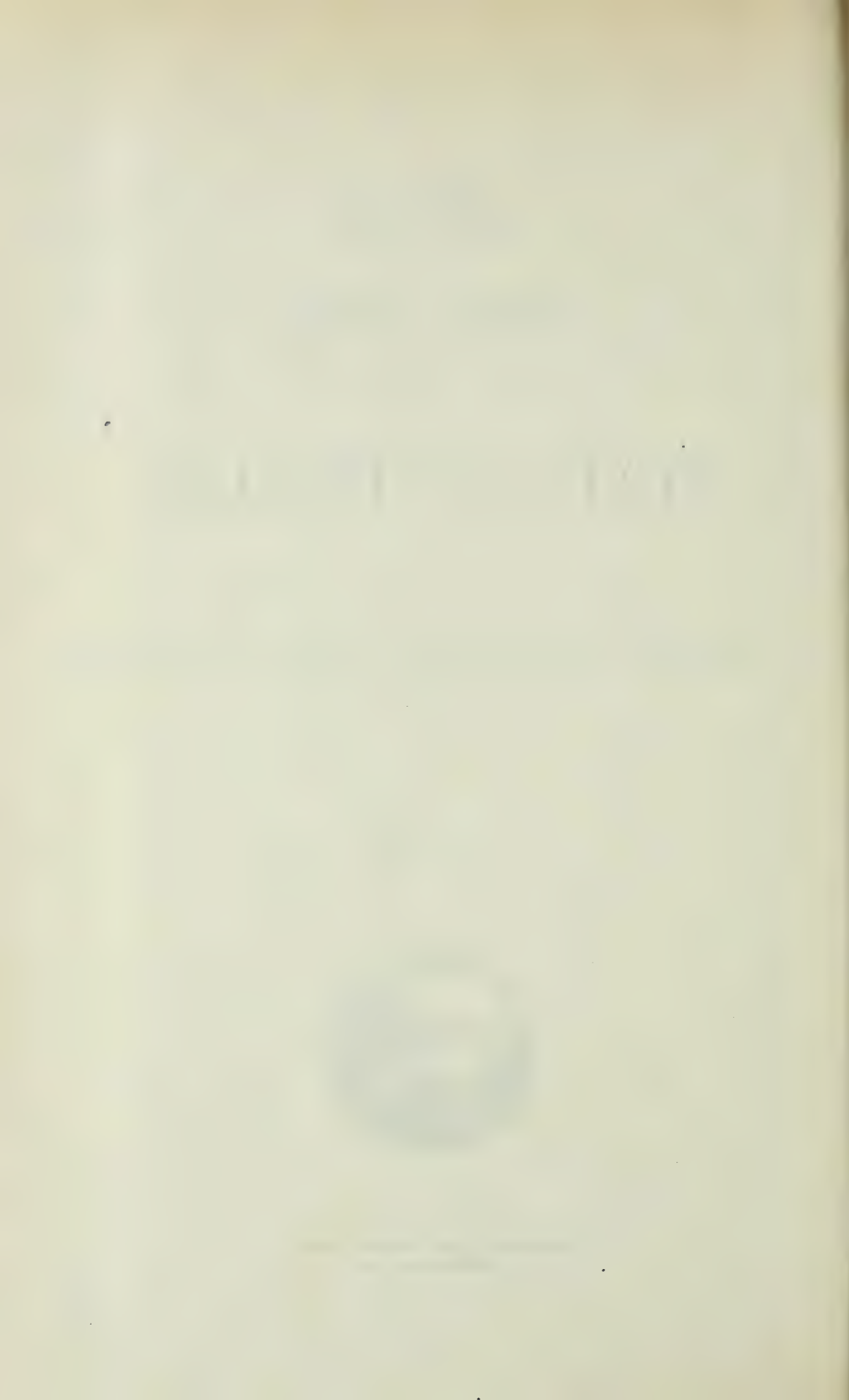
Seventy-second Fiscal Year, ending June 30, 1921, and the Seventy-third
Fiscal Year, ending June 30, 1922

RAY L. RILEY

State Controller



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1923



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W. H. H. GENTRY	SPECIAL AGENT, <i>San Francisco</i>
MURIEL E. JONES	INHERITANCE TAX STENOGRAPHER, <i>San Francisco</i>
IDA K. JOHNSON	INHERITANCE TAX STENOGRAPHER, <i>San Francisco</i>
AGNES M. O'BRIEN	INHERITANCE TAX CLERK, <i>San Francisco</i>
ERWIN P. WERNER	ASSISTANT INHERITANCE TAX ATTORNEY, <i>Los Angeles</i>
KARL R. LEVY	ASSISTANT INHERITANCE TAX ATTORNEY, <i>Los Angeles</i>
IDA V. WELLS	SPECIAL AGENT, <i>Los Angeles</i>
ELNORA STANTON	INHERITANCE TAX STENOGRAPHER, <i>Los Angeles</i>
ESTELLE ORSATTI	INHERITANCE TAX STENOGRAPHER, <i>Los Angeles</i>
ALICE E. ARCHER	INHERITANCE TAX CLERK, <i>Los Angeles</i>

THE HISTORY OF THE
CITY OF BOSTON

The history of the city of Boston is a subject of great interest and importance. It is a city that has played a significant role in the development of the United States. From its early days as a small fishing village to its current status as a major metropolitan area, Boston has a rich and varied history. The city's location on a narrow neck of land between the harbor and the mainland has made it a natural center of commerce and industry. Its strategic position has also made it a key location in many of the major events of American history. The city's culture, education, and industry have all contributed to its growth and success. The history of Boston is a testament to the resilience and ingenuity of its people. It is a story of a city that has overcome many challenges and emerged as a leader in its field. The history of Boston is a story that is still being written. As the city continues to grow and change, its history will continue to be a source of inspiration and pride for its people.

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LETTER OF TRANSMITTAL.

CONTROLLER'S DEPARTMENT, STATE OF CALIFORNIA,
SACRAMENTO, DECEMBER 15, 1922.

To the Honorable WILLIAM D. STEPHENS,
Governor of California.

SIR: I herewith submit to you my biennial report for the seventy-second and seventy-third fiscal years, as required by law.

Yours very truly,

RAY L. RILEY,
Controller.

Revenues and Disbursements

In submitting a brief resume of financial conditions, it is possible to discuss only the more important matters affecting the fiscal policy of the state.

First and foremost, the adoption of an executive budget plan by the voters of California has provided a salutary check upon expenditures of state funds. The tremendous expansion of public welfare agencies, due to economic development and new social contacts, has created fiscal problems requiring the same safeguards for public business that are commonly employed in the larger private enterprises. The budget amendment has increased the powers of the executive and imposed new responsibilities that are concurrent with modern governmental thought. A full utilization of the possibilities presented by its numerous provisions should result in substantial economies without sacrificing any essential service now rendered the public.

Incidentally, the amendment repeals portions of section 433 of the Political Code, relieving the Controller of responsibility in the preparation of a budget, therefore, this report omits the usual estimates for the next biennium. Tables 3 and 4 carry detail of appropriations made by the 1921 legislature and approved by the Governor. The total authorized expenditures amounted to \$88,792,926.94 for the biennium.

Certain transportation companies obtained a restraining order against the rate advance of the King Tax Bill, and \$5,081,856.66 have been withheld by the companies pending a decision of the federal court. Should the state lose this impounded revenue and the 1921 appropriations be expended, the general fund will be exhausted and a substantial deficit will exist at the beginning of the next fiscal year.

Fixed charges will continue to be a disturbing factor in the state's fiscal affairs, having increased \$17,000,000 since the 1921 budget appropriation. With a prospective increase of \$9,000,000 more by 1925, increased revenue under existing rates will not keep pace with the upward swing of fixed charges now totalling \$7,000,000 more than the entire budget of 1919. It is probable that the forthcoming budget will exceed prospective revenues, irrespective of a drastic retrenchment program, and in that event an ad valorem tax will be required or other sources of revenue developed.

Public attention has been focused upon the cost of state government to the exclusion of other taxation problems. However, it is well to remember that a substantial reduction in state expense will not be reflected in the tax bills of the great mass of California's taxpayers who are confronted with constantly increasing demands at each new tax paying period.

The great increase of population and material resources in California have created an abnormal demand for public constructive enterprises, particularly education with its many ramifications, roads, and welfare agencies. These emergencies have been met by bond issues from time to time until the total bonded indebtedness for public purposes has reached staggering proportions.

The interest and sinking fund requirements are now substantial items in all governmental budgets. We have been able to secure favorable interest rates upon past bond issues and our credit has

remained unimpaired. It is obvious that what we at present regard as an abnormal increase of population will in fact be for California a condition of normalcy for many years to come and future necessities will inevitably become more difficult to finance unless our constructive programs are kept well within the ability of the taxpayer to meet the increased demands.

State Controller A. B. Nye's biennial report of 1910 commented extensively upon the growth of county expenditures, pointing out that they had increased more than 118 per cent between the years 1900 and 1910, and the total levy for that year was \$27,788,108.82. In his opinion the immediate danger in connection with county taxation was that the abolishment of ad valorem taxes for state purposes would be followed by larger increased county taxes; in other words, that the total rate would be kept about the same as before and defeat the purpose of separation of state and county taxes. It is obvious that the State Controller at that time fully appreciated precisely what has occurred.

The total county tax levy of California for the year 1922-23 amounts to \$132,945,648.78, an increase of \$12,335,969 over 1921-22, or practically 10 per cent.

Inheritance Tax Department

An examination of the results achieved by this department during the past two years confirms as well-deserved the tribute paid to its efficiency by the preceding Controller, Hon. John S. Chambers, in his last biennial report. For the years 1921 and 1922 this department has supervised, levied and enforced the collection of inheritance taxes which are approximately double the amounts returned in previous years.

This work has been performed not only without any additions to the personnel of the department, but also without any other appreciable increase in the cost of collection.

The efficiency of this department so impressed the incumbent Controller upon his accession to office by appointment that not a single involuntary change in the personnel was effected and the experience and training resultant from years of work in this field was thereby utilized and preserved.

Although an inheritance tax law in one form or another has been in effect in California for nearly thirty years, it was not until 1905 when the state broadened the law so as to embrace and tax direct heirs as well as collaterals that its importance as a source of revenue began to manifest itself. Later, in 1913, when the legislature established the Inheritance Tax Department as a part of the State Controller's Office, a comprehensive, convenient and economical system of levy, enforcement and collection of the tax first came into existence and reduced evasion thereof to a minimum.

The wisdom of the legislature in entrusting the responsibility of this department to the Controller manifests itself with each succeeding biennium. Aside from the knowledge he derives as chief fiscal officer

of the state, and the advantageous position he has to survey the financial necessities of the state and to observe which sources of revenue are being made to bear too heavy a proportion of the universal duty of support of the state resting upon all its citizens, the Controller is in a position to act as a barrier against the over-zeal that is too very apt to be engendered in faithful agents seeking to subject to inheritance taxation everything that hints at coming within the purview of the tax on the one hand, and against the oft-repeated attempts on the other of interested persons to emasculate the law and thereby make it easy of evasion.

Accordingly a policy has been built up of making the law fair in its operation but none the less effective in its results, and the present Controller feels that the time has come when every proposed innovation in this field of taxation should be viewed with careful scrutiny and adopted only when the beneficial results thereof can be demonstrated with almost mathematical nicety. Producing as it does the second most important of the state's revenues, at a minimum cost of collection, and meeting with the unanimous approval of lawyers and judges engaged with the probate of estates as a speedy and convenient method of determining the tax, our present law should be kept inviolate from those whose self-interest leads them to seek one kind of a change, and from those whose visionary ideas and prejudice against wealth demands another.

It may be well, therefore, to point out certain features of our law not heretofore specifically dwelt upon in previous reports, but which are nevertheless important to those contemplating making California their temporary residence or permanent domicile.

Equitable Feature of Act

1. No tourist or other temporary sojourner in California need fear bringing with them into this state money, bonds, and other personal securities in the belief that such property will be seized and subjected to inheritance taxation should their demise occur at a time when they had not conceived the intention of taking up a bona fide permanent legal residence here. Our law and the decisions of the courts construing it hold that under such circumstances an inheritance tax will not be collected.

2. California is a desirable state as the principal place of business of corporations from an inheritance tax view point. For this it is on the list of those states who do not tax a nonresident decedent who owns bonds issued by domestic corporations; thus removing a substantial barrier to the marketability of such securities.

3. California learned from the observations of this department that the successive taxation of the same property within the course of a short period of time resulted in a staggering burden to those liable to the tax and was destructive to the best interest of the community and to industry, and it was among the first of the very few states who have declared that property transferred to lineal descendants cannot be twice subjected to inheritance taxation within a period of five years.

4. The California rates of taxation are upon a happy middle ground between high and low and result in substantial revenue without suggestion of confiscation. They are applied with broad exemptions and liberal deductions that give due consideration to the economic loss occasioned by the deaths of those who were instrumental in the accumulation of the wealth taxed. Realizing that under the California community property system of ownership of a certain class of property a wife has equitably (though perhaps not legally) more than a mere expectant right to the property she has helped accumulate, our tax law has provided that upon the husband's death she will take her one-half of the community property free from inheritance taxation. Actuated largely by our initial action in this respect in the state inheritance law, the Federal courts have recently for the first time followed our lead in federal estate taxation by according the wife a community property exemption. The husband upon the death of the wife is not liable for any inheritance tax upon the extinguishment of her expectant right to a moiety of the community property.

5. Giving due consideration to the fact that the death of the husband is in the great majority of cases the removal of the principal financial support of the family, our law awards to the widow and each minor child an exemption of \$24,000. Only three other states are as liberal in this respect to the widow, and only one state awards a minor child as large an exemption as California.

Inheritance Tax Important in Producing Revenue

The importance of inheritance taxation as a source of raising revenue is demonstrated by the fact that every sovereign state in the Union, with the exception of Florida and Alabama, has adopted a tax on estates of decedents. All the important world powers recognize the necessity of the inheritance tax as a means of meeting governmental expenses.

The rates in the countries of the world vary even more than in the various states of our Union. An examination discloses that the Republic of France leads the world, as their rates go as high as 80 per cent of an estate.

The popularity of the inheritance tax throughout the world as a means of raising revenue is undoubtedly due in part to the fairness of the system, as by its progressive features, the tax burdens are met by those, not only who are most able to pay, but also by persons who are in most instances strangers to the accumulation of an estate.

The proceeds from our inheritance tax are always uncertain, due not only to the greater or lesser number of estates disposed of during the year, but also to the amount of property transferred in these estates. Naturally, the large estates tend to materially augment our tax. During the last fiscal year, for example, thirteen estates of millionaires were reported to this department, while in the fiscal year ending 1921, there were sixteen millionaire estates of Californians reported to us for taxation purposes.

As a matter of public interest, the total inheritance taxes paid into the State Treasury, year by year, for the last ten years are as follows:

Year ending June 30, 1913	\$1,586,672 80
Year ending June 30, 1914	1,654,951 42
Year ending June 30, 1915	2,924,610 95
Year ending June 30, 1916	3,145,210 63
Year ending June 30, 1917	3,830,952 13
Year ending June 30, 1918	2,725,406 98
Year ending June 30, 1919	3,409,912 06
Year ending June 30, 1920	2,678,158 63
Year ending June 30, 1921	6,804,731 98
Year ending June 30, 1922	6,344,619 35

The Inheritance Tax Department is, as previously stated herein, the second largest source of revenue to the State of California. While the cost of collecting a like tax in one state of the Union is as high as 12 per cent of the net tax collected, and in many of the other states it runs to 7 per cent, yet this department for the fiscal year ending June 30, 1922, collected a gross tax of \$6,512,163.05 at a total cost of collection of less than .027.

Although the State of California ranks sixth in point of assessed property value among the states of the Union and eighth in population, with inheritance tax rates in keeping, exemptions greater, and deductions more liberal than states of greater wealth and population, yet in point of revenue from inheritance taxation only New York and Pennsylvania collect a larger tax. This evidences the fact that, in California, the evasion of tax is probably less than in any other state. This can be attributed primarily to the simplicity of our act, the fairness of the rates exemptions and deductions, coupled with a judicious and speedy handling of estates by the Inheritance Tax Appraisers and the legal department, for it is true that an act distinguished for its reasonableness and fairness does not invite evasion as does an act marked with unreasonable features and complicated administration. Then, too, it is certain the people of California are in sympathy with the "Inheritance Tax Act" of this state and are more ready to cooperate with the department in its administration to a larger extent than do citizens of any other state in the Union.

The 1921 Legislature placed an additional task on the Inheritance Tax Department, in that the fixing of values of all applications for homes and farm aid, under the provisions of the "Veterans' Welfare Act" must be passed upon by an inheritance tax appraiser. The appraisers of this state, in convention at Oakland in 1921, unanimously resolved to perform all duties required under the act known as "Soldier Legislation" to the veterans free of charge. The appraisers are fully conscious of the responsibility of this duty and are painstaking to see that the veteran receives a good, full value for his purchase.

The following tables show the amount of tax derived from the smaller and the larger estates during this period:

Fiscal Year Ending June 30, 1908.

Seven hundred three estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$209,614 60
Thirty-five estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to.....	148,424 36
Two estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to	71,058 60
Five estates, valued at over \$1,000,000 each, paid taxes amounting to	203,390 76
	\$632,488 32
Less fees and commissions	23,545 13
Net amount paid state.....	\$608,943 19
Percentage cost of collection.....	.037

Fiscal Year Ending June 30, 1909.

Nine hundred thirty-seven estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$229,318 65
Sixty-eight estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to.....	278,793 93
Fifteen estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to	167,327 42
Seven estates, valued at over \$1,000,000 each, paid taxes amounting to	291,755 47
	\$967,195 47
Less fees and commissions	30,122 30
Net amount paid state.....	\$937,073 17
Percentage cost of collection.....	.031

Fiscal Year Ending June 30, 1910.

Nine hundred forty-seven estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$207,869 56
Eighty-three estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to	325,001 14
Eight estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to	131,129 47
Three estates, valued at more than \$1,000,000 each, paid taxes amounting to	249,585 04
	\$913,585 21
Less fees and commissions	30,270 98
Net amount paid state.....	\$883,314 23
Percentage cost of collection.....	.033

Fiscal Year Ending June 30, 1911.

Nine hundred ninety-two estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$364,623 66
One hundred six estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to.....	392,466 72
Seven estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to	115,177 21
Nine estates, valued at over \$1,000,000 each, paid taxes amounting to	672,203 05
	\$1,544,470 64
Less fees and commissions.....	37,477 31
Net amount paid state.....	\$1,506,993 33
Percentage cost of collection.....	.024

Fiscal Year Ending June 30, 1912.

One thousand one hundred twenty-four estates, valued at less than \$100,000 each, paid taxes amounting to-----	\$268,551 05
Ninety-eight estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----	340,142 91
Eleven estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----	148,663 38
Four estates, valued at over \$1,000,000 each, paid taxes amounting to-----	358,356 45
	<hr/>
Less fees and commissions-----	\$1,115,713 79
	33,423 43
	<hr/>
Net amount paid state-----	\$1,082,290 36
Percentage cost of collection-----	.029

Fiscal Year Ending June 30, 1913.

Nine hundred forty-nine estates, valued at less than \$100,00 each, paid taxes amounting to-----	\$281,573 74
Ninety-six estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----	541,609 88
Nineteen estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----	282,526 04
Ten estates, valued at over \$1,000,000 each, paid taxes amounting to-----	514,724 96
	<hr/>
Less fees and commissions-----	\$1,620,434 62
	33,761 82
	<hr/>
Net amount paid state-----	\$1,586,672 80
Percentage cost of collection-----	.0208

Fiscal Year Ending June 30, 1914.

Nine hundred thirteen estates, valued at less than \$100,000 each, paid taxes amounting to-----	\$618,289 70
One hundred fourteen estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----	556,279 51
Twelve estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----	270,195 62
Two estates, valued at over \$1,000,000 each, paid taxes amounting to-----	257,661 91
	<hr/>
Less—	
Fees and commissions-----	\$32,755 11
Refunds and court costs-----	9,822 31
Special counsel fees-----	4,897 90
	<hr/>
	47,475 32
	<hr/>
Net amount paid state-----	\$1,654,951 42
In maintaining inheritance tax offices in Sacramento, San Francisco and Los Angeles-----	15,825 00
Taking this expenditure into consideration, together with fees and commissions and special counsel fees, the percentage cost of collection was-----	.0315
The percentage cost of collection for 1913-14 is made up of the following items:	
Treasurers' commissions-----	.0104
Appraisers' fees-----	.0091
Inheritance tax department-----	.0092
Special employments-----	.0028
	<hr/>
Total-----	.0315

Fiscal Year Ending June 30, 1915.

One thousand twenty-three estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$509,268 96
One hundred forty-two estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to.....	581,386 98
Eleven estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to	219,866 95
Eleven estates, valued at over \$1,000,000 each, paid taxes amounting to	1,673,515 73
	<hr/>
	\$2,984,038 62

Less—

Treasurers' commissions	\$21,063 23
Appraisers' fees	24,176 47
Refunds and court costs.....	14,187 97
	<hr/>
	59,427 67

Net amount paid state.....\$2,924,610 95

Expenses Inheritance Tax Department, Sacramento, San

Francisco and Los Angeles offices.....\$23,172 08

Total percentage cost of collection......028—

The percentage cost of collection for 1914-15 is made up of the following items:

Treasurers' commissions .....	.007+
Appraisers' fees .....	.008—
Refunds, etc. ....	.005—
Office expense .....	.008—
	<hr/>
	.028—

Fiscal Year Ending June 30, 1916.

One thousand eleven estates, valued at less than \$100,000 each, paid taxes amounting to.....	\$358,459 60
One hundred sixty estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to.....	699,597 91
Sixteen estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to.....	285,326 79
Fifteen estates, valued at over \$1,000,000 each, paid taxes amounting to	1,851,862 20
	<hr/>
	\$3,195,246 59
Refunds allowed and already deducted.....	29,496 28
	<hr/>
	\$3,224,742 87

Less—

Treasurers' commissions	\$19,123 97
Appraisers' fees	30,911 99
Refunds, etc.	29,496 28
	<hr/>
	79,532 24

Net amount paid state.....\$3,145,210 63

Expenses Inheritance Tax Department, Sacramento, San

Francisco and Los Angeles offices.....\$49,506 31

Total percentage cost of collection......040+

The percentage cost of collection for 1915-16 is made up of the following items:

Treasurers' commissions .....	.006—
Appraisers' fees .....	.010—
Refunds, etc. ....	.009+
Office expense .....	.015+
	<hr/>
	.040+

Fiscal Year Ending June 30, 1917.

One thousand one hundred ninety-six estates, valued at less than \$100,000 each, paid taxes amounting to-----	\$589,561	87
One hundred sixty-four estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----	789,615	51
Eighteen estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----	477,841	46
Sixteen estates, valued at over \$1,000,000 each, paid taxes amounting to-----	2,050,291	67
	<hr/>	
Refunds -----	\$3,907,310	51
		10,043 96
	<hr/>	
	\$3,897,266	55
Less—		
Treasurers' commissions -----	\$19,020	90
Appraisers' fees -----	37,593	74
Court costs, etc.-----	9,699	78
	<hr/>	
		66,314 42
	<hr/>	
Net amount paid to state-----	\$3,830,952	13
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles offices-----	\$55,225	99
Total percentage cost of collection-----	.031+	
The percentage cost of collection for 1916-17 is made up of the following items:		
Treasurers' commissions -----	.005—	
Appraisers' fees -----	.009+	
Court costs, etc.-----	.003—	
Office expenses -----	.014+	
	<hr/>	
		.031+

Fiscal Year Ending June 30, 1918.

One thousand three hundred twenty estates, valued at less than \$100,000 each, paid taxes amounting to-----	\$508,011	12
One hundred seventy-six estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----	954,236	35
Twenty estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----	530,991	30
Ten estates, valued at over \$1,000,000 each, paid taxes amounting to-----	848,240	37
	<hr/>	
Refunds -----	\$2,841,479	14
		39,672 43
	<hr/>	
	\$2,801,806	71
Less—		
Treasurers' commissions -----	\$24,759	46
Appraisers' fees -----	45,425	90
Court costs, etc.-----	6,214	37
	<hr/>	
		76,399 73
	<hr/>	
Net amount paid to state-----	\$2,725,406	98
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles offices-----	\$54,041	75
Total percentage cost of collection-----	.048—	
The percentage cost of collection for 1917-18 is made up of the following items:		
Treasurers' commissions -----	.009+	
Appraisers' fees -----	.017—	
Court costs, etc.-----	.002+	
Office expenses -----	.020—	
	<hr/>	
		.048—

Fiscal Year Ending June 30, 1919.

One thousand two hundred fifteen estates, valued at less than \$100,000 each, paid taxes amounting to-----		\$493,034	38
One hundred seventy-eight estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----		1,066,488	62
Thirteen estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----		354,650	98
Six estates valued at over \$1,000,000 each, paid taxes amounting to-----		1,590,190	67
		\$3,504,364	65
Refunds -----		27,391	91
		\$3,476,972	74
Less—			
Treasurers' commissions -----	\$23,603	85	
Appraisers' fees -----	39,902	25	
Court costs, etc.-----	3,554	58	
			67,060 68
Net amount paid to state-----			\$3,409,912 06
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles offices-----	\$56,335	60	
Total percentage cost of collection-----	.036		
The percentage cost of collection for 1918-19 is made up of the following items:			
Treasurers' commissions -----	.007		
Appraisers' fees -----	.011	+	
Court costs, etc.-----	.001	+	
Office expenses -----	.017		
			.036—

Fiscal Year Ending June 30, 1920.

One thousand three hundred twenty estates, valued at less than \$100,000 each, paid taxes amounting to-----		\$442,772	06
Two hundred fifteen estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to-----		1,138,573	18
Twelve estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to-----		314,865	91
Eight estates, valued at over \$1,000,000 each, paid taxes amounting to-----		934,926	71
		\$2,831,437	86
Refunds -----		83,499	26
		\$2,747,938	60
Less—			
Treasurers' commissions -----	\$21,286	52	
Appraisers' fees -----	41,138	45	
Court costs, etc.-----	7,355	00	
			69,779 97
Net amount paid to state-----			\$2,678,158 63
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles offices-----	\$64,789	05	
Total percentage cost of collection-----	.049		
The percentage cost of collection for 1919-20 is made up of the following items:			
Treasurers' commissions -----	.008		
Appraisers' fees -----	.015		
Court costs, etc.-----	.002	+	
Office expenses -----	.024		
			.049—

**Computations Covering Inheritance Tax Receipts Seventy-Second Fiscal Year,
July 1, 1920 to July 1, 1921.**

Number of estates -----	1785	
Aggregate value -----	\$152,939,872 89	
Net amount of tax -----	6,949,282 13	
One thousand five hundred estates, valued at less than \$100,000 each, paid taxes amounting to -----		\$596,945 11
Two hundred forty-six estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to -----		1,418,474 04
Twenty-three estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to -----		707,160 72
Sixteen estates, valued at over \$1,000,000 each, paid taxes amounting to -----		4,226,702 26
		<hr/>
Refunds -----		\$6,949,282 13
		35,529 87
		<hr/>
		\$6,913,752 26
Less—		
Treasurers' commissions -----	\$28,560 94	
Appraisers' fees -----	59,945 36	
Court costs, etc. -----	20,513 98	
		<hr/>
		109,020 28

Net amount paid to state -----		\$6,804,731 98
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles -----	\$71,419 31	
Total percentage cost of collection -----	.026 +	
The percentage cost of collection for 1920-21 is made up of the following items:		
Treasurers' commissions -----	.004 +	
Appraisers' fees -----	.009 —	
Court costs, etc. -----	.003 +	
Office expenses -----	.01 +	

**Computations Covering Inheritance Tax Receipts Seventy-Third Fiscal Year,
July 1, 1921 to July 1, 1922.**

Number of estates -----	1864	
Aggregate value -----	\$140,236,888 65	
Net amount of tax -----	6,512,163 05	
One thousand four hundred ninety-six estates, valued at less than \$100,000 each, paid taxes amounting to -----		\$502,740 05
Two hundred thirty estates, valued at from \$100,000 to \$500,000 each, paid taxes amounting to -----		1,035,838 49
Twenty-four estates, valued at from \$500,000 to \$1,000,000 each, paid taxes amounting to -----		809,181 78
Thirteen estates, valued at over \$1,000,000 each, paid taxes amounting to -----		3,265,716 13
One hundred one estates, in which the valuation has not yet been determined, paid taxes amounting to -----		898,686 60
		<hr/>
Refunds -----		\$6,512,163 05
		63,325 14
		<hr/>
		\$6,448,837 91
Less—		
Treasurers' commissions -----	\$28,611 03	
Appraisers' fees -----	67,558 68	
Court costs, etc. -----	8,048 85	
		<hr/>
		104,218 56

Net receipts from treasurers -----		\$6,344,619 35
Expenses Inheritance Tax Department, Sacramento, San Francisco and Los Angeles -----	\$71,471 48	
Total percentage cost of collection -----	.027 +	
The percentage cost of collection for 1921-22 is made up of the following items:		
Treasurers' commissions -----	.005 —	
Appraisers' fees -----	.01 +	
Court costs, etc. -----	.001 +	
Office expenses -----	.011 +	

Delinquent Tax Lands

The sales to the state for delinquent taxes for the seventy-second and seventy-third fiscal years show a decrease of about 71 per cent. The number of parcels sold by the tax collectors during this period was less by one-third than that of the preceding biennium, yet, the amount received from these sales shows an increase of 71 per cent over those preceding. Sales of tax deeded lands under the Controller's authorization (Section 3897 of Political Code) show an increase both in the number of parcels sold and in the amount received over that of the preceding biennial period.

The state's portion of funds from these latter sales is transferred to the Veterans' Dependents Education Fund. This amounted to about \$2,000. While this sum is small in proportion to that which the counties received from these sales, still it must necessarily decrease more and more through the following years, for the reason that the amendment to the constitution in November, 1910, separated the state revenues from land and its dependencies, improvements, and personal property. This same effect is reflected upon the sum the state has derived from redemptions during these two fiscal years.

While redemptions from sales to the state have increased in number, the state's portion of revenue therefrom has decreased. The Controller's receipts during this period have canceled the lien against land in taxes, with penalties and interest amounting to millions of dollars from which the state derives no revenue. The statutes require the cancellation of these liens against property, by the Controller, and the issuance of his receipt therefor and it is by his authorization alone that property sold to the state for delinquent taxes can be sold to enforce the collection of the same.

Franchise Tax Department

This department in charge of the Controller has developed an enviable record for efficiency, as evidenced by the constantly decreasing costs of collections. Beginning in 1911 with .009 as the percentage cost and each year thereafter a gradual decrease, until the cost for the past year reached the remarkably low figure of .0033. The department also collects the tax levied by the State Mining Bureau upon petroleum and gas operations within the state.

YEARLY COLLECTIONS.

The number and gross value of estates taxed during the last fifteen fiscal years have been as follows:

Year ending	Number of estates	Aggregate value	Net amount of tax
June 30, 1908.....	745	\$31,910,821 92	\$608,943 19
June 30, 1909.....	1,027	57,201,179 95	937,073 17
June 30, 1910.....	1,041	51,377,126 29	883,314 23
June 30, 1911.....	1,114	63,432,603 45	1,506,993 33
June 30, 1912.....	1,237	57,408,720 36	1,082,290 36
June 30, 1913.....	1,061	55,945,602 79	1,586,672 80
June 30, 1914.....	1,041	57,798,965 38	1,654,951 42
June 30, 1915.....	1,187	87,495,555 28	2,924,610 95
June 30, 1916.....	1,202	129,381,462 64	3,145,210 63
June 30, 1917.....	1,394	111,067,102 97	3,830,952 13
June 30, 1918.....	1,526	101,717,996 71	2,725,406 98
June 30, 1919.....	1,412	97,287,441 94	3,409,912 06
June 30, 1920.....	1,555	103,465,176 30	2,678,158 63
June 30, 1921.....	1,785	152,939,872 89	6,949,282 13
June 30, 1922.....	1,864	140,236,888 65	6,512,163 05

Corporation Taxes

Owing to the ever-increasing demand for additional funds to carry on various state institutions, it was necessary for the legislature of 1921 to raise the rates on all corporations. The table follows:

Corporations	1911-12 (per cent)	1913-14 (per cent)	1915-16 (per cent)	1917-18 (per cent)	1919-20 (per cent)	1920-21 (per cent)	1921-22 (per cent)
Railways.....	4	4.75	5.25	5.25	5.25	7	7
Electric railways.....						5.25	5.25
Car companies.....	3	4	3.95	3.95	3.95	5.25	5.25
Express companies.....	2	2	1.60	.90	.90	1	1
Telegraph and telephone companies.....	3.50	4.20	4.50	4.20	4.20	5.50	5.50
Gas and electric companies	4	4.60	5.25	5.60	5.60	7.50	7.50

During the eleven years in which the new tax system has been in operation, the collections for each year were as follows:

1911-12.....	\$10,387,206 66
1912-13.....	10,887,144 77
1913-14.....	12,963,660 10
1914-15.....	13,516,046 50
1915-16.....	14,993,584 42
1916-17.....	15,649,356 24
1917-18.....	16,379,488 82
1918-19.....	17,667,295 10
1919-20.....	19,477,073 50
1920-21.....	22,272,149 04
1921-22.....	31,111,611 22

The cost of collections from 1912 is as follows:

1912.....	\$0.009
1913.....	.007
1914.....	.0075
1915.....	.0066
1916.....	.0068
1917.....	.0051
1918.....	.0041
1919.....	.0039
1920.....	.0036
1921.....	.0033

The number of corporations assessed since this law has been in operation is as follows for each of the eleven years:

1911-12	19,721
1912-13	19,693
1913-14	20,478
1914-15	20,979
1915-16	21,994
1916-17	19,623
1917-18	18,223
1918-19	18,578
1919-20	18,095
1920-21	20,033
1921-22	20,453

It will be noted that the fiscal year of 1914-15 contained the largest number, while the fiscal year of 1919-20 contains the smallest number.

San Francisco Harbor Transactions

	1921	1922
Cash receipts, seventy-second fiscal year, ending June 30	\$2,420,678 96	
Canceled warrant receipts, seventy-second fiscal year, ending June 30 ..	10 96	
Receipts, seventy-third fiscal year, ending June 30		\$2,438,358 58
Cash disbursements, seventy-second fiscal year, ending June 30	\$1,651,852 41	
Transfer disbursements, seventy-second fiscal year, ending June 30	607,226 96	
Cash disbursements, seventy-third fiscal year, ending June 30		1,685,050 94
Transfer disbursements, seventy-third fiscal year, ending June 30		621,536 65
Reissu canceled warrants, seventy-third fiscal year, ending June 30		4 46

Interest was transferred, to meet interest payments on bonds sold and outstanding, to the following funds during seventy-second (1920-21) and seventy-third (1921-22) fiscal years, ending June 30:

	1921	1922
San Francisco Seawall Sinking Fund	\$16,300 00	\$11,600 00
Second San Francisco Seawall Sinking Fund	360,000 00	360,000 00
Third San Francisco Seawall Sinking Fund	80,000 00	120,000 00
India Basin Sinking Fund	34,120 00	34,120 00

The following bonds have been redeemed from San Francisco Seawall Sinking Fund:

	1921	1922
During the seventy-second fiscal year, ending June 30	\$115,000 00	
During the seventy-third fiscal year, ending June 30		\$120,000 00

The following bonds have been sold during seventy-third fiscal year, ending June 30:

	1922
Third San Francisco Seawall	\$1,000,000 00

Amount bonds outstanding, seventy-second fiscal year, ending June 30:

	1921	1922
San Francisco Seawall, 1905	\$350,000 00	\$230,000 00
Second San Francisco Seawall	9,000,000 00	9,000,000 00
Third San Francisco Seawall	2,000,000 00	3,000,000 00
India Basin	853,000 00	853,000 00

Bonds authorized but not yet sold, seventy-second fiscal year, ending June 30:

	1921	1922
Third San Francisco Seawall	\$8,000,000 00	\$7,000,000 00
India Basin	147,000 00	147,000 00

Bonded Indebtedness

BOND ISSUE TABLES.

Herewith are submitted tables showing the bonded indebtedness of the state government of California, bonds authorized but not yet issued and bonds held in trust for sundry funds, as of June 30:

<i>Bond Indebtedness.</i>	1921, 72d fiscal year	1922, 73d fiscal year
Civil 1857 (interest ceased) -----	\$3,500 00	\$3,500 00
Civil 1860 (interest ceased) -----	500 00	500 00
Funded Debt 1873, in trust for School (6) -----	1,526,500 00	1,526,500 00
Funded debt 1873, in trust for University (6) -----	751,000 00	751,000 00
San Francisco Seawall 1903 (4) -----	350,000 00	230,000 00
Second San Francisco Seawall 1909 (4) -----	9,000,000 00	9,000,000 00
Third San Francisco Seawall 1913 (4) -----	2,000,000 00	3,000,000 00
India Basin Seawall 1909 (4) -----	853,000 00	853,000 00
First State Highway 1909 (4) -----	16,400,000 00	16,000,000 00
Second State Highway 1915 (4½) -----	14,000,000 00	15,000,000 00
Third State Highway 1919 (4½) -----	5,122,000 00	5,122,000 00
Third State Highway 1919 (5¼) -----	2,000,000 00	2,000,000 00
Third State Highway 1919 (5¾) -----	-----	9,878,600 00
Third State Highway (5) -----	-----	7,000,000 00
Sacramento State Building 1913 (4) -----	140,000 00	3,000,000 00
San Francisco State Building 1913 (4) -----	900,000 00	880,000 00
University of California Building 1913 (4½) -----	1,760,000 00	1,720,000 00
Totals -----	\$54,806,500 00	\$75,964,500 00

<i>Bonds Authorized, Not Issued, June 30.</i>	1921	1922
San Diego County Harbor Improvement Fund 1909 (4) -----	\$1,500,000 00	\$1,500,000 00
Third San Francisco Seawall 1909-1913 (4) -----	8,000,000 00	7,000,000 00
Second State Highway 1915 (4½) -----	1,000,000 00	-----
Third State Highway 1919 -----	32,878,000 00	16,000,000 00
India Basin 1909 (4) -----	147,000 00	147,000 00
Sacramento State Building 1913 (4) -----	2,860,000 00	-----
Totals -----	\$36,385,000 00	\$24,647,000 00

<i>Bonds, etc., Held in Trust for Sundry Funds, June 30.</i>	1921	1922
School Land Fund (for Schools) -----	\$8,320,624 92	\$8,484,312 42
Estates Deceased Persons Fund -----	819,000 00	844,000 00
Compensation Insurance Fund -----	5,308,500 00	5,208,500 00
Teachers' Permanent Fund -----	971,700 00	1,321,950 00
Nurses' Registration Fund -----	13,000 00	13,000 00
Dissolved Savings Bank Fund -----	56,000 00	55,000 00
Sacramento State Building Fund -----	99,000 00	160,000 00
University Fund -----	751,000 00	751,000 00
Declared Surplus Funds -----	5,463,500 00	4,463,500 00
		\$21,301,262 42
School Land Fund (for School Fund) -----	-----	\$51,242 92
Sacramento and San Joaquin Drainage District Fund No. 6 Warrants -----	-----	43,990 90
Sacramento and San Joaquin Drainage District Fund No. 2 Warrants -----	-----	-----
Totals -----	\$21,802,324 92	\$21,396 496 24

The following State bonds have been sold during fiscal years ending June 30:

	1921	1922
Second State Highway 1915 (4½) -----	\$1,000,000 00	\$1,000,000 00
Third State Highway 1919 (4½) -----	2,122,000 00	-----
Third State Highway 1919 (5¼) -----	2,000,000 00	-----
Third State Highway 1919 (5¾) -----	-----	9,878,000 00
Third State Highway 1919 (5) -----	-----	7,000,000 00
Third San Francisco Seawall (4) -----	-----	1,000,000 00
Sacramento State Building (4) -----	-----	2,860,000 00

The following state bonds have been redeemed during the fiscal years ending June 30:

	1921	1922
San Francisco Seawall Bonds.....	\$115,000 00	\$120,000 00
State Highway Bonds.....	400,000 00	400,000 00
San Francisco State Building Bonds.....	20,000 00	20,000 00
University of California Building Bonds.....	40,000 00	40,000 00

Interest has been paid on state bonds sold and outstanding during the fiscal years ending June 30:

	1921	1922
Funded Debt 1873.....	\$141,435 00	\$141,435 00
State Highway.....	656,000 00	640,000 00
Second State Highway.....	630,000 00	675,000 00
Third State Highway.....	282,990 00	1,136,785 00
Sacramento State Building.....	5,600 00	120,000 00
San Francisco State Building.....	36,000 00	35,200 00
University of California Building.....	80,100 00	78,300 00
San Francisco Seawall Sinking Fund.....	16,300 00	11,600 00
Second San Francisco Seawall Sinking Fund.....	360,000 00	360,000 00
Third San Francisco Seawall Sinking Fund.....	80,000 00	120,000 00
India Basin Sinking Fund.....	34,120 00	34,120 00
Totals.....	\$2,322,545 00	\$3,352,440 00

Table showing bonded debt June 30, sundry years:

1910.....	\$1,881,500 00
1912.....	5,681,500 00
1916.....	33,013,500 00
1917.....	34,493,500 00
1918.....	39,367,500 00
1920.....	50,259,500 00
1921.....	54,806,500 00
1922.....	75,964,500 00

State Highway Bond Data

First State Highway.

State highway interest was paid on bonds sold and outstanding:

Seventy-second fiscal year, ending June 30, 1921.....	\$656,000 00
Seventy-third fiscal year, ending June 30, 1922.....	640,000 00

Highway bonds were redeemed:

Seventy-second fiscal year, ending June 30, 1921.....	\$400,000 00
Seventy-third fiscal year, ending June 30, 1922.....	400,000 00

Highway bonds were outstanding:

Seventy-second fiscal year, ending June 30, 1921.....	\$16,400,000 00
Seventy-third fiscal year, ending June 30, 1922.....	16,000,000 00

Counties paid to state as interest on money expended from Highway Fund for work within their boundaries:

Seventy-second fiscal year, ending June 30, 1921.....	\$635,183 96
No further payments as law changed.	

Second State Highway.

Of issue of \$15,000,000.00 there were sold:

Seventy-second fiscal year, ending June 30, 1921.....	\$1,000,000 00
Seventy-third fiscal year, ending June 30, 1922.....	1,000,000 00

Disbursements:

Seventy-second fiscal year, ending June 30, 1921.....	\$1,383,104 59
Seventy-third fiscal year, ending June 30, 1922.....	1,537,918 71

Interest was paid on Second Highway Bonds sold and outstanding:

Seventy-second fiscal year, ending June 30, 1921.....	\$630,000 00
Seventy-third fiscal year, ending June 30, 1921.....	675,000 00

Counties paid as interest on money expended from Second Highway Fund for work within their boundaries:

Seventy-second fiscal year, ending June 30, 1921.....	\$615,198 38
No further payments as law changed.	

Third State Highway.

Of issue of \$40,000,000.00 there were sold:

Seventy-second fiscal year, ending June 30, 1921 (4 $\frac{1}{2}$).....	\$2,122,000 00
Seventy-second fiscal year, ending June 30, 1921 (5 $\frac{1}{4}$).....	2,000,000 00
Seventy-third fiscal year, ending June 30, 1922 (5 $\frac{3}{4}$).....	9,878,000 00
Seventy-third fiscal year, ending June 30, 1922 (5).....	7,000,000 00

Disbursements:

Seventy-second fiscal year, ending June 30, 1921.....	\$5,896,119 61
Seventy-third fiscal year, ending June 30, 1922.....	14,273,040 04

Interest was paid on Third Highway Bonds sold and outstanding:

Seventy-second fiscal year, ending June 30, 1921.....	\$282,990 00
Seventy-third fiscal year, ending June 30, 1922.....	1,136,785 00

Counties paid as interest on money expended from Third Highway Fund for work within their boundaries:

Seventy-second fiscal year, ending June 30, 1921.....	\$138,360 16
No further payments as law changed.	

San Benito County is delinquent on account of interest on money expended:

	1917-18	1918-19	1919-20	1920-21
First Highway Fund.....	\$8,881 71	\$9,028 29	\$8,823 10	\$8,617 91
Second Highway Fund.....		183 84		4 12
Third Highway Fund.....				27 18
Totals.....	\$8,881 71	\$9,212 13	\$8,823 10	\$8,649 21
Grand total.....				\$35,566 15

Premium received on sale of state bonds, fiscal year ending June 30, 1922:

Third State Highway Fund.....	\$1,134,550 00
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The Bond Refund Payments

The payment of bond refunds by the State is provided for in Subdivision "e" of Section 14 of Article XIII of the Constitution, as amended November 8, 1910. This section provided that the taxes paid on operative property for principal and interest on bonded indebtedness, created and outstanding before the adoption of constitutional amendment No. 1, should be deducted from the total amount paid in taxes for state purposes. Because of the fact that taxes due the state under the amendment are payable on July 1, which is before the counties and cities fix their rates and collect taxes, the deduction of bond taxes to be paid the local

units could not be made by the corporations when paying their State taxes. The enabling Statute of 1911 (Chapter 335, Section 22) therefore provided that these taxes should not be thus deducted, but (Sections 28 and 29) that the bond taxes levied by counties, cities, towns and districts on the operative property of public service corporations should be paid to such counties, cities, towns and districts by the State Controller on the presentation of certified claims. These claims are usually presented in September and the State makes payment in two installments, in October and March.

As the bonds are redeemed from year to year, it was to be expected that the payments would show a corresponding annual decrease. Owing to the intervention of new and unexpected elements this decrease was not maintained during the first years of the operation of the amendment. The Controller's last biennial report pointed out that the bond refund payments should henceforth show a regular and material falling off, and this appears to be the fact. During the past six years there has been a decrease in these payments of twenty-seven per cent, and it is my belief that as these bonds are paid off from year to year the decline in the refund payments will be even more marked.

The following table shows the bond refund payments by years since the constitutional amendment became operative.

	1911-12	1912-13	1913-14
Cities.....	\$421,996 96	\$507,330 48	\$517,599 34
Counties and districts.....	228,327 04	207,946 20	225,038 19
Totals.....	\$650,324 00	\$715,276 68	\$742,637 53
	1914-15	1915-16	1916-17
Cities.....	\$514,389 47	\$507,830 91	\$616,555 15
Counties and districts.....	216,309 39	148,260 68	279,335 10
Totals.....	\$730,698 86	\$656,091 59	\$895,890 25
	1917-18	1918-19	1919-20
Cities.....	\$605,905 63	\$554,987 17	\$529,151 50
Counties and districts.....	184,871 16	186,374 21	160,607 40
Totals.....	\$790,776 79	\$741,361 38	\$689,758 90
		1920-21	1921-22
Cities.....		\$521,955 21	\$513,364 25
Counties and districts.....		135,499 84	140,162 08
Totals.....		\$657,455 05	\$653,526 33

Appended to this report, and constituting Statement No. 20, will be found in detail the refund payments by the State to the various counties cities, towns and districts

Cost of State Commissions.

	Railroad Commission	Insurance Commission	Bank Superintendent	Building and Loan Commissioner	Board of Equalization
1906-1907	\$18,894 93	\$15,892 42	\$31,589 96	\$8,933 49	\$22,156 06
1907-08	17,904 48	33,543 04	37,201 61	9,736 88	21,450 19
1908-09	23,920 52	33,436 44	35,304 31	9,446 50	30,906 75
1909-10	33,715 74	34,470 59	71,657 18	11,066 88	41,617 72
1910-11	46,252 51	30,276 16	74,334 48	10,133 09	39,727 07
1911-12	121,880 41	32,228 72	78,782 27	7,653 47	49,739 40
1912-13	219,070 38	35,313 40	77,817 72	7,615 62	50,303 17
1913-14	306,093 84	41,302 67	89,547 84	7,679 76	35,987 76
1914-15	349,235 03	40,251 86	92,286 55	7,535 36	35,727 14
1915-16	378,053 32	35,964 54	99,329 77	8,897 25	33,923 28
1916-17	409,239 48	34,570 93	94,141 57	9,116 62	31,904 35
1917-18	396,627 08	42,444 39	101,064 78	11,226 36	39,010 48
1918-19	350,412 61	42,575 46	103,153 81	11,275 69	33,015 94
1919-20	435,394 33	49,325 69	122,731 57	11,530 84	30,983 54
1920-21	471,027 68	67,412 58	137,987 52	11,614 30	41,053 26
1921-22	488,595 15	62,322 79	151,029 69	13,138 21	66,659 97

	Board of Health	Bureau of Labor Statistics	State Mining Bureau	State Board of Forestry	Fish and Game Commission
1906-07	\$13,464 04	\$11,110 26	\$22,089 45	\$17,774 77	\$49,616 00
1907-08	37,452 22	10,786 79	25,219 94	21,973 46	109,859 33
1908-09	52,686 06	16,690 91	27,367 48	16,521 78	171,045 33
1909-10	61,120 63	43,757 63	32,708 15	23,557 61	189,878 05
1910-11	57,646 65	28,006 93	38,285 74	19,664 94	203,951 57
1911-12	59,706 91	30,058 63	26,110 57	21,818 61	218,391 93
1912-13	55,383 88	37,445 69	24,255 25	18,746 06	233,281 65
1913-14	112,682 76	50,123 70	48,743 36	23,676 36	222,063 97
1914-15	137,134 48	55,420 12	46,071 28	18,124 55	283,700 17
1915-16	151,815 80	63,657 44	68,254 14	16,759 46	318,781 69
1916-17	179,343 87	92,719 97	102,334 83	13,524 16	356,250 20
1917-18	269,418 51	99,449 17	148,414 05	14,808 44	351,216 76
1918-19	288,301 45	123,632 40	182,561 95	18,438 40	387,073 25
1919-20	344,277 47	154,874 49	182,611 50	26,949 27	531,909 84
1920-21	357,810 96	171,647 47	212,969 47	34,503 71	611,751 95
1921-22	446,133 71	160,539 78	228,277 51	129,661 30	590,584 69

	Board of Control	Water Commission	*Industrial Accident Commission	Corporation Commission	Industrial Welfare Commission	Immigration and Housing
1910-11	\$19,239 76	\$308 72				
1911-12	42,150 52	20,194 42	\$21,737 46			
1912-13	80,664 54	16,203 90	32,232 19			
1913-14	79,618 88	10,294 95	439,738 88			
1914-15	137,873 77	10,684 09	431,525 02	\$11,452 35	\$17,006 99	\$45,828 14
1915-16	156,062 86	43,441 54	623,037 41	27,066 18	18,744 93	39,533 80
1916-17	1213,010 07	65,660 52	927,366 21	34,773 02	15,450 02	35,711 99
1917-18	1420,836 73	66,517 89	1,554,556 56	58,219 43	26,278 52	53,116 18
1918-19	128,000 77	73,002 85	2,155,141 09	56,182 77	24,505 86	38,734 24
1919-20	134,177 06	65,120 38	2,910,771 02	80,894 98	50,054 20	75,754 04
1920-21	145,686 64	83,660 69	4,352,573 04	121,217 17	60,230 31	73,898 78
1921-22	Note 1	110,026 94	5,318,884 76	152,063 50	54,537 79	74,502 49

†Of this amount \$73,458.07 expended from Emergency Fund for use of other departments.

‡Of this amount \$286,622.20 expended from Emergency Fund for use of other departments.

*It should be taken into consideration that of the sum charged against the Industrial Accident Commission, bonds were purchased in 1914-15 in the sum of \$232,300 and in the year 1915-16, \$218,500. This money is strictly an investment.

NOTE 1.—The Board of Control is now the Department of Finance, and the expenditures for this department include payments for the maintenance of the Capitol Building and Grounds, support Purchasing Department, Support Children's Agents, and the care of the Governor's Mansion, Sutter's Fort and State Burial Grounds. The total expenditures for the Department of Finance, including the payments for other departments herein enumerated, amounted to \$317,772.07.

	Board of Education	Civil Service	Reclamation Board	Legislative Council Bureau	Weights and Measures
1914-15	\$135,226 74	\$26,386 29	\$46,917 78	\$9,261 35	\$15,702 01
1915-16	357,149 33	29,519 20	525,515 14	8,586 92	15,496 82
1916-17	235,851 59	31,137 09	129,081 24	12,128 03	13,882 31
1917-18	303,142 96	35,689 02	1,121,759 01	9,798 24	16,025 94
1918-19	385,879 00	34,761 60	1,376,222 58	15,579 79	12,128 15
1919-20	500,899 08	36,159 41	2,700,932 59	11,782 46	19,187 79
1920-21	*248,890 77	36,095 97	2,257,531 51	20,407 82	13,843 94
1921-22	*370,782 72	43,555 24	1,263,004 99	16,472 10	†

*The reason for the decrease in the expenditures of the Board of Education is that the cost of manufacturing text books and Teachers' Pensions are not included this year.

†Consolidated with Department of Agriculture.

	Real Estate Commission	Board of Bar Examiners
1919-20	\$37,793 38	\$2,170 60
1920-21	82,134 92	4,214 00
1921-22	113,473 05	5,661 44

TEN YEARS OF RECEIPTS AND DISBURSEMENTS.

The following is a comparison of receipts and disbursements (less transfers) for each of the last ten years.

Fiscal year	Receipts	Disbursements	Excess receipts	Excess disbursements
Sixty-fourth (1912-1913)	\$25,052,863 10	\$22,900,416 40	\$2,152,446 70	
Sixty-fifth (1913-1914)	35,895,013 58	28,655,022 56	7,239,991 02	
Sixty-sixth (1914-1915)	29,829,605 36	36,529,593 04		\$6,699,987 68
Sixty-seventh (1915-1916)	37,902,612 96	35,562,485 14	2,340,127 82	
Sixty-eighth (1916-1917)	33,819,867 73	34,866,805 23		1,046,937 50
Sixty-ninth (1917-1918)	42,914,158 53	42,415,225 29	498,933 24	
Seventieth (1918-1919)	50,132,900 37	50,681,433 48		548,533 11
Seventy-first (1919-1920)	58,742,199 34	61,908,139 73		3,165,940 39
Seventy-second (1920-1921)	68,525,160 17	65,598,516 32	2,926,643 85	
Seventy-third (1921-1922)	95,764,903 55	84,066,708 08	11,698,195 47	
Excess receipts during ten-year period			\$26,856,338 10	\$11,461,398 68
Excess disbursements during ten-year period				11,461,398 68
Net excess receipts during ten-year period			\$15,394,939 42	

¹NOTE.—Book disbursements for sixty-seventh fiscal year \$36,035,889 77
Less drainage district warrants (registered) 473,404 63

Actual cash disbursements for sixty-seventh fiscal year \$35,562,485 14

²NOTE.—Book disbursements for sixty-eighth fiscal year \$34,886,139 73
Less drainage district warrants (registered) 19,334 50

Actual cash disbursements for sixty-eighth fiscal year \$34,866,805 23

³NOTE.—Book disbursements for sixty-ninth fiscal year \$43,008,663 07
Less drainage district warrants (registered) 593,437 78

Actual cash disbursements for sixty-ninth fiscal year \$42,415,225 29

Last Biennial Period.

The following table shows the receipts and disbursements for the seventy-second and seventy-third fiscal years:

RECEIPTS.

Cash receipts for the seventy-second fiscal year.....	\$68,525,160 17	
Transfer receipts for the seventy-second fiscal year.....	14,661,516 07	
Canceled warrant receipts for the seventy-second fiscal year.....	2,710 28	
Total receipts for seventy-second fiscal year.....		\$83,189,386 52
Cash receipts for seventy-third fiscal year.....	\$95,764,003 55	
Transfer receipts for the seventy-third fiscal year.....	25,452,530 85	
Canceled warrant receipts for seventy-third fiscal year.....	2,369 58	
Total receipts for seventy-third fiscal year.....		121,219,803 98
Total receipts for seventy-second and seventy-third fiscal years.....		\$204,409,190 50

DISBURSEMENTS.

Disbursements for seventy-second fiscal year.....	\$65,598,516 32	
Transfer disbursements for seventy-second fiscal year.....	14,661,516 07	
Total disbursements for seventy-second fiscal year.....		80,260,032 39
Disbursements for seventy-third fiscal year.....	\$84,066,708 08	
Transfer disbursements, for seventy-third fiscal year.....	25,452,530 85	
Total disbursements for seventy-third fiscal year.....		\$109,519,238 93
Total disbursements for seventy-second and seventy-third fiscal years.....		\$189,779,271 32

Cost of Legislative Sessions

Below is given the cost of the past ten legislative sessions, regular and special, beginning with that of 1909 and ending with that of 1921. These particular years have been selected for the reason that the session of 1909 was the first whereby the members of the legislature were placed upon a salary basis instead of upon a per diem, and also limited as to expenditures. The second notable change came with the session of 1913, which provided for a thirty-day recess following the first month of the session.

The table follows:

	Session of 1909	Regular session, 1911	Extra session, 1911
Salaries and mileage of senators and assemblymen . . .	\$124,670 80	\$124,545 80	\$16,688 80
Pay of officers and clerks	50,222 00	84,986 00	1,546 00
Contingent expenses	63,104 20	26,601 66	511 20
Legislative printing	94,439 50	101,000 00	1,800 00
Totals	\$332,436 50	\$337,133 46	\$20,546 00
	Session of 1913	Regular session, 1915	Extra session, 1916
Salaries and mileage of senators and assemblymen . . .	\$131,164 40	\$131,184 20	\$13,065 90
Pay of officers and clerks	90,274 00	87,569 50	2,211 50
Contingent expenses	27,015 13	22,093 52	8,021 37
Legislative printing	100,243 23	87,570 46	18,001 39
Totals	\$348,696 76	\$328,417 68	\$41,300 16
	Session of 1917	Regular session, 1919	Extra session, 1919
Salaries and mileage of senators and assemblymen . . .	\$129,978 70	\$131,239 60	\$6,422 00
Pay of officers and clerks	80,074 05	76,318 50	104 00
Contingent expenses	16,294 92	17,870 64	50 00
Legislative printing and mailing	134,886 97	106,690 64	249 59
Totals	\$361,234 64	\$332,219 38	\$6,825 59
	Session of 1921		
Salaries and mileage of senators and assemblymen . . .	\$131,151 00		
Pay of officers and clerks	84,228 50		
Contingent expenses	21,316 27		
Legislative printing and mailing	145,619 10		
Total	\$382,314 87		

GENERAL SUMMARY OF THE FUNDS.

Exhibit A. Showing the Condition of the Several Funds June 30, 1921.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Accident Prevention Fund	\$1,190 55	\$7,295 00	\$8,485 55
Adult Blind Fund	12,849 90	1,762 50	14,612 40
Agnews Hospital Contingent Fund	10,841 61	20 00	10,861 61
Agricultural Society Contingent Fund	19,067 66	1,251 77	20,319 43
Apple Standard Prosecution Fund	5,598 90	145 00	5,743 90
Ballot Paper Revolving Fund	206 75		206 75
Banking Fund	28,216 83	10,751 47	38,968 30
Bond Investment Fund			
Building and Loan Inspection Fund	13,660 88	765 00	14,425 88
California Irrigation Board Revolving Fund	4,840 00		4,840 00
California Polytechnic School Contingent Fund	214 63		214 63
California School, Deaf and Blind Contingent Fund	9 47		9 47
California Training School for Girls Contingent Fund	1,457 08		1,457 08
Cattle Protection Fund	18,123 00	1,342 50	19,465 50
Chico Normal School Contingent Fund	1,333 50	959 45	2,292 95
Compensation Insurance Fund	14,328 77	60,781 86	75,110 63
Corporation Commission Fund	213,429 43	7,940 52	221,369 95
Court of Appeal, First District, Library Fund	3,233 12	75 00	3,308 12
Court of Appeal, Second District, Library Fund	30 40	115 55	145 95
Court of Appeal, Third District, Library Fund	1,931 03	16 50	1,947 53
Dentistry Fund	8,277 65		8,277 65
Department of Engineering Revolving Fund	4,607 67	5,366 83	9,974 50
Detective License Fee Fund	3,048 90		3,048 90
Dissolved Savings Bank Fund	13,060 64		13,060 64
Estates of Deceased Persons Fund	43,515 03	3,356 75	46,871 78
Embalming School Fund			
Fish Exchange Fund	15,554 17	1,113 00	16,667 17
Fish and Game Preservation Fund	66,255 87	28,592 64	94,848 51
Folsom Hospital Contingent Fund	179 00		179 00
Folsom Prison Fund	11,825 91		11,825 91
Forestry Fund	169 88		169 88
Fresno Normal School Contingent Fund	2,400 26		2,400 26
General Fund	9,044,161 75	440,053 12	9,484,214 87
High School Fund	860 10		860 10
Highway Fund			
Highway Interest and Sinking Fund			
Humboldt Normal School Contingent Fund	302 54	33 80	336 34
India Basin Fund	451 28		451 28
India Basin Sinking Fund			
Industrial Rehabilitation Fund	605 34	2,548 21	3,153 55
Industrial Accident Fund	5,039 23		5,039 23
Industrial Farm for Women Contingent Fund	123 00		123 00
Insurance Commissioner's Special Fund	77,092 20	3,379 48	80,471 68
Interest and Sinking Fund		70,717 50	70,717 50
Jute Revolving Fund	24,539 57		24,539 57
Kern Co. Union High School Dist. Condemnation Fd.	140 15		140 15
Labor Bureau Contingent Fund	10,090 71	4,667 50	14,758 21
Land Settlement Fund	687 18	3,059 46	3,746 64
Library Fund	1,226 47	7,031 42	8,257 89
Los Angeles Normal School Bldg. and Imp. Fund	3 32		3 32
Los Angeles Normal School Contingent Fund			
Malibu Ranch Land Condemnation Fund	7,500 00		7,500 00
Market Commission Fund	18,944 20	1,364 56	20,308 76
Meat Hygiene Fund	563 05	150 00	713 05
Medical Examiners' Contingent Fund	84,814 86	2,836 50	87,651 36
Mendocino Hospital Contingent Fund	32,251 96		32,251 96
Mining Bureau Fund	920 58		920 58
Motor Vehicle Fund	5,643,107 89	46,211 07	5,689,318 96
Napa Hospital Contingent Fund	5,940 18	4,263 16	10,203 34
Napa State Farm Contingent Fund	997 15	1,122 50	2,119 65
Nautical School Fund	24,957 10		24,957 10
Needles School District Bond Fund	183 75		183 75
Norwalk Hospital Contingent Fund	607 75		607 75
Nurses' Examination and Registration Fund	3,673 38	547 00	4,220 38
Operators' License Fund	30,659 30		30,659 30
Optometry Fund	835 09		835 09
Pacific Colony Contingent Fund	7,997 99		7,997 99
Panama-California International Exposition Fund	27 33		27 33
Panama-Pacific International Exposition Fund	14,014 56		14,014 56
Pharmacy Board Contingent Fund	46,114 03		46,114 03
Petroleum and Gas Fund	7,585 93	9,742 24	17,328 17
Predatory Animal Fund	2,939 60		2,939 60
Preston School of Industry Contingent Fund	93,579 59	900 89	94,480 48
Printing Fund			

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit A. Showing the Condition of the Several Funds June 30, 1921—Concluded.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Prohibition Enforcement Fund			
Purchasing Department Revolving Fund	\$197,731 02	\$4,066 12	\$111,797 14
Railroad Commission Fund	18,573 68	7,663 00	26,236 68
Railway Tax Fund	30,251 36		30,251 36
Real Estate Commissioner's Fund, 1917	29,495 66		29,495 66
Real Estate Commission Fund, 1921	80,369 86	5,013 80	85,383 66
Receivers' Fund	8,434 56		8,434 56
Reclamation Board Revolving Fund	6,549 73	6,127 84	12,677 57
Sacramento State Building Fund	4,970 81		4,970 81
Sacramento State Building, Interest and Sinking Fund	52,933 17		52,933 17
Sacramento Drainage District Fund	138 84		138 84
Sacramento and San Joaquin Drainage Dist. Fund 1	15,595 89	1,375 83	16,971 72
Sacramento and San Joaquin Drainage Dist. Fund 2	580,306 90*	580,306 90	
Sacramento and San Joaquin Drainage Dist. Fund 3	29,389 48		29,389 48
Sacramento and San Joaquin Drainage Dist. Fund 4	19,934 62		19,934 62
Sacramento and San Joaquin Drainage Dist. Fund 5			
Sacramento and San Joaquin Drainage Dist. Fund 6	5,122,074 90*	5,127,738 57	5,663 67
San Diego Harbor Improvement Fund	5,560 91		5,560 91
San Diego Normal School Contingent Fund	1,184 82	12 00	1,196 82
San Francisco Harbor Improvement Fund	217,591 53	4,015 48	221,607 01
San Francisco State Building Fund	385,347 44		385,347 44
San Francisco State Building Sinking Fund			
San Francisco Seawall Sinking Fund	51,176 54		51,176 54
San Francisco Normal School Contingent Fund		5,010 68	5,010 68
San Francisco Normal School Expos. Preservat. Fund			
San Jose Harbor Improvement Fund	2,495 27		2,495 27
San Jose Normal School Contingent Fund	1,579 61		1,579 61
San Quentin Prison Fund	23,336 99	2,602 31	25,939 30
San Quentin Prison Manufacturing Revolving Fund	41,140 01		41,140 04
Santa Barbara Normal School Contingent Fund	167 93		167 93
School Fund	231,043 81		231,043 81
School Book Fund	23,967 92	230 00	24,197 92
School Land Fund	189,100 49	20,766 22	209,866 71
School Land Deposit Fund	5,020 00	20 00	5,040 00
School Teachers' Permanent Fund	30,222 88	385 00	30,607 88
School Teachers' Retirement Salary Fund	499 39	83,574 40	81,073 79
Second Highway Fund	20,316 38		20,316 38
Second Highway Interest and Sinking Fund			
Second Highway Revolving Fund			
Second San Francisco Seawall Fund	1,000 00		1,000 00
Second San Francisco Seawall Sinking Fund			
Sixth District Agricultural Ass'n Contingent Fund	3,897 19		3,897 19
Sonoma Home Contingent Fund	10,629 15		10,629 15
Southern California Hospital Contingent Fund	43,707 98		43,707 98
Stallion Registration Board Contingent Fund	536 33	85 00	621 33
State University Fund			
Stockton Hospital Contingent Fund	4,369 84	276 08	4,645 92
Supt. Capitol Building and Grounds Revolving Fund	6,218 33		6,218 33
Supreme Court Library Fund	6,936 66		6,936 66
Testing Fee Fund	2,380 69		2,380 69
Textbook Royalty Fund	340 43		340 43
Third Highway Fund	528,295 47	52,136 69	580,432 16
Third Highway Interest and Sinking Fund			
Third Highway Revolving Fund			
Third San Francisco Seawall Fund	899 61		899 61
Third San Francisco Seawall Sinking Fund			
Torrens Title Assurance Fund	19,186 42		19,186 42
Transfer and Operators' License Fund	151,406 54		151,406 54
United States Forest Reserve Fund			
University Fund			
University Calif. Building Interest and Sinking Fund			
Veterans' Home, Support and Maintenance Fund	7,945 95		7,945 95
Veterinary Medicine Examiners' Contingent Fund	666 36	29 68	696 04
Vocational Education Fund	99,693 61	1,116 75	100,810 36
War Bond Fund	2,829 76		2,829 76
Whittier School Contingent Fund	21,727 29	256 34	21,983 63
Bar Examination Fund	1,355 39		1,355 39
Sacramento and San Joaquin Dr. Dist. Fund No. 7	143,518 31*	143,518 31	
Total amount in state treasury	\$18,261,140 23	\$6,776,606 75	\$19,191,846 87

*NOTE—Less debit balances as per items against which star appears.

GENERAL SUMMARY OF THE FUNDS—Continued.

Recapitulation of Exhibit A.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Controller's Ledger Balance		\$18,261,140 23	
S. and S. J. Drainage District Fund No. 2	\$580,306 90		
S. and S. J. Drainage District Fund No. 6	5,122,074 90		
S. and S. J. Drainage District Fund No. 7	143,518 31		
Controller's Ledger Balance		5,845,900 11	
Warrants Outstanding		12,413,240 12	
		6,776,606 75	
Total cash in State Treasury June 30, 1921		\$19,191,846 87	
Total cash in State Treasury June 30, 1921 (Seventy-second fiscal year)			\$19,191,846 87
Total cash in State Treasury June 30, 1920 (Seventy-first fiscal year)			14,140,478 11
Increase in State Treasury seventy-second fiscal year as against seventy-first fiscal year			\$5,051,368 76

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit B. Showing the Condition of the Several Funds June 30, 1922.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Accident Prevention Fund.....	\$4,204 74	\$9,025 15	\$13,229 89
Adult Blind Fund.....	16,809 43		16,809 43
Agnews Hospital Contingent Fund.....	82,717 30	1,870 54	84,587 84
Agricultural Society Contingent Fund.....	26,927 85	851 00	27,778 85
Apple Standard Prosecution Fund.....	8,800 27	246 85	9,047 12
Architectural Revolving Fund.....	765 15	6,424 67	7,189 82
Ballot Paper Revolving Fund.....	82 97		82 97
Bar Examination Fund.....	4,678 95		4,678 95
Banking Fund.....	61,226 44	8,543 71	69,770 15
Bond Investment Fund.....			
Building and Loan Inspection Fund.....	14,395 76	857 40	15,253 16
California Irrigation Board Revolving Fund.....	4,840 00		4,840 00
California Polytechnic School Contingent Fund.....	9,360 92	3,465 79	12,826 71
California School, Deaf and Blind Contingent Fund.....	4,280 97	607 55	4,888 52
California Training School for Girls Contingent Fund.....	2,636 50		2,636 50
Cattle Protection Fund.....	15,016 86	2,155 00	17,171 86
Chemistry Fund.....	5,483 56	1,343 70	6,827 26
Chico Normal School Contingent Fund.....	1,872 80		1,872 80
Compensation Insurance Fund.....	45,811 42	90,986 65	136,798 07
Corporation Commission Fund.....	294,355 04	12,122 97	306,478 01
Court of Appeal, First District, Library Fund.....	2,845 41	75 00	2,920 41
Court of Appeal, Second District, Library Fund.....	13 63		13 63
Court of Appeal, Third District, Library Fund.....	798 58	34 00	832 58
Dentistry Fund.....	9,383 76		9,383 76
Detective License Fee Fund.....	3,104 57	93 44	3,198 01
Dissolved Savings Bank Fund.....	16,535 74		16,535 74
Estates of Deceased Persons Fund.....	106,419 74		106,419 74
Fish Exchange Fund.....	9,082 04	1,331 00	10,413 04
Fish and Game Preservation Fund.....	34,627 53	33,657 03	68,284 56
Folsom Hospital Contingent Fund.....	179 00		179 00
Folsom Prison Fund.....	12,740 31		12,740 31
Forestry Fund.....			
Fresno Normal School Contingent Fund.....	3,261 52	3,125 00	6,386 52
General Fund.....	6,826,479 69	551,725 40	7,378,205 09
Grain Standardization Fund.....	2,224 74		2,224 74
High School Fund.....	197 65		197 65
Highway Fund No. 1.....			
Highway Interest and Sinking Fund No. 1.....			
Highway Fund No. 2.....	40,400 90	5,769 07	46,169 97
Highway Interest and Sinking Fund No. 2.....			
Highway Fund No. 3.....	6,691,228 56	319,595 74	7,010,824 30
Highway Interest and Sinking Fund No. 3.....			
Humboldt Normal School Contingent Fund.....	837 50	30 19	867 69
India Basin Fund.....	451 28		451 28
India Basin Sinking Fund.....			
Industrial Rehabilitation Fund.....	3,323 29		3,323 29
Industrial Accident Fund.....	5,885 94		5,885 94
Industrial Farm for Women Contingent Fund.....	350 20		350 20
Insurance Commissioner's Special Fund.....	83,477 50		83,477 50
Interest and Sinking Fund.....		70,717 50	70,717 50
Junior College Fund.....	777,061 32		777,061 32
Jute Revolving Fund.....	141,161 48	116 20	141,277 68
Kern Co. Union High School Dist. Condemnation Fd.....	140 15		140 15
Labor Bureau Contingent Fund.....	5,507 78	4,315 50	9,823 28
Land Settlement Fund.....	5,942 25	30 21	5,972 46
Library Fund.....	10,909 02	7,483 25	18,392 27
Los Angeles Normal School Bldg. and Imp. Fund.....	3 32		3 32
Market Commission Fund.....	10,715 48	708 30	11,423 78
Meat Hygiene Fund.....	364 76	2,230 00	2,594 76
Medical Examiners' Contingent Fund.....	92,140 25	2,860 65	95,000 90
Mendocino Hospital Contingent Fund.....	132,403 65	4,402 31	136,805 96
Mining Bureau Fund.....	77 37	1,600 00	1,677 37
Motor Vehicle Fund.....	7,150,739 33	118,732 97	7,269,472 30
Napa Hospital Contingent Fund.....	76,504 58	19,834 28	96,338 86
Napa State Farm Contingent Fund.....	1,216 08	1,251 66	2,467 74
Nautical School Fund.....	24,957 10		24,957 10
Needles School District Bond Fund.....	183 75		183 75
Norwalk Hospital Contingent Fund.....	23,051 65		23,051 65
Nurses' Examination and Registration Fund.....	9,149 97	720 50	9,870 47
Operators' License Fund.....	30,659 30		30,659 30
Optometry Fund.....	3,663 28		3,663 28
Pacific Colony Contingent Fund.....	13,152 94		13,152 94
Panama-California International Exposition Fund.....	11 88		11 88
Panama-Pacific International Exposition Fund.....	14,014 56		14,014 56
Pharmacy Board Contingent Fund.....	53,026 20		53,026 20
Petroleum and Gas Fund.....	10,312 98	8,204 15	18,517 13

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit B. Showing the Condition of the Several Funds June 30, 1922—Concluded.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Predatory Animal Control Fund.....			
Preston School of Industry Contingent Fund.....	\$2,241 68		\$2,241 68
Printing Fund.....	73,370 55	\$3,431 68	76,802 23
Purchasing Department Revolving Fund.....	127,557 15	12,424 08	139,981 23
Railroad Commission Fund.....	41,280 24	6,276 66	47,556 90
Railway Tax Fund.....	30,251 36		30,251 36
Real Estate Commission Fund, 1922.....	89,819 85	5,726 61	95,546 46
Receivers' Fund.....	8,434 56		8,434 56
Reclamation Board Revolving Fund.....	6,471 64	6,663 17	13,134 81
Sacramento State Building Fund.....	2,834,893 11	646 17	2,835,539 28
Sacramento State Building, Interest and Sinking Fund.....	1,014 29		1,014 29
Sacramento Drainage District Fund.....	138 84		138 84
Sacramento and San Joaquin Drainage Dist. Fund 1.....	15,866 47		15,866 47
Sacramento and San Joaquin Drainage Dist. Fund 2.....	739,945 62*	739,945 62	
Sacramento and San Joaquin Drainage Dist. Fund 3.....	9,254 32		9,254 32
Sacramento and San Joaquin Drainage Dist. Fund 4.....	19,895 91		19,895 91
Sacramento and San Joaquin Drainage Dist. Fund 5.....			
Sacramento and San Joaquin Drainage Dist. Fund 6.....	5,548,975 40*	5,603,163 00	54,187 60
Sacramento and San Joaquin Drainage Dist. Fund 7.....	362,942 07*	362,942 07	
Sacramento and San Joaquin Drainage Dist. Fund 8.....	84,786 04*	84,786 04	
San Diego Harbor Improvement Fund.....	6,300 36		6,300 36
San Diego Normal School Contingent Fund.....	2,521 96	101 68	2,623 64
San Francisco Harbor Improvement Fund.....	349,358 06	528 00	349,886 06
San Francisco State Building Fund.....	126,351 27		126,351 27
San Francisco State Building Sinking Fund.....			
San Francisco Seawall Sinking Fund No. 1.....	47,548 75		47,548 75
San Francisco Seawall Fund No. 2.....	1,000 00		1,000 00
San Francisco Seawall Sinking Fund No. 2.....			
San Francisco Seawall Fund No. 3.....	908,396 43		908,396 43
San Francisco Seawall Sinking Fund No. 3.....			
San Francisco Normal School Contingent Fund.....	1,199 20		1,199 20
San Jose Harbor Improvement Fund.....	2,495 27		2,495 27
San Jose Normal School Contingent Fund.....	3,867 07		3,867 07
San Quentin Prison Fund.....	1,159 22	2,193 75	3,352 97
San Quentin Prison Manufacturing Revolving Fund.....	20,640 31	4,082 91	24,723 22
Santa Barbara Normal School Contingent Fund.....	280 56	1,535 83	1,816 39
School Fund.....	243,027 24	102 57	243,129 81
School Book Fund.....	268,712 07	165 00	268,877 07
School Land Fund.....	163,445 75	718 92	164,164 67
School Land Deposit Fund.....	4,780 00		4,780 00
School Teachers' Permanent Fund.....	56,446 93	450 00	56,896 93
School Teachers' Retirement Salary Fund.....	586 84		586 84
Sixth District Agricultural Ass'n Contingent Fund.....	4,275 83		4,275 83
Sonoma Home Contingent Fund.....	49,121 54		49,121 54
Southern California Hospital Contingent Fund.....	91,715 11	3,586 57	95,301 68
Stallion Registration Board Contingent Fund.....	704 99		704 99
Standardization Fund.....	8,089 62	1,898 51	9,988 13
State University Fund.....	23,904 05		23,904 05
Stockton Hospital Contingent Fund.....	72,651 79		72,651 79
Supt. Capitol Building and Grounds Revolving Fund.....	6,218 33		6,218 33
Supreme Court Library Fund.....	6,472 23		6,472 23
Tax Land Fund.....			
Testing Fee Fund.....	2,943 73		2,943 73
Textbook Royalty Fund.....	340 43		340 43
Torrans Title Assurance Fund.....	20,343 32		20,343 32
Transfer and Operators' License Fund.....	304,362 54		304,362 54
United States Forest Reserve Fund.....		1,459 57	1,459 57
University Fund.....			
University Calif. Building Interest and Sinking Fund.....			
Veterans' Dependents Education Fund.....	755 01		755 01
Veterans' Home, Support and Maintenance Fund.....	29,142 45		29,142 45
Veterans' Farm and Home Building Fund.....	950,000 00		950,000 00
Veterans' Welfare Fund.....	450,000 00		450,000 00
Veterinary Medicine Examiners' Contingent Fund.....	619 94	10 00	629 94
Vocational Education Fund.....	153,275 41	1,537 81	154,813 22
Vocational Rehabilitation Fund.....	10,102 75	2,704 24	12,806 99
War Bond Fund.....	2,829 76		2,829 76
Whittier School Contingent Fund.....	43,598 51		43,598 51
Water Commission Revolving Fund.....	49,583 93		49,583 93
City Redding and Northern California Power Co.....			
Condemnation Fund.....	57,356 18		57,356 18
Aircraft Fund.....	83 15		83 15
Aircraft Operators' Fund.....	170 00		170 00
Totals.....	\$30,852,454 30	\$8,144,224 79	\$32,260,029 96

*NOTE—Less debit balances as per items against which star appears.

GENERAL SUMMARY OF THE FUNDS—Continued.

Recapitulation of Exhibit B.

Funds	Balance on hand	Warrants outstanding	Balance in state treasury
Controller's Ledger Balance*		\$30,852,454 30	
Sacramento and San Joaquin Drain. Dist. Fd. No. 2.	\$739,945 62		
Sacramento and San Joaquin Drain. Dist. Fd. No. 6.	5,548,975 40		
Sacramento and San Joaquin Drain. Dist. Fd. No. 7.	362,942 07		
Sacramento and San Joaquin Drain. Dist. Fd. No. 8.	84,786 04		
		\$6,736,649 13	
Controller's Ledger Balance.....		\$24,115,805 17	
Warrants Outstanding.....		8,144,224 79	
Total Cash in State Treasury June 30, 1922.....		\$32,260,029 96	
Total Cash in State Treasury June 30, 1922 (Seventy-third fiscal year).....			\$32,260,029 96
Total Cash in State Treasury June 30, 1921 (Seventy-second fiscal year).....			19,191,846 87
Increase in State Treasury Seventy-third Fiscal Year as against Seventy-second Fiscal Year.....			\$13,068,183 09

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
State Treasurer—		
Corporation franchise tax.....	\$22,272,149 04	\$31,111,611 22
Oil well assessments.....	129,935 78	148,000 87
Interest on state deposits.....	447,257 09	664,570 36
Registration of bonds.....	168 18	450 28
Interest on balances state funds (National City Bank, New York).....		183 50
United States Government, account vocational education.....	82,387 82	118,440 67
United States Government, account forest reserves.....	181,003 31	166,450 18
United States Government, account support Veterans' Home.....	74,306 79	76,380 00
United States Government, account 5 per cent sale school lands.....	4,138 13	4,832 27
United States Government, account social hygiene.....	13,559 84	2,778 30
United States Government, account rural roads.....	1,272,640 54	2,218,798 53
United States Government, account vocational rehabilitation.....		24,414 09
United States Government, account lease of oil lands.....		777,061 32
United States Government, account fire prevention.....		22,749 98
Interest on bonds in trust for schools, School Fund.....	398,345 46	429,822 79
Interest and redemption bonds, School Land Fund.....	256,163 85	263,997 29
Interest on bonds in trust for State University, University Fund.....	49,845 00	49,845 00
Interest and redemption bonds, Estates Deceased Persons Fund.....	23,562 33	17,166 66
Interest and redemption bonds, Dissolved Savings Bank Fund.....	5,394 30	3,487 50
Interest and redemption bonds, Compensation Insurance Fund.....	225,825 88	272,453 40
Interest and redemption bonds, Teachers' Permanent Fund.....	57,960 25	64,541 50
Interest on bonds in trust for General Fund, Bond Investment Fund.....	227,268 47	217,146 25
Interest on bonds, Nurses' Registration Fund.....	637 50	552 50
Interest on bonds, Sacramento State Building Interest and Sinking Fund.....	2,205 00	4,830 00
Return of warrant for purchase of bonds, Teachers' Permanent Fund.....	75,000 00	
Refunds account over-payment purchase of bonds, Compensation Insurance Fund.....	150 06	8 47
Refunds account non-purchase of bonds, Compensation Insurance Fund.....	54,464 06	
Sale of bonds, General Fund (surplus).....	3,122,000 00	3,036,472 22
Accrued interest.....	41,885 67	7,250 00
Sale of bonds, Third Highway Fund.....	4,122,000 00	18,012,550 00
Accrued interest, Third Highway Interest and Sinking Fund.....	58,749 55	154,707 70
Sale of bonds, Second Highway Fund.....	1,000,000 00	1,000,000 00
Accrued interest, Second Highway Interest and Sinking Fund.....	20,500 00	19,250 00
Sale of bonds, Nurses' Registration Fund.....	4,062 33	
Sale of bonds, Compensation Insurance Fund.....	2,180,910 03	1,648,077 49
Sale of bonds, Sacramento State Building Fund.....		2,860,000 00
Accrued interest, Sacramento State Building Interest and Sinking Fund.....		45,760 00
Sale of bonds, Third San Francisco Seawall Fund.....		1,000,000 00
Accrued interest, Third San Francisco Seawall Sinking Fund.....		17,222 22
County Treasurers—		
Property tax delinquencies.....	8,437 23	4,254 49
Poll tax delinquencies.....	654 66	155 66
Inheritance tax.....	6,804,732 08	6,344,644 35
Sale school lands (16th and 36th sections) principal.....	77,923 76	12,942 97
Sale school lands (16th and 36th sections) interest.....	34,177 68	29,264 00
Costs of foreclosure suits.....	46 00	
Penalties on school lands (delinquent interest).....	320 56	279 52
Costs of advertising.....	6 00	
Sale tax deed lands.....		755 01
Preston School of Industry (care of inmates).....	84,820 68	83,634 51
Whittier School (care of inmates).....	64,669 63	66,786 80
Training School for Girls (care of inmates).....	36,249 47	37,263 93
Pacific Colony (care of inmates).....	485 75	7,219 75
Sonoma Home (care of inmates).....	289,458 75	306,125 00
Estates deceased person (county treasurers and public administrators).....	95,708 18	139,360 88
Interest on highway moneys expended.....	1,388,742 50	
Inyo County, royalty on minerals.....		6,902 42
Sundry counties and Reclamation Board, assessment Sacramento-San Joaquin Drainage District No. 1.....	28,876 84	32,211 58
Sundry counties and Reclamation Board, assessment Sacramento-San Joaquin Drainage District No. 3.....	5,999 31	4,619 58
Sutter County, assessment Sacramento-San Joaquin Drainage District No. 4.....	52 81	
Sundry counties and Reclamation Board, assessment Sacramento-San Joaquin Drainage District No. 6.....	51 37	48,523 93
Sundry counties, cities, colleges, etc., teachers' pension fees.....	240,471 17	250,138 29
Lassen county, account of orphans.....	50 00	
City and County of San Francisco, account of orphans.....	2,520 09	
Mono county, judgment Superior Court.....		2,504 60
Los Angeles county, unclaimed deposit by Glendale.....		7 50
Los Angeles Rindge Condemnation Fund (special deposit).....		2,000 00

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts—Continued.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
Secretary of State, office fees	\$272,813 33	\$260,879 97
Candidates' filing fees	5,980 00	
Corporation license tax	936,732 68	990,730 94
Sale of ballot paper	48,630 09	4,286 33
Refunds		315 00
Surveyor General, fees (General Fund)	5,462 20	3,479 71
Fees (School Land Deposit Fund)	20 00	
Rent of agricultural lands	6,009 32	5,648 00
Rent of mineral lands	903 25	2,039 95
Permit fees, mineral lands		325 00
Sale of script	162,156 81	88,299 92
Refunds	800 00	450 55
Clerk of Supreme Court, fees	8,645 77	8,688 50
Refunds	269 07	734 97
Clerk First District Court of Appeal, fees	2,741 25	3,218 65
Cash bail forfeited	50 00	
Refunds		93 56
Clerk Second District Court of Appeal, fees	3,438 05	4,218 25
Refunds		344 40
Clerk Third District Court of Appeal, fees	841 50	800 00
Refunds	21 85	42 50
San Francisco Harbor Commission, receipts	2,420,678 96	2,438,358 58
Insurance Commissioner, receipts	137,384 68	156,680 34
Refunds	176 93	
Corporation Commissioner, receipts	214,935 86	232,989 11
Fish and Game Commission, receipts	511,685 73	557,148 21
Refunds	1,345 51	611 99
Board of Medical Examiners, receipts	101,883 53	86,817 57
Board of Dental Examiners, receipts	16,195 07	15,441 18
Board of Pharmacy, receipts	16,278 66	6,912 17
Board of Otonetry, receipts	4,165 50	6,758 85
Board of Bar Examiners, receipts	5,445 00	8,985 00
Board of Examiners in Veterinary Medicine, receipts	400 00	230 00
Board of Embalmers, receipts	2 00	28 00
Board of Architecture (Northern District), receipts	3,335 60	2,865 40
Board of Architecture (Southern District), receipts	3,039 36	3,360 01
Building and Loan Commissioner, receipts, etc	12,990 64	13,873 09
Superintendent of Banks, receipts	143,548 08	187,039 30
Real Estate Commissioner, receipts	138,793 69	158,686 17
Refunds		20 90
Railroad Commission, receipts	115,577 00	113,696 92
Refunds	165 00	1,000 00
County Recorders, land title fees	2,928 36	1,156 90
Prison Directors, detectives' licenses	950 00	1,200 00
Refunds	1,363 51	850 00
Dairy fines, (Justices of the Peace)	894 88	455 00
Board of Health, receipts, etc	21,379 46	29,888 46
Mining Bureau, receipts	4,737 84	6,877 85
Refunds (Petroleum and Gas Fund)	1,469 94	249 07
Refunds (General Fund)	1,035 84	3,251 20
Department of Agriculture, receipts, etc. (General Fund)	48,511 96	76,206 88
Receipts (Apple Standard Prosecution Fund)	31,994 22	26,585 44
Fertilizer collection	26,710 59	386 94
Shipping Point Inspection Fund (special deposit)	15,583 40	6,068 02
Black Scale Fund (special deposit)	1,178 32	
Receipts (Market Commission Fund)		1,143 82
Receipts (Fish Exchange Fund)		21,457 44
Receipts (Meat Hygiene Fund)	1,865 00	7,875 35
Receipts (Cattle Protection Fund)	64,311 40	69,035 06
Receipts (Stallion Registration Board Contingent Fund)	775 50	714 00
Receipts (Division of Chemistry Fund)		27,144 36
Receipts (Standardization Fund)		26,973 09
Receipts (Warehouse Standardization Fund)		1,043 31
Receipts (Grain Standardization Fund)		2,224 74
State Market Commission, receipts (Market Commission Fund)	1,062 74	
Receipts (Fish Exchange Fund)	20,176 06	
State Agricultural Society, receipts	126,285 09	119,458 33
Refunds	1,571 45	97 96
Sixth District Agricultural Society, receipts	1,734 94	744 28
Refunds	5,677 36	1 04
California Redwood Park Commission, receipts	5,293 60	5,717 44
San Diego Harbor Commission, receipts	903 79	739 45
Superintendent Capitol Building and Grounds, receipts, etc	5,499 78	358 00
Panama-California Exposition Commission, receipts	457 77	
Superintendents of Weights and Measures, receipts	1,319 74	559 37
John S. Chambers, Controller, fees	8 50	
Refunds	1,797 73	

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts—Continued.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
Ray L. Riley, Controller, fees		\$16 00
Refunds		2,344 85
Superintendent of Public Instruction, fees		2,339 00
Sale of text books	\$29,541 27	12,820 48
Refunds	20,750 00	501 39
Board of Education, sale of diplomas, etc.	14,748 76	
Filing fees (high school text books)	1,000 10	
Refunds (Teachers' Retirement Salary Fund)	2,469 08	
Refunds (Vocational Education Fund)	10,000 00	
Refunds (General Fund)	2,051 21	
Department of Education, sale of diplomas, etc.		16,052 19
Filing fees (high school text books)		2,430 00
From appropriations of various schools and colleges for support		12,641 50
Refunds (Vocational Education Fund)		22,924 44
Refunds (Teachers' Retirement Salary Fund)		2,175 04
Refunds (Vocational Rehabilitation Fund)		51 54
Refunds (General Fund)		7,892 80
Board of Control, fire trails (contribution)	4,300 00	
Sale of forms	2,862 23	
Telephone service	5,996 17	1,414 09
Rent of state offices	14,023 40	4,889 54
Refund revolving fund	2,250 00	
Pro rata budget hearings	241 75	
Miscellaneous sales and refunds	2,488 89	32 27
From Emergency Fund (to Support, etc.)	3,000 00	
For sundry normal schools (deficiency support)	21,757 07	
Department of Finance (Board of Control) telephone service		1,029 41
Rent of state offices		38,029 58
Fire trails (contributions)		4,200 00
Janitor service		222 27
Miscellaneous sales and refunds		9,450 25
Superintendent of State Printing, receipts (Printing Fund)	580,410 63	
Sale of index to laws	4,432 50	
Sale of fire arms records	786 00	
Refunds	500 00	
Department of Finance, Division of Printing, receipts (Printing Fund)		513,186 65
Sales of fire arms records		834 00
Sales of index to laws		22 50
Sales of old buildings, printing office site		1,461 10
Purchasing Department, refunds (Revolving Fund)	463,655 79	
Refunds (General Fund)	14,073 88	
Department of Finance, Division of Purchases and Custody, refunds (Purchasing Department Revolving Fund)		281,366 42
Refunds (General Fund)		65 80
State Library, receipts (State Library Fund)	527 22	
Department of Finance (Division of Libraries) receipts		884 48
Refund		500 00
Department of Finance (Napa State Farm) receipts		36,909 72
Refunds (Emergency Revolving Fund)		123,948 76
Motor Vehicle Department, licenses (Motor Vehicle Fund)	6,463,561 71	
Refunds	87,136 23	
Testing fees (Testing Fee Fund)	1,650 00	
Licenses (Transfer and Operators' License Fund)	317,034 97	
Department of Finance, Division of Motor Vehicles, licenses (Motor Vehicle Fund)		7,704,135 51
Refunds		201,862 05
Testing fees (Testing Fee Fund)		3,050 00
Licenses (Transfer and Operators' License Fund)		409,506 88
Licenses (Aircraft Fund)		83 15
Licenses (Aircraft Operators' Fund)		170 00
Department of Engineering, refunds (Revolving Fund)	67,883 40	
Refunds (General Fund)	52,100 31	6,719 65
Refunds (San Francisco State Building Fund)	457 31	
Department of Public Works, Division of Engineering and Irrigation, refunds and contributions (General Fund)		35,318 26
Department of Public Works, Division of Architecture, refunds (General Fund)		13,088 57
Refunds (Architectural Revolving Fund)		48,707 78
Refunds (San Francisco State Building Fund)		33,130 49
Refunds (Fish and Game Preservation Fund)		1,196 15
Refunds (Sacramento State Building Fund)		219 60
Department of Engineering, Highway, refunds (Second State High- way Fund)	402,236 39	
Refunds (Third State Highway Fund)	1,027,623 47	
Refunds (Motor Vehicle Fund)	789,130 71	

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts—Continued.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
Department of Public Works, Division of Highways, refunds (Second State Highway Fund)		\$228,991 41
Refunds (Third State Highway Fund)		571,744 56
Refunds (Motor Vehicle Fund)		1,072,876 59
Vallejo-Sears Point survey		1,000 00
Water Commission, fees, etc	\$16,209 66	
Contribution (River Lands Association)	500 00	
Contribution (San Joaquin hydrographic investigation)	7,000 00	
Refunds	3,903 91	
Department of Public Works, Division of Water Rights, fees, etc		17,242 72
Contribution (City of San Luis Obispo Cooperative Fund)		500 00
Contribution (San Joaquin hydrographic investigation)		2,000 00
Contribution (San Jacinto river investigation)		1,250 00
Refunds		2,911 49
Land Settlement Board, receipts (Land Settlement Fund)	72,821 97	
Refunds (General Fund)	99,851 90	
Interest	19,457 14	
Department of Public Works, Division of Land Settlement, receipts (Land Settlement Fund)		71,956 42
Refunds (General Fund)		95,619 42
Interest		9,506 17
Refunds		5,025 10
Industrial Accident Commission, fees (Compensation Insurance Fund)	4,706,120 23	
Receipts (Industrial Accident Fund)	2,956 00	
Receipts (Accident Prevention Fund)	143,999 52	
Death claims (Industrial Rehabilitation Fund)	22,911 25	
Refunds	4,961 39	
Department of Labor and Industrial Relations (Division of Workmen's Compensation, Insurance and Safety)—		4,690,983 44
Receipts (Compensation Insurance Fund)		2,802 55
Receipts (Industrial Accident Fund)		116,526 43
Receipts (Accident Prevention Fund)		16,497 50
Death Claims (Industrial Rehabilitation Fund)		2,095 76
Refunds		
Bureau of Labor Statistics, receipts	17,491 51	
Refunds	603 34	
Department of Labor and Industrial Relations (Division of Labor) receipts		17,581 00
Refunds		1,376 77
Immigration and Housing Commission, refunds	1,976 21	
Department of Labor and Industrial Relations (Division of Immigration and Housing) refunds		209 98
Industrial Welfare Commission, contribution (Canners' Auditing Fund)	13,708 40	
Refunds	1,156 94	
Department of Labor and Industrial Relations (Division of Industrial Welfare) contribution (Canners' Auditing Fund)		16,237 56
Refunds		1,014 81
Lunacy Commission, receipts	6,192 55	
Refunds	1,956 61	
Department of Institutions, receipts		5,801 82
Refunds		2,467 13
From appropriations of various institutions for support		27,156 23
Sundry banks, unclaimed deposits	510 95	1,617 00
Superintendent of Banks, banks in liquidation	9,871 52	42,086 88
Interest on judgment, E. Marre Estate Company	18 52	
L. Marre, rent of land sold to State for taxes	300 00	100 00
Ford Motor Company, interest account franchise tax and cost of trials		5,447 75
Board of Forestry, refunds and contributions	1,808 99	7,887 36
City of Redding Condemnation Fund (special deposit)		57,356 18
First National Bank of Santa Barbara, costs of suit		48 27
University of California, sale of reports		3 75
San Quentin Prison, receipts (Prison Fund)	119,921 31	44,090 12
Receipts (Jute Revolving Fund)	174,391 15	228,639 46
Receipts (Manufacturing Revolving Fund)	125,394 27	124,632 83
Refunds	705 00	1,443 09
Folsom Prison, receipts (Prison Fund)	19,403 98	20,265 22
Refunds	9,756 66	8,706 43
Preston School of Industry, receipts	2,541 35	940 16
Refunds	1,000 00	4,661 43
Whittier State School, receipts	21,784 46	25,919 59
Refunds	959 63	5,076 60
Training School for Girls, receipts	292 56	1,359 34
Refunds	707 21	551 79
Agnews Hospital, receipts	107,640 69	103,819 92
Refunds	1,670 67	960 99

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts—Continued.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
Mendocino Hospital, receipts.....	\$109,539 51	\$126,771 50
Refunds.....	1,000 10	901 39
Napa Hospital, receipts.....	137,205 00	132,822 79
Refunds.....	2,370 26	1,820 68
Napa Farm, receipts.....	31,512 26	-----
Refunds (Emergency Revolving Fund).....	196,884 01	-----
Norwalk Hospital, receipts.....	28,610 64	31,119 62
Refunds.....	5,577 02	5,181 46
Stockton Hospital, receipts.....	102,198 06	89,537 98
Refunds.....	1,461 49	5,955 24
Southern California Hospital, receipts.....	103,295 99	103,349 13
Refunds.....	2,254 84	887 44
Sonoma Home, receipts.....	46,969 57	50,064 46
Refunds.....	928 12	1,618 34
Pacific Colony, receipts.....	4,467 99	5,592 05
Refunds.....	-----	250 00
Industrial Farm for Women, receipts.....	123 00	227 20
Refunds.....	125 00	7,467 32
Home for Adult Blind, receipts.....	65,644 29	52,926 09
Refunds.....	500 00	135 65
School for Deaf and Blind, receipts.....	14,335 85	12,831 02
Refunds.....	522 59	892 98
California Polytechnic School, receipts.....	28,402 94	55,646 85
Refunds.....	862 60	992 96
*Chico Normal School (Teachers College), receipts.....	13,882 00	20,428 43
Refunds and contributions.....	-----	2,937 50
*Fresno Normal School (Teachers College), receipts.....	2,740 82	11,198 52
Refunds and contributions.....	782 33	4,687 50
*Humboldt Normal School (Teachers College), receipts.....	91 75	661 90
Refunds.....	18 00	1,408 39
*San Diego Normal School (Teachers College), receipts.....	6,533 74	9,260 72
Refunds and contributions.....	2 24	13,050 00
*San Francisco Normal School (Teachers College), receipts.....	226 40	2,488 09
Refunds.....	44 00	60 00
*San Jose Normal School (Teachers College), receipts.....	2,630 83	4,028 56
Refunds.....	40 41	1,404 35
*Santa Barbara Normal School (Teachers College), receipts.....	3,942 13	4,193 62
Refunds and contributions.....	6,435 57	2,557 24
Veterans' Home, receipts.....	28,433 86	16,199 64
Refunds.....	11 92	271 92
Reclamation Board, refunds (Revolving Fund).....	118,921 31	100,566 46
Refunds (General Fund).....	1,304 54	-----
Attorney General, refunds.....	941 88	373 02
Adjutant General, refunds.....	2,252 70	7,172 50
Thomas A. Brown, Sergeant-at-arms Senate, refund.....	8 00	-----
Sundry counties, account excess payment on bonded indebtedness.....	1,832 04	1,276 51
Civil Service Commission, refunds.....	520 32	687 94
Board of Charities and Corrections, refunds.....	961 02	539 07
Bureau of Criminal Identification, refunds.....	217 00	109 00
P. F. Courneen, salary Superior Judge H. M. Owen, deceased.....	16 10	-----
A. R. Fink, agent, refund.....	16 96	60 32
First Federal Trust Company, salary George D. Leslie, deceased.....	753 33	-----
Hickman-Coleman Company, refunds.....	33 96	-----
A. J. Messier, Assistant Secretary, Board of Health, refund.....	133 35	-----
Mrs. Mary Lewis, salary Superior Judge T. L. Lewis, deceased.....	6 70	-----
E. Langford, attache Assembly, refund.....	10 00	-----
Legislative Counsel Bureau, refunds.....	2,036 46	655 00
Chas. H. Lee, refund.....	416 65	-----
J. B. Kavanaugh, Chief Clerk Assembly, refund.....	639 84	101 63
J. B. McFarland, refund.....	75 54	-----
R. P. Merritt, Federal Food Commissioner, refund.....	50 00	-----
Edith F. Moore, refund.....	22 91	-----
Alma McKinnon, refund.....	64 11	-----
P. C. Phillips, Minute Clerk Assembly, refund.....	49 00	-----
Isabella H. Prie, refund.....	57 14	-----
E. C. Pennock, refund.....	200 00	-----
F. J. Rodriguez, Clerk San Luis Obispo County.....	1 00	-----
Sundry sheriffs, refunds.....	43 69	15 00
Soldiers Employment Committee, refunds.....	533 50	-----
William Schleip, refund.....	188 70	-----
W. H. Sutton, refund.....	150 00	-----
Grace Stoermer, Secretary Senate, refund.....	38 90	-----
University of California, refund.....	18,912 27	-----
D. R. Weller, Justice District Court of Appeal, refund.....	37 65	-----
L. R. Works, Superior Judge, refund.....	16 15	-----
P. C. Albertson, refund.....	-----	82

*Changed to Teachers Colleges during seventy-third fiscal year.

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit C. Receipts—Concluded.

From what source	Seventy-second fiscal year	Seventy-third fiscal year
Harriet Bird, refund		\$49 88
J. C. Carly Company, refund		73 35
Board of Equalization, refunds		257 91
J. C. Hayburn Company, refund		4 15
McKinley Orphanage, refund		8 67
R. R. Paulson, refund		2 33
Robertson-Govan Company, refund		44 00
Grace Notermer, Secretary of Senate, refund		11 25
Florence B. Shackelford, refund		133 30
E. B. Rugh, refund		1 88
Veterans' Welfare Board, refund		25 00
B. E. Tarvei, refund		33 33
A. T. Trainor, refund		9 86
Actual receipts	\$68,525,160 17	\$95,764,903 55
Canceled warrants	2,710 28	2,369 58
<i>Transfers.</i>		
Transferred from—		
San Francisco Harbor Improvement Fund to San Francisco Seawall Sinking Fund	\$133,106 96	\$127,972 21
San Francisco Harbor Improvement Fund to Second San Francisco Seawall Sinking Fund	360,000 00	360,000 00
San Francisco Harbor Improvement Fund to Third San Francisco Seawall Sinking Fund	80,000 00	99,444 44
San Francisco Harbor Improvement Fund to India Basin Sinking Fund	34,120 00	34,120 00
Second San Francisco Seawall Sinking Fund to General Fund	60,000 00	60,000 00
Third San Francisco Seawall Sinking Fund to General Fund	13,333 32	16,111 10
India Basin Sinking Fund to General Fund	5,686 66	5,686 66
General Fund to First Highway Interest and Sinking Fund	1,456,000 00	1,040,000 00
General Fund to San Francisco Building Interest and Sinking Fund	76,000 00	35,200 00
General Fund to San Francisco Building Interest and Sinking Fund (account redemption)		20,000 00
General Fund to Sacramento Building Interest and Sinking Fund	107,261 50	74,240 00
General Fund to Veterans' Home Fund	180,000 00	220,000 00
General Fund to State Library Fund	125,000 00	147,950 00
General Fund to Teachers' Permanent Fund	133,907 93	340,236 60
Teachers' Permanent Fund to Teachers' Retirement Salary Fund	412,500 00	262,340 00
General Fund to State University Fund	1,399,758 05	1,882,849 83
Industrial Rehabilitation Fund to Accident Prevention Fund	7,623 58	5,000 00
General Fund to Vocational Education Fund	82,387 82	118,440 67
General Fund to Insurance Commissioners' Special Fund	60,000 00	
General Fund to Market Commission Fund	20,000 00	18,620 00
General Fund to State School Fund	7,038,232 50	12,658,092 05
General Fund to State High School Fund	1,161,173 92	2,802,429 90
General Fund to Second San Francisco Seawall Sinking Fund	60,000 00	60,000 00
General Fund to Third San Francisco Seawall Sinking Fund	13,333 32	19,444 44
General Fund to India Basin Sinking Fund	5,686 66	5,686 66
General Fund to Second Highway Interest and Sinking Fund	609,500 00	655,750 00
General Fund to Third Highway Interest and Sinking Fund	224,240 45	982,077 30
General Fund to University State Building Interest and Sinking Fund (account interest)	80,100 00	78,300 00
General Fund to University State Building Interest and Sinking Fund (account redemption)	40,000 00	40,000 00
General Fund to Interest and Sinking Fund	141,435 00	141,435 00
Bond Investment Fund to General Fund	13,634 24	108,573 13
Bond Investment Fund to School Land Fund	113,634 23	108,573 12
Real Estate Commission Fund to General Fund	137,785 43	35,763 13
Transfer and Operators' License Fee Fund to Motor Vehicle Fund (Motor Vehicle Department)	923 30	
General Fund to School Book Fund	255,000 00	527,000 00
General Fund to Ballot Paper Revolving Fund	20,000 00	
School Fund to School Land Fund	151 20	
Compensation Insurance Fund to General Fund		100,000 00
General Fund to Water Commission Revolving Fund		50,000 00
General Fund to Land Settlement Fund		750,000 00
General Fund to Division of Chemistry Fund		5,791 01
School Land Fund to Estates Deceased Persons Fund		5,000 00
General Fund to Vocational Rehabilitation Fund		24,414 09
Standardization Fund to Warehouse Standardization Fund		312 00
University Fund to State University Fund (account error)		24,922 50
General Fund to Veterans' Welfare Fund		450,000 00
General Fund to Veterans' Farm and Home Building Fund		950,000 00
Tax Land Fund to Veterans' Dependents' Education Fund		755 01
Totals	\$14,661,516 07	\$25,452,530 85

GENERAL SUMMARY OF THE FUNDS—Continued.

Summary of Exhibit C. Receipts.

From what source.	Seventy-second fiscal year	Seventy-third fiscal year
Receipts.....	\$68,525,160 17	\$95,764,903 55
Transfers.....	14,661,516 07	25,452,530 85
Canceled warrants.....	2,710 28	2,369 58
Totals.....	\$83,189,386 52	\$121,219,803 98

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit D. Showing the Receipts by the Several Funds for the Seventy-second Fiscal Year, Ending June 30, 1921.

Funds	Cash receipts	Transfers and canceled warrants	Total receipts
Accident Prevention Fund	\$143,999 52	\$7,623 58	\$151,623 10
Adult Blind Fund	65,644 29		65,644 29
Agnews Hospital Contingent Fund	107,640 69		107,640 69
Agricultural Society Contingent Fund	126,285 09		126,285 09
Apple Standard Prosecution Fund	31,994 22		31,994 22
Ballot Paper Revolving Fund	48,630 09	20,000 00	68,630 09
Banking Fund	143,548 08		143,548 08
Bond Investment Fund	227,268 47		227,268 47
Building and Loan Inspection Fund	12,990 64		12,990 64
California Irrigation Board Revolving Fund			28,402 94
California Polytechnic School Contingent Fund	28,402 94		28,402 94
California School, Deaf and Blind Contingent Fund	14,335 85		14,335 85
California Training School for Girls Contingent Fund	292 56		292 56
Cattle Protection Fund	64,311 40		64,311 40
Chico Normal School Contingent Fund	13,882 00		13,882 00
Compensation Insurance Fund	7,167,470 26		7,167,470 26
Corporation Commission Fund	214,935 86		214,935 86
Court of Appeal, First District, Library Fund	1,370 60		1,370 60
Court of Appeal, Second District, Library Fund	1,719 02		1,719 02
Court of Appeal, Third District, Library Fund	420 75		420 75
Dentistry Fund	16,195 07		16,195 07
Department of Engineering Revolving Fund	67,883 40		67,883 40
Detective License Fee Fund	950 00		950 00
Dissolved Savings Bank Fund	5,394 30		5,394 30
Estates of Deceased Persons Fund	119,270 51		119,270 51
Embalming School Fund			20,176 06
Fish Exchange Fund	20,176 06		20,176 06
Fish and Game Preservation Fund	513,031 24		513,031 24
Folsom Hospital Contingent Fund			19,403 98
Folsom Prison Fund	19,403 98		19,403 98
Forestry Fund			2,740 82
Fresno Normal School Contingent Fund	2,740 82		2,740 82
General Fund	36,695,752 45	233,133 77	36,928,786 22
High School Fund		1,161,173 92	1,161,173 92
Highway Fund			1,456,000 00
Highway Interest and Sinking Fund		1,456,000 00	1,456,000 00
Humboldt Normal School Contingent Fund	91 75		91 75
India Basin Fund			39,806 66
India Basin Sinking Fund		39,806 66	39,806 66
Industrial Rehabilitation Fund	22,911 25		22,911 25
Industrial Accident Fund	2,956 90		2,956 90
Industrial Farm for Women Contingent Fund	123 00		123 00
Insurance Commissioner's Special Fund	176 93	60,000 00	60,176 93
Interest and Sinking Fund		141,435 00	141,435 00
Jute Revolving Fund	174,391 15		174,391 15
Kern Co., Union High School Dist. Condemnation Fd.			17,491 51
Labor Bureau Contingent Fund	17,491 51		17,491 51
Land Settlement Fund	72,821 97		72,821 97
Library Fund	527 22	125,000 00	125,527 22
Los Angeles Normal School Bldg. and Imp. Fund			21,062 74
Los Angeles Normal School Contingent Fund	21,062 74	20,000 00	41,062 74
Malibu Ranch Land Condemnation Fund			1,865 00
Market Commission Fund	1,062 74	20,000 00	21,062 74
Meat Hygiene Fund	1,865 00		1,865 00
Medical Examiners' Contingent Fund	101,883 53		101,883 53
Mendocino Hospital Contingent Fund	109,539 51		109,539 51
Mining Bureau Fund	4,737 84		4,737 84
Motor Vehicle Fund	7,339,828 65	923 30	7,340,751 95
Napa Hospital Contingent Fund	137,205 00		137,205 00
Napa State Farm Contingent Fund	31,512 26		31,512 26
Nautical School Fund			
Needles School District Bond Fund			
Norwalk Hospital Contingent Fund	28,610 64		28,610 64
Nurses' Examination and Registration Fund	13,791 23		13,791 23
Operators' License Fund			
Optometry Fund	4,165 50		4,165 50
Pacific Colony Contingent Fund	4,467 99		4,467 99
Panama-California International Exposition Fund	457 77		457 77
Panama-Pacific International Exposition Fund			
Pharmacy Board Contingent Fund	16,278 66		16,278 66
Petroleum and Gas Fund	131,405 72		131,405 72
Predatory Animal Fund			
Preston School of Industry Contingent Fund	2,541 35		2,541 35

GENERAL SUMMARY OF THE FUNDS—Concluded.

Exhibit D. Showing the Receipts by the Several Funds for the Seventy-second Fiscal Year, Ending June 30, 1921—Concluded.

Funds	Cash receipts	Transfers and canceled warrants	Total receipts
Printing Fund	\$581,196 63	\$5 20	\$581,201 83
Prohibition Enforcement Fund			
Purchasing Department Revolving Fund	463,655 79		463,655 79
Railroad Commission Fund	115,577 00		115,577 00
Railway Tax Fund			
Real Estate Commissioner's Fund, 1917			
Real Estate Commission Fund, 1919	18,583 64		18,583 64
Real Estate Commission Fund, 1921	120,210 05		120,210 05
Reclamation Board Revolving Fund	116,419 43		116,419 43
Sacramento State Building Fund			
Sacramento State Building, Interest and Sinking Fund	2,205 00	107,261 50	109,466 50
Sacramento Drainage District Fund			
Sacramento and San Joaquin Drainage Dist. Fund 1	31,378 72		31,378 72
Sacramento and San Joaquin Drainage Dist. Fund 2			
Sacramento and San Joaquin Drainage Dist. Fund 3	5,999 31		5,999 31
Sacramento and San Joaquin Drainage Dist. Fund 4	52 81		52 81
Sacramento and San Joaquin Drainage Dist. Fund 5			
Sacramento and San Joaquin Drainage Dist. Fund 6	51 37		51 37
San Diego Harbor Improvement Fund	903 79		903 79
San Diego Normal School Contingent Fund	6,533 74		6,533 74
San Francisco Harbor Improvement Fund	2,420,678 96	10 96	2,420,689 92
San Francisco State Building Fund	457 31		457 31
San Francisco State Building Sinking Fund		76,000 00	76,000 00
San Francisco Seawall Sinking Fund		133,106 96	133,106 96
San Francisco Normal School Contingent Fund	226 40		226 40
San Francisco Normal School Expos. Preservat. Fund			
San Jose Harbor Improvement Fund			
San Jose Normal School Contingent Fund	2,630 83		2,630 83
San Quentin Prison Fund	119,921 31		119,921 31
San Quentin Prison Manufacturing Revolving Fund	125,394 27		125,394 27
Santa Barbara Normal School Contingent Fund	3,942 13		3,942 13
School Fund	433,695 56	7,038,232 50	7,471,928 06
School Book Fund	29,541 27	255,000 00	284,541 27
School Land Fund	517,526 39	113,785 43	631,311 82
School Land Deposit Fund	20 00		20 00
School Teachers' Permanent Fund	373,431 42	133,907 93	507,339 35
School Teachers' Retirement Salary Fund	2,469 08	412,500 00	414,969 08
Second Highway Fund	1,402,236 39		1,402,236 39
Second Highway Interest and Sinking Fund	20,500 00	609,500 00	630,000 00
Second Highway Revolving Fund			
Second San Francisco Seawall Fund			
Second San Francisco Seawall Sinking Fund		420,000 00	420,000 00
Sixth District Agricultural Ass'n Contingent Fund	1,734 94		1,734 94
Sonoma Home Contingent Fund	46,969 57		46,969 57
Southern California Hospital Contingent Fund	103,295 99		103,295 99
Stallion Registration Board Contingent Fund	775 50		775 50
State University Fund		1,399,758 05	1,399,758 05
Stockton Hospital Contingent Fund	102,198 06		102,198 06
Supt. Capitol Building and Grounds Revolving Fund			
Supreme Court Library Fund	1,729 15		1,729 15
Testing Fee Fund	1,650 00		1,650 00
Textbook Royalty Fund			
Third Highway Fund	6,422,264 01		6,422,264 01
Third Highway Interest and Sinking Fund	58,749 55	224,240 45	282,990 00
Third Highway Revolving Fund			
Third San Francisco Seawall Fund			
Third San Francisco Seawall Sinking Fund		93,333 32	93,333 32
Torrens Title Assurance Fund	2,928 36		2,928 36
Transfer and Operators' License Fund	317,034 97		317,034 97
United States Forest Reserve Fund	181,003 31		181,003 31
University Fund	49,845 00		49,845 00
University Calif. Building Interest and Sinking Fund		120,100 00	120,100 00
Veterans' Home, Support and Maintenance Fund	102,740 65	180,000 00	282,740 65
Veterinary Medicine Examiners' Contingent Fund	400 00		400 00
Vocational Education Fund	92,387 82	82,387 82	174,775 64
War Bond Fund			
Whittier School Contingent Fund	21,784 46		21,784 46
Bar Examination Fund	5,445 00		5,445 00
Totals	\$68,525,160 17	\$14,664,226 35	\$83,189,386 52

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit E. Showing the Receipts by the Several Funds, for the Seventy-third Fiscal Year, Ending June 30, 1922.

Funds	Cash receipts	Transfers and canceled warrants	Total receipts
Accident Prevention Fund	\$116,526 43	\$5,000 00	\$121,526 43
Adult Blind Fund	52,926 09		52,926 09
Agnews Hospital Contingent Fund	103,819 92		103,819 92
Agricultural Society Contingent Fund	119,458 33		119,458 33
Apple Standard Prosecution Fund	26,585 44		26,585 44
Architectural Revolving Fund	48,707 78		48,707 78
Ballot Paper Revolving Fund	4,286 33		4,286 33
Bar Examination Fund	8,985 00		8,985 00
Banking Fund	187,039 30		187,039 30
Bond Investment Fund	217,146 25		217,146 25
Building and Loan Inspection Fund	13,873 09		13,873 09
California Irrigation Board Revolving Fund			
California Polytechnic School Contingent Fund	55,646 85		55,646 85
California School, Deaf and Blind Contingent Fund	12,831 02		12,831 02
California Training School for Girls Contingent Fund	1,359 34		1,359 34
Cattle Protection Fund	69,035 66		69,035 66
Chemistry Fund	27,144 36	5,791 01	32,935 37
Chico Normal School Contingent Fund	20,428 43		20,428 43
Compensation Insurance Fund	6,611,522 80		6,611,522 80
Corporation Commission Fund	232,989 11		232,989 11
Court of Appeal, First District, Library Fund	1,609 32		1,609 32
Court of Appeal, Second District, Library Fund	2,109 12		2,109 12
Court of Appeal, Third District, Library Fund	400 00		400 00
Dentistry Fund	15,441 18		15,441 18
Detective License Fee Fund	1,200 00		1,200 00
Dissolved Savings Bank Fund	3,487 50		3,487 50
Estates of Deceased Persons Fund	156,527 54	5,074 04	161,601 58
Fish Exchange Fund	21,457 44		21,457 44
Fish and Game Preservation Fund	558,956 35		558,956 35
Folsom Hospital Contingent Fund			
Folsom Prison Fund	20,265 22		20,265 22
Forestry Fund			
Fresno Normal School Contingent Fund	11,198 52		11,198 52
General Fund	43,747,171 23	328,397 17	44,075,568 40
Grain Standardization Fund	2,224 74		2,224 74
High School Fund		2,802,429 90	2,802,429 90
Highway Fund No. 1			
Highway Interest and Sinking Fund No. 1		1,040,000 00	1,040,000 00
Highway Fund No. 2	1,558,003 23		1,558,003 23
Highway Interest and Sinking Fund No. 2	19,250 00	655,750 00	675,000 00
Highway Fund No. 3	20,435,973 13		20,435,973 13
Highway Interest and Sinking Fund No. 3	154,707 70	982,077 30	1,136,785 00
Humboldt Normal School Contingent Fund	661 90		661 90
India Basin Fund			
India Basin Sinking Fund		39,806 66	39,806 66
Industrial Rehabilitation Fund	16,497 50		16,497 50
Industrial Accident Fund	2,802 55		2,802 55
Industrial Farm for Women Contingent Fund	227 20		227 20
Insurance Commissioner's Special Fund	60,008 00		60,008 00
Interest and Sinking Fund		141,435 00	141,435 00
Junior College Fund	777,061 32		777,061 32
Junior Revolving Fund	228,639 46		228,639 46
Kern Co. Union High School Dist. Condemnation Fd.			
Labor Bureau Contingent Fund	17,581 00		17,581 00
Land Settlement Fund	71,956 42	750,000 00	821,956 42
Library Fund	1,384 48	147,950 00	149,334 48
Los Angeles Normal School Bldg. and Imp. Fund			
Market Commission Fund	1,143 82	18,620 00	19,763 82
Meat Hygiene Fund	7,875 35		7,875 35
Medical Examiners' Contingent Fund	86,817 57		86,817 57
Mendocino Hospital Contingent Fund	126,771 50		126,771 50
Mining Bureau Fund	6,877 85		6,877 85
Motor Vehicle Fund	9,016,982 29		9,016,982 29
Napa Hospital Contingent Fund	132,822 79		132,822 79
Napa State Farm Contingent Fund	36,909 72		36,909 72
Nautical School Fund			
Needles School District Bond Fund			
Norwalk Hospital Contingent Fund	31,119 62		31,119 62
Nurses' Examination and Registration Fund	19,875 75		19,875 75
Operators' License Fund			
Optometry Fund	6,758 85		6,758 85
Pacific Colony Contingent Fund	5,592 05		5,592 05
Panama-California International Exposition Fund			
Panama-Pacific International Exposition Fund			
Pharmacy Board Contingent Fund	6,912 17		6,912 17
Petroleum and Gas Fund	148,249 94		148,249 94

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit E. Showing the Receipts by the Several Funds, for the Seventy-third Fiscal Year, Ending June 30, 1922—Concluded.

Funds	Cash receipts	Transfers and canceled warrants	Total receipts
Predatory Animal Control Fund.....			
Preston School of Industry Contingent Fund.....	804 16		894 16
Printing Fund.....	514,020 65		514,020 65
Purchasing Department Revolving Fund.....	281,366 42		281,366 42
Railroad Commission Fund.....	113,696 92		113,696 92
Railway Tax Fund.....			
Real Estate Commission Fund, 1921.....	15,265 20		15,265 20
Real Estate Commission Fund, 1922.....	143,420 97		143,420 97
Receivers' Fund.....			
Reclamation Board Revolving Fund.....	100,566 46		100,566 46
Sacramento State Building Fund.....	2,860,219 60		2,860,219 60
Sacramento State Building, Interest and Sinking Fund.....	50,590 00	\$74,240 00	124,830 00
Sacramento Drainage District Fund.....			
Sacramento and San Joaquin Drainage Dist. Fund 1.....	32,211 58		32,211 58
Sacramento and San Joaquin Drainage Dist. Fund 2.....			
Sacramento and San Joaquin Drainage Dist. Fund 3.....	4,619 58		4,619 58
Sacramento and San Joaquin Drainage Dist. Fund 4.....			
Sacramento and San Joaquin Drainage Dist. Fund 5.....			
Sacramento and San Joaquin Drainage Dist. Fund 6.....	48,523 93		48,523 93
Sacramento and San Joaquin Drainage Dist. Fund 7.....			
Sacramento and San Joaquin Drainage Dist. Fund 8.....			
San Diego Harbor Improvement Fund.....	739 45		739 45
San Diego Normal School Contingent Fund.....	9,260 72		9,260 72
San Francisco Harbor Improvement Fund.....	2,438,358 58		2,438,358 58
San Francisco State Building Fund.....	33,130 49		33,130 49
San Francisco State Building Sinking Fund.....		55,200 00	55,200 00
San Francisco Seawall Sinking Fund No. 1.....		127,972 21	127,972 21
San Francisco Seawall Fund No. 2.....			
San Francisco Seawall Sinking Fund No. 2.....		420,000 00	420,000 00
San Francisco Seawall Fund No. 3.....	1,000,000 00		1,000,000 00
San Francisco Seawall Sinking Fund No. 3.....	17,222 22	118,888 88	136,111 10
San Francisco Normal School Contingent Fund.....	2,488 09		2,488 09
San Jose Harbor Improvement Fund.....			
San Jose Normal School Contingent Fund.....	4,028 56		4,028 56
San Joaquin Normal School Fund.....	44,090 12		44,090 12
San Joaquin Normal School Manufacturing Revolving Fund.....	124,632 83		124,632 83
Santa Barbara Normal School Contingent Fund.....	4,193 62		4,193 62
School Fund.....	459,850 72	12,658,092 05	13,117,942 77
School Book Fund.....	12,820 48	527,000 00	539,820 48
School Land Fund.....	430,871 30	108,585 51	539,456 81
School Land Deposit Fund.....		20 00	20 00
School Teachers' Permanent Fund.....	314,679 79	340,236 60	654,916 39
School Teachers' Retirement Salary Fund.....	2,175 04	262,340 00	264,515 04
Sixth District Agricultural Ass'n Contingent Fund.....	744 28		744 28
Sonoma Home Contingent Fund.....	50,064 46		50,064 46
Southern California Hospital Contingent Fund.....	103,349 13		103,349 13
Stallion Registration Board Contingent Fund.....	714 00		714 00
Standardization Fund.....	26,973 09		26,973 09
State University Fund.....		1,907,772 33	1,907,772 33
Stockton Hospital Contingent Fund.....	89,537 98		89,537 98
Supt. Capitol Building and Grounds Revolving Fund.....			
Supreme Court Library Fund.....	1,737 70		1,737 70
Tax Land Fund.....	755 01		755 01
Testing Fee Fund.....	3,050 00		3,050 00
Textbook Royalty Fund.....			
Torrens Title Assurance Fund.....	1,156 90		1,156 90
Transfer and Operators' License Fund.....	409,506 88		409,506 88
United States Forest Reserve Fund.....	166,450 18		166,450 18
University Fund.....	49,845 00		49,845 00
University Calif. Building Interest and Sinking Fund.....		118,300 00	118,300 00
Veterans' Dependents Education Fund.....		755 01	755 01
Veterans' Home, Support and Maintenance Fund.....	92,579 64	220,000 00	312,579 64
Veterans' Farm and Home Building Fund.....		950,000 00	950,000 00
Veterans' Welfare Fund.....		450,000 00	450,000 00
Veterinary Medicine Examiners' Contingent Fund.....	230 00		230 00
Vocational Education Fund.....	141,365 11	118,440 67	259,805 78
Vocational Rehabilitation Fund.....	24,465 63	24,414 09	48,879 72
War Bond Fund.....			
Whittier School Contingent Fund.....	25,919 59		25,919 59
Water Commission Revolving Fund.....		50,000 00	50,000 00
City of Redding and Northern California Power Co. Condemnation Fund.....	57,356 18		57,356 18
Los Angeles-Rindge Condemnation Fund.....	2,000 00		2,000 00
Warehouse Standardization Fund.....	1,043 31	312 00	1,355 31
Aircraft Fund.....	83 15		83 15
Aircraft Operators' Fund.....	170 00		170 00
Totals.....	\$95,764,903 55	\$25,454,900 43	\$121,219,803 98

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit F. Showing the Disbursements from the Several Funds, for the Seventy-second Fiscal Year, Ending June 30, 1921.

Funds	Register disbursements	Transfers	Total disbursements
Accident Prevention Fund.....	\$150,929 32		\$150,929 32
Adult Blind Fund.....	59,938 97		59,938 97
Agnews Hospital Contingent Fund.....	107,638 16		107,638 16
Agricultural Society Contingent Fund.....	107,591 58		107,591 58
Apple Standard Prosecution Fund.....	33,946 41		33,946 41
Ballot Paper Revolving Fund.....	69,059 29		69,059 29
Banking Fund.....	137,987 52		137,987 52
Bond Investment Fund.....		\$227,268 47	227,268 47
Building and Loan Inspection Fund.....	11,614 30		11,614 30
California Irrigation Board Revolving Fund.....			
California Polytechnic School Contingent Fund.....	30,172 96		30,172 96
California School, Deaf and Blind Contingent Fund.....	17,492 45		17,492 45
California Training School for Girls Contingent Fund.....	309 15		309 15
Cattle Protection Fund.....	62,751 15		62,751 15
Chico Normal School Contingent Fund.....	15,606 48		15,606 48
Compensation Insurance Fund.....	7,224,310 59		7,224,310 59
Corporation Commission Fund.....	121,217 17		121,217 17
Court of Appeal, First District, Library Fund.....	2,552 33		2,552 33
Court of Appeal, Second District, Library Fund.....	8,171 99		8,171 99
Court of Appeal, Third District, Library Fund.....	507 26		507 26
Dentistry Fund.....	16,808 26		16,808 26
Department of Engineering Revolving Fund.....	68,545 30		68,545 30
Detective License Fee Fund.....	869 38		869 38
Dissolved Savings Bank Fund.....			
Estates of Deceased Persons Fund.....	268,323 19		268,323 19
Embalming School Fund.....			
Fish Exchange Fund.....	19,129 48		19,129 48
Fish and Game Preservation Fund.....	611,751 95		611,751 95
Folsom Hospital Contingent Fund.....			
Folsom Prison Fund.....	13,756 28		13,756 28
Forestry Fund.....			
Fresno Normal School Contingent Fund.....	2,369 09		2,369 09
General Fund.....	18,605,699 76	13,289,017 15	31,894,686 91
High School Fund.....	1,162,403 16		1,162,403 16
Highway Fund.....			
Highway Interest and Sinking Fund.....	1,456,000 00		1,456,000 00
Humboldt Normal School Contingent Fund.....	44 20		44 20
India Basin Fund.....			
India Basin Sinking Fund.....	34,120 00	5,686 66	39,806 66
Industrial Rehabilitation Fund.....	19,323 69	7,623 58	26,947 27
Industrial Accident Fund.....	5,933 28		5,933 28
Industrial Farm for Women Contingent Fund.....			
Insurance Commissioner's Special Fund.....	58,712 58		58,712 58
Interest and Sinking Fund.....	141,435 00		141,435 00
Jute Revolving Fund.....	248,092 88		248,092 88
Kern Co. Union High School Dist. Condemnation Fd.....			
Labor Bureau Contingent Fund.....	10,553 70		10,553 70
Land Settlement Fund.....	84,278 60		84,278 60
Library Fund.....	139,789 01		139,789 01
Los Angeles Normal School Bldg. and Imp. Fund.....			
Los Angeles Normal School Contingent Fund.....	160 84		160 84
Malibu Ranch Land Condemnation Fund.....			
Market Commission Fund.....	23,903 60		23,903 60
Meat Hygiene Fund.....	1,383 81		1,383 81
Medical Examiners' Contingent Fund.....	80,771 70		80,771 70
Mendocino Hospital Contingent Fund.....	104,548 06		104,548 06
Mining Bureau Fund.....	4,510 46		4,510 46
Motor Vehicle Fund.....	6,601,750 78		6,601,750 78
Napa Hospital Contingent Fund.....	158,797 86		158,797 86
Napa State Farm Contingent Fund.....	34,710 98		34,710 98
Nautical School Fund.....			
Needles School District Bond Fund.....			
Norwalk Hospital Contingent Fund.....	33,040 37		33,040 37
Nurses' Examination and Registration Fund.....	11,523 20		11,523 20
Operators' License Fund.....	6 50		6 50
Optometry Fund.....	3,600 52		3,600 52
Pacific Colony Contingent Fund.....			
Panama-California International Exposition Fund.....	29,330 94		29,330 94
Panama-Pacific International Exposition Fund.....	328 90		328 90
Pharmacy Board Contingent Fund.....			
Petroleum and Gas Fund.....	150,852 08		150,852 08
Predatory Animal Fund.....			
Preston School of Industry Contingent Fund.....	12,622 34		12,622 34

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit F. Showing the Disbursements from the Several Funds, for the Seventy-second Fiscal Year, Ending June 30, 1921—Concluded.

Funds	Register disbursements	Transfers	Total disbursements
Printing Fund	\$532,780 05		\$532,780 05
Prohibition Enforcement Fund			
Purchasing Department Revolving Fund	432,222 67		432,222 67
Railroad Commission Fund	216,710 96		216,710 96
Railway Tax Fund			
Real Estate Commissioners' Fund, 1919	42,294 73	\$37,785 43	80,080 16
Real Estate Commission Fund, 1921	39,840 19		39,840 19
Receivers' Fund			
Reclamation Board Revolving Fund	111,712 85		111,712 85
Sacramento State Building Fund	1,579 67		1,579 67
Sacramento State Building, Interest and Sinking Fund	56,533 33		56,533 33
Sacramento Drainage District Fund			
Sacramento and San Joaquin Drainage Dist. Fund 1	15,530 46		15,530 46
Sacramento and San Joaquin Drainage Dist. Fund 2	161,086 00		161,086 00
Sacramento and San Joaquin Drainage Dist. Fund 3	12,725 94		12,725 94
Sacramento and San Joaquin Drainage Dist. Fund 4	192 14		192 14
Sacramento and San Joaquin Drainage Dist. Fund 5	291 94		291 94
Sacramento and San Joaquin Drainage Dist. Fund 6	1,860,893 38		1,860,893 38
San Diego Harbor Improvement Fund			
San Diego Normal School Contingent Fund	6,547 50		6,547 50
San Francisco Harbor Improvement Fund	1,651,852 41	607,226 96	2,259,079 37
San Francisco State Building Fund	428,460 27		428,460 27
San Francisco State Building Sinking Fund	76,000 00		76,000 00
San Francisco Seawall Sinking Fund	131,300 00		131,300 00
San Francisco Normal School Contingent Fund	5,562 66		5,562 66
San Francisco Normal School Expos. Preservat. Fund			
San Jose Harbor Improvement Fund			
San Jose Normal School Contingent Fund	1,823 91		1,823 91
San Quentin Prison Fund	313,476 53		313,476 53
San Quentin Prison Manufacturing Revolving Fund	120,932 77		120,932 77
Santa Barbara Normal School Contingent Fund	4,503 26		4,503 26
School Fund	7,471,525 49	151 20	7,471,676 69
School Book Fund	413,521 00		413,521 00
School Land Fund	935,913 32		935,913 32
School Land Deposit Fund	2,140 00		2,140 00
School Teachers' Permanent Fund	133,293 36	412,500 00	545,793 36
School Teachers' Retirement Salary Fund	414,999 13		414,999 13
Second Highway Fund	1,383,104 59		1,383,104 59
Second Highway Interest and Sinking Fund	630,000 00		630,000 00
Second Highway Revolving Fund			
Second San Francisco Seawall Fund			
Second San Francisco Seawall Sinking Fund	360,000 00	60,000 00	420,000 00
Sixth District Agricultural Ass'n Contingent Fund	483 33		483 33
Sonoma Home Contingent Fund	62,852 31		62,852 31
Southern California Hospital Contingent Fund	111,016 80		111,016 80
Stallion Registration Board Contingent Fund	778 94		778 94
State University Fund	1,399,758 05		1,399,758 05
Stockton Hospital Contingent Fund	140,640 46		140,640 46
Supt. Capitol Building and Grounds Revolving Fund			
Supreme Court Library Fund	1,979 70		1,979 70
Testing Fee Fund	4,301 51		4,301 51
Textbook Royalty Fund			
Third Highway Fund	5,896,119 61		5,896,119 61
Third Highway Interest and Sinking Fund	282,990 00		282,990 00
Third Highway Revolving Fund			
Third San Francisco Seawall Fund			
Third San Francisco Seawall Sinking Fund	80,000 00	13,333 32	93,333 32
Torrens Title Assurance Fund			
Transfer and Operators' License Fund	307,886 11	923 30	308,809 41
United States Forest Reserve Fund	181,003 31		181,003 31
University Fund	49,845 00		49,845 00
University Calif. Building Interest and Sinking Fund	120,100 00		120,100 00
Veterans' Home, Support and Maintenance Fund	275,110 40		275,110 40
Veterinary Medicine Examiners' Contingent Fund	460 77		460 77
Vocational Education Fund	154,402 90		154,402 90
War Bond Fund			
Whittier School Contingent Fund	81,492 72		81,492 72
Bar Examination Fund	4,214 00		4,214 00
Sacramento and San Joaquin Drainage Dist. Fund 7	92,181 08		92,181 08
Totals	\$65,598,516 32	\$14,661,516 07	\$80,260,032 39

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit G. Showing the Disbursements from the Several Funds, for the Seventy-third Fiscal Year, Ending June 30, 1922.

Funds	Register disbursements	Transfers	Total disbursements
Accident Prevention Fund.....	\$118,512 24		\$118,512 24
Adult Blind Fund.....	48,966 56		48,966 56
Agnews Hospital Contingent Fund.....	31,944 23		31,944 23
Agricultural Society Contingent Fund.....	111,598 14		111,598 14
Apple Standard Prosecution Fund.....	23,384 07		23,384 07
Architectural Revolving Fund.....	52,550 30		52,550 30
Ballot Paper Revolving Fund.....	4,410 11		4,410 11
Bar Examination Fund.....	5,661 44		5,661 44
Banking Fund.....	154,029 69		154,029 69
Bond Investment Fund.....		\$217,146 25	217,146 25
Building and Loan Inspection Fund.....	13,138 21		13,138 21
California Irrigation Board Revolving Fund.....			
California Polytechnic School Contingent Fund.....	46,500 56		46,500 56
California School, Deaf and Blind Contingent Fund.....	8,559 52		8,559 52
California Training School for Girls Contingent Fund.....	179 92		179 92
Cattle Protection Fund.....	72,141 80		72,141 80
Chemistry Fund.....	27,451 81		27,451 81
Chico Normal School Contingent Fund.....	19,889 13		19,889 13
Compensation Insurance Fund.....	6,480,040 15	100,000 00	6,580,040 15
Corporation Commission Fund.....	152,063 50		152,063 50
Court of Appeal, First District, Library Fund.....	1,997 03		1,997 03
Court of Appeal, Second District, Library Fund.....	2,125 89		2,125 89
Court of Appeal, Third District, Library Fund.....	1,532 45		1,532 45
Dentistry Fund.....	14,335 07		14,335 07
Detective License Fee Fund.....	1,144 33		1,144 33
Dissolved Savings Bank Fund.....	12 40		12 40
Estates of Deceased Persons Fund.....	98,696 87		98,696 87
Fish Exchange Fund.....	27,929 57		27,929 57
Fish and Game Preservation Fund.....	590,584 69		590,584 69
Folsom Hospital Contingent Fund.....			
Folsom Prison Fund.....	19,350 82		19,350 82
Forestry Fund.....	169 88		169 88
Fresno Normal School Contingent Fund.....	10,337 26		10,337 26
General Fund.....	22,195,292 91	24,097,957 55	46,293,250 46
Grain Standardization Fund.....			
High School Fund.....	2,803,092 35		2,803,092 35
Highway Fund No. 1.....			
Highway Interest and Sinking Fund No. 1.....	1,010,000 00		1,010,000 00
Highway Fund No. 2.....	1,537,918 71		1,537,918 71
Highway Interest and Sinking Fund No. 2.....	675,000 00		675,000 00
Highway Fund No. 3.....	14,273,040 04		14,273,040 04
Highway Interest and Sinking Fund No. 3.....	1,136,785 00		1,136,785 00
Humboldt Normal School Contingent Fund.....	126 94		126 94
India Basin Fund.....			
India Basin Sinking Fund.....	34,120 00	5,686 66	39,806 66
Industrial Rehabilitation Fund.....	8,779 55	5,000 00	13,779 55
Industrial Accident Fund.....	1,955 84		1,955 84
Industrial Farm for Women Contingent Fund.....			
Insurance Commissioner's Special Fund.....	53,622 70		53,622 70
Interest and Sinking Fund.....	141,435 00		141,435 00
Junior College Fund.....			
Jute Revolving Fund.....	112,017 55		112,017 55
Kern Co. Union High School Dist. Condemnation Fd.....			
Labor Bureau Contingent Fund.....	22,163 93		22,163 93
Land Settlement Fund.....	816,701 35		816,701 35
Library Fund.....	139,651 93		139,651 93
Los Angeles Normal School Bldg. and Imp. Fund.....			
Market Commission Fund.....	27,992 54		27,992 54
Meat Hygiene Fund.....	8,073 64		8,073 64
Medical Examiners' Contingent Fund.....	79,492 18		79,492 18
Mendocino Hospital Contingent Fund.....	26,619 81		26,619 81
Mining Bureau Fund.....	7,721 06		7,721 06
Motor Vehicle Fund.....	7,509,350 85		7,509,350 85
Napa Hospital Contingent Fund.....	62,258 39		62,258 39
Napa State Farm Contingent Fund.....	36,690 79		36,690 79
Nautical School Fund.....			
Needles School District Bond Fund.....			
Norwalk Hospital Contingent Fund.....	8,675 72		8,675 72
Nurses' Examination and Registration Fund.....	14,399 16		14,399 16
Operators' License Fund.....			
Optometry Fund.....	3,930 66		3,930 66
Pacific Colony Contingent Fund.....	437 10		437 10
Panama-California International Exposition Fund.....	15 45		15 45
Panama-Pacific International Exposition Fund.....			
Pharmacy Board Contingent Fund.....			
Petroleum and Gas Fund.....	145,522 89		145,522 89

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit G. Showing the Disbursements from the Several Funds, for the Seventy-third Fiscal Year,
Ending June 30, 1922—Concluded.

Funds	Register Disbursements	Transfers	Total disbursements
Predatory Animal Fund.....			
Preston School of Industry Contingent Fund.....	\$1,638 08		\$1,638 08
Printing Fund.....	534,229 60		534,229 69
Purchasing Department Revolving Fund.....	261,540 29		261,540 29
Railroad Commission Fund.....	90,990 36		90,990 36
Real Estate Commission Fund, 1917.....	29,495 66		29,495 66
Real Estate Commission Fund, 1921.....	59,871 93	\$35,763 13	95,635 06
Real Estate Commission Fund, 1922.....	53,601 12		53,601 12
Receivers' Fund.....			
Reclamation Board Revolving Fund.....	100,644 55		100,644 55
Sacramento State Building Fund.....	30,297 30		30,297 30
Sacramento State Building, Interest and Sinking Fund.....	176,748 88		176,748 88
Sacramento Drainage District Fund.....			
Sacramento and San Joaquin Drainage Dist. Fund 1.....	31,941 00		31,941 00
Sacramento and San Joaquin Drainage Dist. Fund 2.....	159,638 72		159,638 72
Sacramento and San Joaquin Drainage Dist. Fund 3.....	24,754 74		24,754 74
Sacramento and San Joaquin Drainage Dist. Fund 4.....	38 71		38 71
Sacramento and San Joaquin Drainage Dist. Fund 5.....			
Sacramento and San Joaquin Drainage Dist. Fund 6.....	475,424 43		475,424 43
Sacramento and San Joaquin Drainage Dist. Fund 7.....	219,423 76		219,423 76
Sacramento and San Joaquin Drainage Dist. Fund 8.....	84,786 04		84,786 04
San Diego Harbor Improvement Fund.....			
San Diego Normal School Contingent Fund.....	7,923 58		7,923 58
San Francisco Harbor Improvement Fund.....	1,685,055 40	621,536 65	2,306,592 05
San Francisco State Building Fund.....	292,126 66		292,126 66
San Francisco State Building Sinking Fund.....	55,200 00		55,200 00
San Francisco Seawall Sinking Fund No. 1.....	131,600 00		131,600 00
San Francisco Seawall Fund No. 2.....			
San Francisco Seawall Sinking Fund No. 2.....	360,000 00	60,000 00	420,000 00
San Francisco Seawall Fund No. 3.....	92,503 18		92,503 18
San Francisco Seawall Sinking Fund No. 3.....	120,000 00	16,111 10	136,111 10
San Francisco Normal School Contingent Fund.....	1,288 89		1,288 89
San Jose Harbor Improvement Fund.....			
San Jose Normal School Contingent Fund.....	1,741 10		1,741 10
San Quentin Prison Fund.....	66,267 89		66,267 89
San Quentin Prison Manufacturing Revolving Fund.....	145,132 56		145,132 56
Santa Barbara Normal School Contingent Fund.....	4,080 99		4,080 99
School Fund.....	13,105,959 34		13,105,959 34
School Book Fund.....	295,076 33		295,076 33
School Land Fund.....	560,111 55	5,000 00	565,111 55
School Land Deposit Fund.....	260 00		260 00
School Teachers' Permanent Fund.....	366,352 34	262,340 00	628,692 34
School Teachers' Retirement Salary Fund.....	264,427 59		264,427 59
Sixth District Agricultural Ass'n Contingent Fund.....	365 64		365 64
Sonoma Home Contingent Fund.....	11,572 07		11,572 07
Southern California Hospital Contingent Fund.....	55,342 00		55,342 00
Stallion Registration Board Contingent Fund.....	545 34		545 34
Standardization Fund.....	18,571 47	312 00	18,883 47
State University Fund.....	1,883,868 28		1,883,868 28
Stockton Hospital Contingent Fund.....	21,256 03		21,256 03
Supt. Capitol Building and Grounds Revolving Fund.....			
Supreme Court Library Fund.....	2,202 13		2,202 13
Tax Land Fund.....		755 01	755 01
Testing Fee Fund.....	2,486 96		2,486 96
Textbook Royalty Fund.....			
Torrens Title Assurance Fund.....			
Transfer and Operators' License Fund.....	256,550 88		256,550 88
United States Forest Reserve Fund.....	166,450 18		166,450 18
University Fund.....	24,922 50	24,922 50	49,845 00
University Calif. Building Interest and Sinking Fund.....	118,300 00		118,300 00
Veterans' Dependents Education Fund.....			
Veteran's Home, Support and Maintenance Fund.....	291,383 14		291,383 14
Veterans' Farm and Home Building Fund.....			
Veterans' Welfare Fund.....			
Veterinary Medicine Examiners' Contingent Fund.....	276 42		276 42
Vocational Education Fund.....	206,223 98		206,223 98
Vocational Rehabilitation Fund.....	38,776 97		38,776 97
War Bond Fund.....			
Whittier School Contingent Fund.....	4,048 37		4,048 37
Water Commission Revolving Fund.....	416 07		416 07
Malibu Ranch Land Condemnation Fund.....	7,500 00		7,500 00
Los Angeles-Rindge Condemnation Fund.....	2,000 00		2,000 00
Warehouse Standardization Fund.....	1,355 31		1,355 31
Totals.....	\$84,066,708 08	\$25,452,530 85	\$109,519,238 93

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit H. General Fund Receipts in Detail for Seventy-second Fiscal Year, Ending June 30, 1921.

State Treasurer	\$25,883,501 73
County Treasurers	8,681,566 75
Secretary of State	1,215,526 01
Surveyor General	6,262 20
Clerk of Supreme Court	7,185 69
Clerk District Court of Appeal No. 1	1,420 65
Clerk District Court of Appeal No. 2	1,719 03
Clerk District Court of Appeal No. 3	442 60
State Superintendent of Public Instruction	750 00
State Board of Education (Secretary)	17,800 07
State Board of Control	76,749 84
Department of Engineering	52,060 06
Industrial Accident Commission	4,961 39
Industrial Welfare Commission	14,865 34
State Purchasing Department	14,073 88
State Commission in Lunacy	8,149 16
State Insurance Commissioner	138,384 68
State Water Commission	27,113 57
Superintendent Capitol Building and Grounds	5,499 78
State Agricultural Society	1,571 45
State Board of Health	10,180 56
State Labor Bureau	603 34
State Board Architecture, Southern District	3,039 36
State Board Architecture, Northern District	3,335 60
State Controller	260 23
State Readjustment Committee	526 67
State Inheritance Tax Department	1,500 00
State Adjutant General	2,252 70
State Prison at San Quentin	705 00
State Prison at Folsom	9,756 66
State Legislative Counsel Bureau	2,036 46
California Redwood Park Commission	5,293 60
State Department of Agriculture	91,989 27
State Printing Department	4,932 50
State Board Charities and Corrections	961 02
State Immigration and Housing Commission	1,976 21
State Superintendent Weights and Measures	1,319 74
State Mining Bureau	1,035 84
State Land Settlement Board	119,314 04
State Civil Service Commission	520 32
State Railroad Commission	165 00
State Prison Directors	1,363 51
State Bureau Criminal Identification	217 00
State Board Forestry	1,808 99
State Attorney General	941 88
State Reclamation Board	1,304 54
United States Social Hygiene Board	13,559 84
Sixth District Agricultural Society	5,677 36
University of California, Regents	18,912 27
Napa State Farm	196,884 01
Fresno State Normal School	782 33
Sonoma State Home	928 12
Whittier State School	959 63
Southern California State Hospital	2,254 84
Preston School of Industry	1,000 00
Napa State Hospital	1,370 26
California Polytechnic School	862 60
Santa Barbara Normal School	6,435 57
Veterans' Home	11 92
Norwalk State Hospital	5,577 02
Stockton State Hospital	1,461 49
Industrial Home for Adult Blind	500 00
California Training School for Girls	707 21
California School for Deaf and Blind	522 59
San Jose State Normal School	40 41
Agnews State Hospital	1,670 67
San Diego State Normal School	2 24
Industrial Farm for Women	125 00
Humboldt State Normal School	18 00
San Francisco State Normal School	44 00
Mendocino State Hospital	1,000 10
State Board Embalmers	2 00
Auditor City and County of San Francisco	292 50
I. H. Pirie	57 14
River Land Association	500 00
A. S. Newburgh	18 52
F. F. Fulton	175 00
W. Schlep	188 70
L. Marre	300 00
J. E. McFarland	75 54
Hickman-Coleman Co.	33 96

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit H. General Fund Receipts in Detail for Seventy-second Fiscal Year, Ending June 30, 1921—
Concluded.

L. M. Sha	\$16 00
A. J. Messier	133 35
R. P. Merritt	50 00
W. H. Sutton	150 00
Mrs. Mary Lewis	6 70
J. S. Myers, Auditor City of Los Angeles	705 00
City of Berkeley	499 97
D. R. Weller	37 65
L. R. Works	16 15
J. B. Kavanaugh, Secretary Assembly	639 84
Grace S. Stoermer, Secretary Senate	38 90
First Federal Trust Co., San Francisco	753 33
E. H. Pennock	200 00
P. C. Phillips	49 00
P. F. Courneen	16 10
E. Lansford	10 00
Chas. H. Lee	416 65
T. A. Brown	8 00
Edith F. Moore	22 91
A. R. Fink, Agent	16 96
Alma McKinnon	64 11
E. Jones, Sheriff	37 69
F. Barnett, Sheriff	6 00
F. J. O'Brien, Justice of the Peace	10 00
D. B. Rea, Auditor	50 00
J. M. Gondring, Justice of the Peace	12 50
A. B. Taylor, Justice of the Peace	12 50
C. R. Christopher, Clerk Police Court	205 00
J. N. Hitchcock, Justice of the Peace	12 50
Edw. Wall, Justice of the Peace	15 00
F. H. Cromwell, Justice of the Peace	17 50
O. N. Wilkinson, Justice of the Peace	5 00
W. H. Rice, Justice of the Peace	47 50
M. T. Vaughan, Justice of the Peace	92 50
A. Youngs, Junior Clerk	85 00
A. C. Swalley, Clerk Police Court	135 00
F. H. Farrar, Justice of the Peace	160 00
R. L. Bennett, Justice of the Peace	12 50
G. M. Cook, Justice of the Peace	5 00
F. Waite, Justice of the Peace	10 00
W. E. Herzinger, Justice of the Peace	12 50
J. T. Frazer, Justice of the Peace	25 00
G. R. Lane, Justice of the Peace	12 38
E. E. Douglas, Justice of the Peace	12 50
J. Roth, Justice of the Peace	5 00
W. J. Crooks, Justice of the Peace	10 00
N. A. Southeimer, Justice of the Peace	70 00
A. W. Blackburn, Justice of the Peace	12 50
A. A. Weber, Justice of the Peace	85 00
T. R. Dougherty, Judge of Police Court	15 00
G. B. Graham, Justice of the Peace	72 50
T. E. Read, Clerk	25 00
S. S. McLain, Justice of the Peace	17 50
A. C. Parker, Justice of the Peace	82 50
G. Satchell, City Recorder	10 00
J. Fitzgerald, Justice of the Peace	7 50
S. E. Wilson, Police Judge	10 00
H. A. Payne, Auditor	7 50
A. C. Hartley, Justice of the Peace	5 00
E. P. Jackson, Justice of the Peace	5 00
W. M. Sparks, Jr., Justice of the Peace	100 00
J. M. Hoesch, Justice of the Peace	25 00
Ray Griffin, Justice of the Peace	10 00
F. J. Voll, Justice of the Peace	12 50
A. B. Hawkins, Justice of the Peace	5 00
F. J. O'Brien, Justice of the Peace	20 00
F. J. Rodrigues, Clerk	1 00
J. P. Gallagher, Justice of the Peace	50 00
T. C. Anglim, Justice of the Peace	12 50
J. H. Solkmore, Justice of the Peace	5 00
L. D. Jennings, Justice of the Peace	50 00
H. De La Montanya, Justice of the Peace	220 00
W. R. Garrett, Justice of the Peace	25 00
R. L. Young, Justice of the Peace	7 50
Transfers	230,439 65
Canceled Warrants	2,694 12

\$36,928,886 22

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit I. General Fund Receipts in Detail for Seventy-third Fiscal Year, Ending June 30, 1922.

State Treasurer.....	\$34,820,537	58
County Treasurers.....	6,851,118	57
Secretary of State.....	1,251,925	91
Clerk, Court of Appeal, District No. 1.....	1,702	89
Clerk, Court of Appeal, District No. 2.....	2,109	13
Clerk, Court of Appeal, District No. 3.....	442	50
Clerk, Supreme Court.....	7,640	80
Surveyor General.....	3,930	26
Superintendent Public Instruction.....	2,722	39
Secretary Board of Education.....	21,735	34
Department of Education.....	20,401	57
Department of Labor and Industrial Relations, Div. Workmen's Comp. Insur. etc.....	2,095	76
Department Labor and Industrial Relations, Div. Industrial Welfare.....	17,252	37
Department Labor and Industrial Relations, Div. Labor.....	1,376	77
Department Labor and Industrial Relations, Div. Immigration and Housing.....	209	98
Department Finance, Board Control.....	58,866	12
Department Finance, Division of Purchases.....	68	11
Department Finance, Superintendent Capitol Building and Grounds.....	358	00
Department Finance, Division of Printing.....	1,601	95
Department Finance, Napa Farm.....	123,948	76
Insurance Commissioner.....	96,672	34
State Agricultural Society.....	97	00
Department Public Works, Division Water Rights.....	23,904	21
Department Public Works, Division of Highways.....	1,000	00
Department Public Works, Division Engineering and Irrigation.....	35,318	26
Department Public Works, Division Architecture.....	19,808	22
Department Public Works, Division Land Settlement.....	110,150	69
State Prison at San Quentin.....	1,443	09
State Prison at Folsom.....	8,706	43
State Board of Health.....	8,533	75
Legislative Counsel Bureau.....	655	00
State Board of Architecture, Northern District.....	2,865	40
State Board of Architecture, Southern District.....	3,360	01
Redwood Park Commission.....	5,717	44
State Controller.....	1,960	85
Superintendent Weights and Measures.....	59	37
Adjutant General.....	7,172	50
Department of Agriculture.....	83,161	84
State Board of Charities and Corrections.....	539	07
Directors Veterans' Home.....	271	92
Real Estate Commissioner.....	20	90
Mining Bureau.....	3,251	20
Civil Service Commission.....	687	94
United States Government, account Fire Protection.....	12,349	20
United States Social Hygiene Board.....	2,778	30
State Board of Embalmers.....	28	00
Sixth District Agricultural Association.....	1	04
Railroad Commission.....	1,000	00
Prison Directors, State Board.....	850	00
Bureau of Criminal Identification.....	109	00
State Board of Forestry.....	18,788	14
Attorney General.....	373	02
State Board of Equalization.....	257	91
Veterans' Welfare Board.....	25	00
Department of Education, Fresno Teachers College.....	4,972	56
Department of Education, Santa Barbara Teachers College.....	2,310	18
Department of Education, San Jose Teachers College.....	2,045	67
Department of Education, San Diego Teachers College.....	8,411	98
Department of Education, Humboldt Teachers College.....	1,408	39
Department of Education, San Francisco Teachers College.....	60	00
Department of Education, Chico Teachers College.....	3,893	78
Department of Education, School for Deaf and Blind.....	892	98
Department of Education, California Polytechnic School.....	992	96
Department Institutions, Sonoma State Home.....	1,618	34
Department Institutions, Preston School.....	4,661	43
Department Institutions, Whittier School.....	5,076	60
Department Institutions, Home for Adult Blind.....	135	65
Department Institutions, California Training School for Girls.....	551	79
Department Institutions, Industrial Farm for Women.....	7,467	32
Department Institutions, Pacific Colony.....	310	00
Department Institutions, Southern California Hospital.....	887	44
Department Institutions, Napa Hospital.....	1,820	68
Department Institutions, Norwalk Hospital.....	5,181	46
Department Institutions, Stockton Hospital.....	5,955	24
Department Institutions, Agnews Hospital.....	960	99
Department Institutions, Mendocino Hospital.....	901	39
State Lunacy Commission.....	630	05
Department Institutions.....	34,795	13
P. C. Albertson.....	82	
L. Marre.....	100	00
Grace Stoermer.....	11	25

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit I. General Fund Receipts in Detail for Seventy-third Fiscal Year, Ending June 30, 1922—
Concluded.

Harriett B. Bird.....	\$19 88
J. W. Carrigan, Inheritance Tax Department.....	400 00
P. R. Poulson, Agent.....	2 33
J. C. Carly Co.....	73 35
A. R. Fink.....	60 32
Robertson-Govan Co.....	44 00
City of Bakersfield.....	64 27
J. C. Hayburn Co.....	4 15
First National Bank, Santa Barbara.....	48 27
La Verne Fruit Exchange.....	200 00
A. L. McKinnen.....	26 61
J. B. Kavanaugh, Clerk Assembly.....	101 63
H. M. Drake, by Board of Control.....	17 40
B. E. Tarver, Agent.....	33 33
McKinley Orphanage.....	8 67
Ford Motor Co.....	5,447 75
E. B. Rugh.....	1 88
M. O. Ballard, Sheriff.....	10 00
A. T. Trainor.....	9 86
R. L. Dallas, Sheriff.....	5 00
J. M. Gondring, Justice of the Peace.....	5 00
W. R. Garrett, Justice of the Peace.....	17 50
W. G. Rush, Justice of the Peace.....	152 50
Edw. Wall, Justice of the Peace.....	12 50
D. H. Grant, Justice of the Peace.....	37 50
F. H. Cromwell, Justice of the Peace.....	50 00
O. N. Wilkinson, Justice of the Peace.....	12 50
J. S. Clack, Justice of the Peace.....	20 00
John Zaring, Justice of the Peace.....	75 00
G. B. Graham, Justice of the Peace.....	85 00
T. F. Boyle, Auditor.....	190 00
Frank Mitchell, Justice of the Peace.....	12 50
O. S. Bulkley, Justice of the Peace.....	12 50
U. A. Southeimer, Justice of the Peace.....	177 25
T. E. Reed, Clerk of Justice Court.....	27 50
W. S. Brayton, Justice of the Peace.....	300 00
J. J. Lynch, Clerk.....	12 50
F. L. Glass, Justice of the Peace.....	5 00
H. De La Montanya, Justice of the Peace.....	20 00
A. C. Parker, Justice of the Peace.....	40 00
F. J. O'Brien, Justice of the Peace.....	20 00
H. M. Miller, Justice of the Peace.....	12 50
J. S. Myers, Auditor.....	480 00
A. Youngs, Jr., Clerk.....	87 50
P. Helmore, Justice of the Peace.....	12 50
E. E. Douglas, Justice of the Peace.....	25 00
F. H. Farrar, Justice of the Peace.....	12 50
H. Rudolff, Justice of the Peace.....	25 00
H. A. Payne, Auditor.....	146 00
I. Mayfield, Justice of the Peace.....	50 00
S. S. McLain, Justice of the Peace.....	5 00
H. C. Smith, Justice of the Peace.....	25 00
Mrs. W. W. Thomas, Justice of the Peace.....	2 50
E. Meese, Jr., Clerk.....	157 50
A. C. Swalley, Clerk.....	50 00
M. T. Vaughan, Justice of the Peace.....	20 00
W. H. Wheaton, Justice of the Peace.....	37 50
Lyman Brewer, Justice of the Peace.....	5 00
L. J. Morris, Justice of the Peace.....	12 50
W. H. Dowell, Justice of the Peace.....	10 00
W. H. Rice, Justice of the Peace.....	10 00
F. W. Bunnell, Justice of the Peace.....	75 00
Transfers.....	326,134 02
Canceled Warrants.....	2,263 15
Total.....	\$44,075,568 40

GENERAL SUMMARY OF THE FUNDS—Continued.

Exhibit J. State School Fund. Amount of Money Apportioned.

For the seventy-second fiscal year (1920-21) the amount to be transferred for elementary schools was (387,899 pupils in daily average attendance at \$17.50)		\$6,788,232 50
Transferred account \$17.50	\$6,788,232 50	
Transferred account inheritance tax	250,000 00	
Received from other sources	664,336 80	
		7,702,559 30
Amount disbursed in seventy-second fiscal year to counties, etc.		7,471,325 49
For seventy-third fiscal year (1921-22) amount to be transferred for elementary schools was (429,316 pupils in daily average attendance at \$30.00)		\$12,879,480 00
Transferred account \$30.00	\$12,408,092 05	
Receipts from other sources, July 1, 1921 to December 31, 1921	471,387 95	
		12,879,480 00

Sources of School Fund Receipts and Disbursements for Seventy-second Fiscal Year, Ending June 30, 1921

RECEIPTS.		
Balance on hand July 1, 1920	\$230,792 44	
Received from polls	654 66	
Received from interest on bonds	398,345 46	
Received from interest on lands	34,177 68	
Received from interest on lands (delinquent penalties)	320 56	
Received by transfer (\$17.50)	6,788,232 50	
Received by transfer (inheritance tax)	250,000 00	
Received from costs of foreclosure suits	46 00	
		\$7,702,569 30
DISBURSEMENTS.		
Paid counties	\$7,471,347 54	
Paid account restitution interest	157 23	
Paid account restitution interest (foreclosure suits)	20 72	
Balance on hand June 30, 1921	231,043 81	
		7,702,569 30
Balance on hand July 1, 1921		231,043 81

DISBURSEMENTS.

Apportionment of July 9, 1921. (Under old acts.)

Paid counties	\$228,860 41	
Balance on hand, unapportioned	2,183 40	
		\$231,043 81

Sources and Disbursements for Seventy-third Fiscal Year, Ending June 30, 1922.

RECEIPTS.		
July 9, 1921	By balance unapportioned	\$2,183 40
June 30, 1922	By transfer account \$30.00	10,831,800 00
	By transfer account \$30.00	1,576,292 05
	By transfer account inheritance tax	250,000 00
	By receipts account polls	155 66
	By receipts account sale lands (interest)	29,264 00
	By receipts account bonds (interest)	398,217 55
	By receipts University of California sale reports	3 75
	By receipts land (delinquent penalty)	279 52
	By receipts land rental	325 00
		\$13,088,520 93
DISBURSEMENTS.		
June 30, 1922	To counties	\$12,876,744 16
	To restitution interest	171 20
	To restitution interest (foreclosures)	81 00
	To balance on hand	211,524 57
		\$13,088,520 93

The following figures show amount invested and uninvested and interest received:

Perpetual School Fund.

Year	Invested	Uninvested	Total	Interest received	
June 30, 1921	Seventy-second fiscal year	\$9,139,624 92	\$189,100 49	\$9,328,725 41	\$398,345 46
June 30, 1922	Seventy-third fiscal year	9,328,312 42	163,445 75	9,491,758 17	398,217 55

NOTE.—The invested portion is amount of bonds in School Land Fund in absolute trust for Elementary Schools, and bonds in Estates Deceased Persons Fund, the interest only for School Fund; uninvested portion is balance on hand June 30, 1921 in School Land Fund.

GENERAL SUMMARY OF THE FUNDS—Concluded.

Exhibit J—Concluded.

State High School Fund.

Amount to be transferred in seventy-second (1920-21) fiscal year for support high schools (77,506 pupils in daily average attendance at \$15.00)----- \$1,162,590 00

RECEIPTS.

Balance on hand July 1, 1920----- \$2,089 34
 Received by transfer----- 1,161,173 92
 \$1,163,263 26

DISBURSEMENTS.

Paid counties----- \$1,162,403 16
 Balance on hand June 30, 1921----- 860 10
 \$1,163,263 26
 Amount to be transferred in seventy-third (1921-22) fiscal year for support high schools (93,443 pupils in daily average attendance at \$30.00)----- \$2,803,290 00

RECEIPTS.

Balance on hand July 1, 1921----- \$860 10
 Received by transfer----- 2,802,429 90
 \$2,803,290 00

DISBURSEMENTS.

Paid counties----- \$2,803,092 35
 Balance on hand June 30, 1922----- 197 65
 \$2,803,290 00

Exhibit J. Amount Bonds Held in Trust in School Land Fund, June 30.

	1921	1922
Estates Deceased Persons Fund, June 30-----	\$8,320,624 92	\$8,484,312 42
Interest only to School Fund, June 30-----	819,000 00	844,000 00
Totals-----	\$9,139,624 92	\$9,328,312 42

For seventy-fourth (1922-1923) the amount to be transferred for elementary schools will be 459,319 pupils in daily average attendance at \$30.00----- \$13,779,570 00
 For seventy-fourth (1922-23) the amount to be transferred for Support High Schools will be 110,206 pupils in daily average attendance at \$30.00----- 3,306,180 00

ELEMENTARY SCHOOLS.

Statement Showing Amount to be Transferred from General Fund Account Elementary Schools per Daily Average Attendance and Prevailing Rate.

	Daily average attendance	Rate	Amount
For 1912-13-----	280,465	\$13 00	\$3,646,045 00
For 1913-14-----	297,884	13 00	3,872,492 00
For 1914-15-----	319,229	13 00	4,149,977 00
For 1915-16-----	331,000	15 00	4,965,000 00
For 1916-17-----	340,943	15 00	5,114,145 00
For 1917-18-----	348,304	15 00	5,224,560 00
For 1918-19-----	350,568	15 00	5,258,520 00
For 1919-20-----	371,152	17 50	6,495,160 00
For 1920-21-----	387,899	17 50	6,788,232 50
For 1921-22-----	429,316	30 00	12,879,480 00
For 1922-23-----	459,319	30 00	13,779,570 00

HIGH SCHOOLS.

Statement Showing Amount to be Transferred from General Fund Account High Schools per Daily Average Attendance and Prevailing Rate.

	Daily average attendance	Rate	Amount
For 1912-13-----	38,181	\$15 00	\$572,715 00
For 1913-14-----	42,852	15 00	642,780 00
For 1914-15-----	48,312	15 00	724,680 00
For 1915-16-----	53,397	15 00	800,955 00
For 1916-17-----	58,881	15 00	883,215 00
For 1917-18-----	62,865	15 00	942,975 00
For 1918-19-----	64,676	15 00	970,140 00
For 1919-20-----	70,715	15 00	1,060,725 00
For 1920-21-----	77,506	15 00	1,162,590 00
For 1921-22-----	93,443	30 00	2,803,260 00
For 1922-23-----	110,206	30 00	3,306,180 00

RECAPITULATION OF EXPENDITURES FROM CONTINGENT APPROPRIATION, STATE CONTROLLER.

For the Period July 1, 1920, to June 30, 1921, of the Seventy-second Fiscal Year.

Function	Materials and supplies	Salaries and wages	Service and expense	Property and equipment	Total
Administrative and general:					
Controller.....			\$347 05		\$347 05
Deputy controller.....			101 00		101 00
Clerical and office.....	\$426 05	\$4,863 70	312 26	\$141 35	5,743 36
Postage.....			879 25		879 25
Telephone.....			347 95		347 95
Automobile.....	175 17		226 37	97 01	498 55
Statistician.....			139 50		139 50
Totals.....	\$601 22	\$4,863 70	\$2,353 38	\$238 36	\$8,056 66
Franchise tax department:					
Clerical and office.....		\$1,179 00	\$4 40		\$1,184 30
Postage.....			1,000 00		1,000 00
Totals.....		\$1,179 00	\$1,004 40		\$5,184 30

DETAILED STATEMENT.

Showing Expenditures of the Appropriation for Traveling and Contingent Expenses in Office of the Controller of State, During Seventy-second Fiscal Year, Ending June 30, 1921.

1920		
July 2	C. E. Cooper, post office box rent	\$4 00
July 12	C. E. Cooper, postage	20 00
July 14	C. E. Cooper, postage	30 00
July 20	Pacific Telephone and Telegraph Company	8 85
July 26	C. E. Cooper, auto supplies	8 68
July 27	John S. Chambers, travel	34 05
July 31	J. D. Tilden, July salary	185 00
July 31	Dorothy Chambers, July salary	150 00
Aug. 6	Dorothy Chambers, postage	5 00
Aug. 11	Standard Oil Company, supplies	19 32
Aug. 11	W. F. Purnell, office supplies	5 94
Aug. 12	State Purchasing Department, supplies	46 52
Aug. 12	American Railway Express Company	5 59
Aug. 12	Burroughs Adding Machine Company, repairs	1 55
Aug. 23	C. E. Cooper, postage	55 00
Aug. 23	Pacific Telephone and Telegraph Company	16 05
Aug. 23	Standard Oil Company, supplies	47
Aug. 23	F. and E. Check Writer Agency, supplies	1 50
Aug. 24	J. A. Graham, janitor service	38 70
Aug. 24	Fyr Fyter Company, fire extinguisher	6 85
Aug. 30	J. D. Tilden, August salary	185 00
Aug. 30	Dorothy Chambers, August salary	150 00
Sept. 4	John S. Chambers, travel	17 43
Sept. 10	State Purchasing Department, supplies	24 56
Sept. 10	American Railway Express Company, expressage	3 42
Sept. 16	Western Union Telegraph Company	5 64
Sept. 16	C. E. Cooper, postage	50 00
Sept. 16	John S. Chambers, travel	13 29
Sept. 22	Standard Oil Company, supplies	6 53
Sept. 24	H. S. Crocker Company, supplies	52
Sept. 24	Pacific Telephone and Telegraph Company	30 15
Sept. 24	John S. Chambers, travel	60 01
Sept. 30	J. D. Tilden, salary for September	185 00
Sept. 30	Dorothy Chambers, salary for September	150 00
Oct. 1	C. E. Cooper, travel	18 45
Oct. 2	Jas. W. Hickey, travel	6 55
Oct. 4	John S. Chambers, travel	21 78
Oct. 4	Purchasing Department, supplies	1 80
Oct. 4	C. E. Cooper, postage, etc.	59 20
Oct. 14	Allen's Press Clipping Bureau	9 66
Oct. 14	State Purchasing Department, supplies	38 38
Oct. 14	Pacific Telephone and Telegraph Company	29 60
Oct. 14	American Railway Express Company	45
Oct. 14	Western Union Telegraph Company	11 55
Oct. 14	Standard Oil Company, supplies	15 92
Oct. 14	Jas. W. Hickey, travel	32 85
Oct. 18	John S. Chambers, travel	17 56
Oct. 19	Crocker-Langley, directory	10 00
Oct. 19	Jas. W. Hickey, travel	14 75
Oct. 22	John S. Chambers, postage	200 00
Oct. 23	Friend and Terry Lumber Company, lumber	126 50
Oct. 30	Purchasing Department, water	3 00
Oct. 30	Jas. W. Hickey, travel	6 55
Oct. 30	J. D. Tilden, October salary	185 00
Oct. 30	Dorothy Chambers, October salary	150 00
Oct. 30	C. E. Cooper, travel	22 40
Nov. 3	Jas. W. Hickey, travel	42 00
Nov. 6	Standard Oil Company, supplies	25 30
Nov. 6	Legislative Counsel Bureau	20 00
Nov. 6	Pacific Telephone and Telegraph Company	29 95
Nov. 10	Clarence H. Smith, travel	19 55
Nov. 10	Wahl Stationery Company, filing supplies	13 20
Nov. 10	American Railway Express Company, expressage	1 04
Nov. 10	State Purchasing Department, supplies	40 23
Nov. 10	State Purchasing Department, water	2 10
Nov. 10	Tokay City Garage, repairs auto No. E-111	32 30
Nov. 10	C. E. Cooper, travel	2 45
Nov. 10	C. E. Cooper, repairs, auto No. E-111	15 00
Nov. 10	Jas. W. Hickey, travel	36 80
Nov. 20	J. D. Tilden, November salary	185 00
Nov. 20	Dorothy Chambers, November salary	150 00
Nov. 26	W. F. Purnell, journals	5 40
Nov. 26	F. and E. Check Writer Agency, ink pads	3 00
Nov. 26	C. E. Cooper, auto silk curtains	6 00
Nov. 26	John S. Chambers, travel	57 74
Dec. 10	Pacific Telephone and Telegraph Company, December	18 15
Dec. 10	Western Union Telegraph Company, November service	2 66
Dec. 10	State Purchasing Department, November supplies	29 59
Dec. 10	Ink Ribbon Manufacturing Company, carbon	20 50
Dec. 10	W. F. Purnell, journals	5 40
Dec. 10	Standard Oil Company, supplies	27 56
Dec. 10	W. J. Benson Company, auto repairs	50 60
Dec. 21	J. D. Tilden, December salary	185 00
Dec. 21	Dorothy Chambers, December salary	150 00

DETAILED STATEMENT—Continued.

Showing Expenditures of the Appropriation for Traveling and Contingent Expenses in Office of the Controller of State, During Seventy-second Fiscal Year, Ending June 30, 1921—Concluded.

1920.		
Dec. 29—	Lewis N. Crawford, towel service (6 months)	\$12 00
Dec. 29—	John S. Chambers, travel	68 12
Dec. 29—	E. Foster, travel	5 71
Dec. 29—	C. E. Cooper, auto repairs	2 00
Dec. 29—	C. E. Cooper, journals	8 75
Dec. 29—	C. E. Cooper, rent of post office box	4 00
Dec. 30—	Anna B. McAllister, December salary	115 00
1921		
Jan. 13—	C. E. Cooper, postage	50 00
Jan. 13—	American Railway Express Company, December service	2 32
Jan. 13—	Western Union Telegraph Company, December service	14 10
Jan. 13—	State Purchasing Department, supplies	63 88
Jan. 13—	Standard Oil Company, supplies	10 51
Jan. 20—	J. D. Tilden, January salary	185 00
Jan. 20—	Dorothy Chambers, January salary	150 00
Jan. 20—	Anna B. McAllister, January salary	115 00
Jan. 20—	Prek-Judah Company, subscription Blue Beck	2 50
Jan. 20—	Pacific Telephone and Telegraph Company	20 75
Jan. 20—	C. E. Cooper, travel	9 45
Jan. 20—	Standard Oil Company supplies	6 58
Jan. 20—	W. J. Benson Company, auto repairs	8 20
Jan. 20—	Allen's Press Clipping Bureau, October, November and December	16 06
Feb. 3—	Thos. Fcx, postage	200 00
Feb. 11—	H. S. Crocker and Company, binder	2 60
Feb. 11—	Allen's Press Clipping Bureau, January	12 45
Feb. 11—	State Purchasing Department, supplies	31 82
Feb. 11—	John S. Chambers, travel	21 38
Feb. 11—	Western Union Telegraph Company, January	14 40
Feb. 11—	American Railway Express Company, January	3 08
Feb. 11—	Standard Oil Company, supplies	6 38
Feb. 18—	J. D. Tilden, February salary	185 00
Feb. 18—	Dorothy Chambers, February salary	150 00
Feb. 18—	Anna B. McAllister, February salary	115 00
Feb. 26—	Pacific Telephone and Telegraph Company, February	34 15
Mar. 10—	W. J. Benson, auto repairs, No. E-111	16 43
Mar. 10—	State Purchasing Department, supplies	28 38
Mar. 10—	C. E. Cooper, travel	48 25
Mar. 10—	T. M. Gannon, travel	35 72
Mar. 10—	Pacific Telephone and Telegraph Company, February	18 90
Mar. 10—	Western Union Telegraph Company, February	7 17
Mar. 10—	Standard Oil Company, supplies	14 79
Mar. 21—	J. D. Tilden, salary, March	185 00
Mar. 21—	Dorothy Chambers, March salary	150 00
Mar. 21—	Anna B. McAllister, March salary	115 00
Mar. 28—	H. S. Crocker, supplies	1 50
Mar. 28—	Sacramento Directory Company, directory	9 50
Apr. 9—	C. E. Cooper, postage	200 00
Apr. 13—	American Railway Express Company, service for March	5 20
Apr. 13—	Pacific Telephone and Telegraph Company	17 30
Apr. 13—	Western Union Telegraph Company	5 01
Apr. 13—	State Printing Department, padding old blanks	2 65
Apr. 13—	State Purchasing Department, March supplies	34 90
Apr. 13—	Standard Oil Company, supplies	14 04
Apr. 20—	J. D. Tilden, salary, April	185 00
Apr. 20—	Dorothy Chambers, salary, April	150 00
Apr. 20—	Anna B. McAllister, salary, April	115 00
Apr. 26—	Burroughs Adding Machine Company, repairs	14 30
Apr. 26—	John S. Chambers, travel	35 69
May 20—	Tilden, Chambers, McAllister, salary	450 00
May 20—	C. E. Cooper, repairs, No. E-2479	80
May 20—	C. E. Cooper, post office box rent	4 00
May 20—	Allen's Press Clipping Bureau, February, March and April	45 79
May 20—	W. J. Benson, repairs, No. E-2479	12 24
May 20—	State Purchasing Department, April supplies	26 62
May 20—	Western Union Telegraph Company, April	10 66
May 20—	Standard Oil Company, supplies	13 27
May 20—	Pacific Telephone and Telegraph Company	16 50
May 20—	W. J. Benson Company, repairs, No. E-2479	88 80
June 10—	Lewis N. Crawford, towel service	12 00
June 10—	State Purchasing Department, supplies	38 21
June 10—	Western Union Telegraph Company, May	10 31
June 10—	Samson Tire and Rubber Company	45 32
June 10—	Pacific Telephone and Telegraph Company	26 10
June 10—	Standard Oil Company, supplies	5 82
June 10—	Allen's Press Clipping Bureau, May	5 97
June 21—	Tilden, Chambers, McAllister, salary	450 00
June 27—	Samson Tire and Rubber Company	40 14
June 27—	C. E. Cooper, machine globes, lock and cable	5 55
June 27—	C. E. Cooper, postage	10 00
Total		\$8,056 66

DETAILED STATEMENT.

Showing Expenditures of the Appropriation for Salaries of Extra Clerks in the Office of the Controller of State, Collection of Revenue Department, During the Seventy-second Fiscal Year, Ending June 30, 1921.

1920		
July 31—July salaries, 3 clerks	-----	\$433 30
Aug. 30—August salaries, 3 clerks	-----	433 30
Sept. 30—September salaries, 3 clerks	-----	433 30
Oct. 30—October salaries, 2 clerks	-----	300 00
Nov. 20—November salaries, 2 clerks	-----	300 00
Dec. 21—December salaries, 2 clerks	-----	300 00
1921		
Jan. 20—January service, 2 clerks	-----	330 00
Feb. 18—February service, 2 clerks	-----	330 00
Mar. 21—March service, 2 clerks	-----	330 00
Apr. 20—April service, 2 clerks	-----	330 00
May 20—May service, 2 clerks	-----	330 00
June 21—June service, 2 clerks	-----	330 00

\$4,179 90

DETAILED STATEMENT.

Showing Expenditure of the Appropriation for Contingent Expenses in the Office of the Controller of State, Collection of Revenue, During Seventy-second Fiscal Year, Ending June 30, 1921.

1921		
Jan. 21—Thos. Fox, postage	-----	\$200 00
Apr. 12—W. F. Purnell, supplies	-----	4 40
May 26—Thos. Fox, postage	-----	400 00
June 14—Thos. Fox, postage	-----	400 00

\$1,004 40

Claims Paid in Seventy-second Fiscal Year for Seventy-first.

1920		
July 3—W. J. Benson, purchase of automobile	-----	\$1,400 00
July 8—C. E. Cooper	-----	2 05
July 9—T. M. Gannon, travel	-----	49 25
July 15—Pacific Rubber Company, auto supplies	-----	53 68
July 16—Recorder Printing and Publishing Company, Cal. Dec.	-----	12 00
July 16—H. S. Crocker, office supplies	-----	1 10
July 16—Western Union Telegraph Company	-----	7 31
July 16—Standard Oil Company	-----	5 90
July 16—State Purchasing Department	-----	34 04
July 16—The Typewriter Exchange, rent of machine	-----	4 00
July 20—Allen's Press Clipping Bureau	-----	22 70
July 20—Pacific Telephone and Telegraph Company	-----	28 65
July 26—American Railway Express Company	-----	5 96
July 27—John S. Chambers, travel	-----	9 30

1921		
Apr. 12—Munson Supply Company, typewriter keys	-----	\$3 50

\$1,639 44

RECAPITULATION OF EXPENDITURES FROM SUPPORT APPROPRIATION, STATE CONTROLLER.

For the Period July 1, 1921, to June 30, 1922, of the Seventy-third Fiscal Year.

Function	Materials and supplies	Salaries and wages	Service and expense	Property and equipment	Total
Administrative and general:					
Controller			\$926 45		\$926 45
Deputy controller			92 39		92 39
Clerical and office	\$308 80	\$19,744 90	412 86	\$169 52	20,636 08
Postage			1,005 00		1,005 00
Telephone			320 91		320 91
Automobile	251 09		267 69	1,171 51	1,690 29
Printing			1,126 00		1,126 00
Revolving fund			400 00		400 00
Totals	\$559 89	\$19,744 90	\$4,551 30	\$1,341 03	\$26,197 12
Redemption tax department:					
Clerical and office		\$4,866 61			\$4,866 61
Franchise tax department:					
Clerical and office		\$8,639 60		\$30 00	\$8,669 60
Postage			\$1,000 00		1,000 00
Totals		\$13,506 21	\$1,000 00	\$30 00	\$14,536 21
Grand total	\$559 89	\$33,251 11	\$5,551 30	\$1,371 03	\$40,733 33

DETAILED STATEMENT.

Showing Expenditures of the Appropriation for Traveling and Contingent Expenses in Office of the Controller of State, During the Seventy-third Fiscal Year, Ending June 30, 1922.

1921		
July	9—John S. Chambers, postage	\$200 00
July	9—Pacific Telephone and Telegraph Company	8 85
July	13—Dorothy Chambers, salary for July	24 20
July	20—Til-ten, McAllister, salary for July	300 00
July	20—Clerical services, 3 clerks	495 00
July	25—H. S. Crocker Company, model F sealer	33 00
July	25—Wahl Stationery Company, supplies	1 70
July	25—C. E. Cooper, travel	3 25
Aug.	4—Ray L. Riley, travel	45 55
Aug.	4—Tourist Garage, storage for July	3 50
Aug.	4—Western Union Telegraph Company	3 04
Aug.	4—American Railway Express Company	73
Aug.	4—State Purchasing Department, supplies	47 90
Aug.	10—State Printing Department	66 00
Aug.	10—Jas. W. Hickey, travel	8 20
Aug.	10—Pacific Telephone and Telegraph Company	34 25
Aug.	10—Standard Oil Company	11 29
Aug.	17—James Hore, janitor service	44 51
Aug.	23—Clerical services, August	2,941 60
Aug.	30—Elliott-Fisher Company, record ribbons	2 70
Aug.	30—H. S. Crocker Company, scrap books	21 00
Aug.	30—Standard Oil Company, supplies	8 40
Sept.	13—Clerical service, August	106 80
Sept.	13—American Railway Express Company	3 71
Sept.	13—Standard Oil Company	16 77
Sept.	13—E. W. Cutler, battery	35 69
Sept.	13—State Purchasing Department	21 73
Sept.	13—Pacific Telephone and Telegraph Company	23 75
Sept.	13—Western Union Telegraph Company	6 60
Sept.	13—Allen's Press Clipping Bureau	17 55
Sept.	13—State Printing Department	147 35
Sept.	15—Clerical service, September	3,120 00
Sept.	19—C. E. Cooper, revolving fund	400 00
Sept.	24—C. E. Cooper, postage	300 00
Sept.	24—C. E. Cooper, Wm. Peterson, moving claims	3 00
Sept.	24—Langner and Kinnear, storage	7 50
Oct.	6—C. E. Cooper, post office box rent	4 00
Oct.	6—Pacific Telephone and Telegraph Company	16 25
Oct.	6—Western Union Telegraph Company	16 05
Oct.	6—Standard Oil Company, supplies	22 02
Oct.	6—State Purchasing Department	33 32
Oct.	6—Jas. W. Hickey, travel	67 12
Oct.	11—State Printing Department	74 95
Oct.	11—Electric Appliance Company, vacuum bag	2 55
Oct.	11—Ray L. Riley, travel	112 83
Oct.	11—Standard Oil Company, supplies	7 10
Oct.	22—Clerical services, October	3,120 00
Nov.	7—Sacramento Buick Company, purchase of auto	1,051 53
Nov.	8—Pacific Telephone and Telegraph Company	18 45
Nov.	8—Division of Purchases and Custody, supplies	32 32
Nov.	8—Western Union Telegraph Company	3 00
Nov.	8—W. J. Benson Company, auto repairs	114 45
Nov.	8—C. H. Jenkins Company, check writer ink	5 00
Nov.	8—C. E. Cooper, Senf Draying Company	1 00
Nov.	8—Standard Oil Company, supplies	20 58
Nov.	8—Recorder Printing and Publishing Company, Cal. and App. Dec.	9 00
Nov.	8—Purnell Stationery Company, 2 work organizers	7 00
Nov.	8—State Printing Department	186 00
Nov.	8—Clerical services, November	3,100 00
Dec.	5—Graham and Lamus Company	6 80
Dec.	5—Samson Tire and Rubber Company, tires and tubes	37 24
Dec.	5—Sacramento Buick Company	2 45
Dec.	5—W. Boedefeld, garage	10 00
Dec.	5—C. E. Cooper, postal cards	5 00
Dec.	5—Pacific Telephone and Telegraph Company	12 40
Dec.	5—Langner and Kinnear, storage	22 50
Dec.	5—Western Union Telegraph Company	9 03
Dec.	5—Allen's Press Clipping Bureau, September, October and November	21 24
Dec.	5—Standard Oil Company, supplies	36 22
Dec.	5—Division of Purchases	21 20
Dec.	28—Division of Printing	425 10
Dec.	28—Polk-Husted Directory Company, S. F. directory	12 50
Dec.	28—Lewis N. Crawford, towel service	12 00
Dec.	28—C. E. Cooper, post office box rent	4 00
Dec.	28—Ray L. Riley, travel	87 79
Dec.	28—Standard Oil Company	11 05
Dec.	28—Clerical services	2,970 00
Dec.	28—Thos. Fox, postage	200 00

DETAILED STATEMENT—Continued.

Showing Expenditures of the Appropriation for Traveling and Contingent Expenses in Office of the Controller of State, During the Seventy-third Fiscal Year, Ending June 30, 1922—Concluded.

1922		
Jan.	3—M. E. Colgan, salary for November	\$20 00
Jan.	6—Pacific Telephone and Telegraph Company	19 85
Jan.	6—Western Union Telegraph Company	11 02
Jan.	6—Ray L. Riley, travel	35 05
Jan.	6—Jas. S. Remick, skid chains	6 00
Jan.	6—Standard Oil Company, supplies	17 01
Jan.	13—C. E. Cooper, travel	23 08
Jan.	13—Sacramento Buick Company	5 95
Jan.	13—Division of Printing	124 10
Jan.	13—Division of Purchases and Custody	37 25
Jan.	13—Jas. W. Hickey, travel	25 92
Jan.	13—Standard Oil Company	3 27
Jan.	20—Clerical services, January	2,730 00
Jan.	27—C. E. Cooper, postage	400 00
Jan.	27—L. A. McKee, salary increase	25 00
Jan.	30—Clerical services, January	265 00
Feb.	14—Division of Printing, January	45 60
Feb.	14—Peck-Judah Publishing Service, Railroad Blue Book	2 50
Feb.	14—H. S. Crocker, binders and filler	13 99
Feb.	14—Sacramento Buick Company, spark plug	1 00
Feb.	14—C. E. Cooper, garage rent	18 00
Feb.	14—Elliott-Fisher Company, carbon	35 28
Feb.	14—Western Union Telegraph Company, January	3 19
Feb.	14—Pacific Telephone and Telegraph Company	19 45
Feb.	14—Division of Purchases, January	21 56
Feb.	14—Standard Oil Company	25 08
Feb.	14—H. J. McCurry, postage	200 00
Feb.	24—Clerical services, February	2,837 50
Feb.	27—Pacific Telephone and Telegraph Company	16 95
Feb.	27—Baneroff-Whitney Company, supplement to Deering's Codes	10 00
Feb.	27—Ray L. Riley, travel	183 87
Feb.	27—Jas. A. Cunningham, travel	25 29
Feb.	27—C. E. Cooper, travel	11 90
Feb.	27—Standard Oil Company	1 94
Mar.	7—Division of Purchases, supplies	25 69
Mar.	7—Jas. W. Hickey, travel	27 34
Mar.	7—L. C. Smith Company, typewriter repairs	2 12
Mar.	7—Western Union Telegraph Company, February	9 25
Mar.	7—C. E. Cooper, garage rent, March	18 00
Mar.	7—Allen's Press Clipping Bureau, December, January and February	24 22
Mar.	7—Standard Oil Company	3 49
Mar.	7—State Printing Department	53 75
Mar.	18—Ray L. Riley	90 45
Mar.	18—Clarence H. Smith	10 70
Mar.	18—Standard Oil Company	8 09
Mar.	20—Clerical services, March	2,814 84
Apr.	13—C. E. Cooper, postage	100 00
Apr.	14—Ray L. Riley, travel	206 36
Apr.	14—C. E. Cooper, travel	15 00
Apr.	14—Pacific Telephone and Telegraph Company	32 10
Apr.	14—Division of Purchases, March supplies	28 42
Apr.	14—Western Union Telegraph Company	8 93
Apr.	14—Jacob Soares	2 00
Apr.	14—H. S. Crocker Company, file	30 00
Apr.	14—Sacramento Directory Company, 1922 directory	9 50
Apr.	14—Recorder Printing and Publishing Company, Cal. and App. Dec.	9 00
Apr.	14—Standard Oil Company, supplies	24 87
Apr.	20—Clerical services, April	2,716 66
May	18—National Tax Association, dues	5 00
May	18—U. S. Rubber Company, tire and tube	37 50
May	18—Sacramento Buick Company, auto repairs	33 69
May	18—Senf Draying Company, expressage	3 75
May	18—Division of Printing	3 15
May	18—Division of Purchases	17 39
May	18—Western Union Telegraph Company	3 68
May	18—Pacific Telephone and Telegraph Company	18 90
May	18—C. E. Cooper, travel	39 16
May	18—Standard Oil Company, supplies	34 35
May	19—Clerical services, May	2,810 00
June	6—Western Union Telegraph Company	10 77
June	6—C. E. Cooper, garage rent	18 00
June	6—Elliott-Fisher Company, record ribbons	5 40
June	6—Pacific Telephone and Telegraph Company	15 15
June	6—John Breuner Company, carpet	22 50
June	6—Sacramento Buick Company, auto repairs	14 35
June	6—Ray L. Riley, travel	164 55
June	6—Remington Typewriter Company, typewriter	83 03
June	6—Allen's Press Clipping Bureau, March, April and May	33 39
June	6—Standard Oil Company, supplies	14 08
June	20—Clerical services, June	2,810 00
June	24—H. J. McCurry, postage	600 00
Total		\$40,733 33

DETAILED STATEMENT—Concluded.

Paid in Seventy-third Fiscal Year for Seventy-Second.

1921

July 20—State Purchasing Department, June supplies	\$35 82
July 20—J. J. Jacobs Motor Company, auto service	2 10
July 20—Western Union Telegraph Company, June	9 36
July 20—Tourist Garage, storage, etc.	3 50
July 20—Samson Tire and Rubber Company, tires and tubes	80 28
July 20—Pacific Telephone and Telegraph Company, June	16 15
July 20—C. E. Cooper, post office box rent	4 00
July 20—Standard Oil Company, supplies	32 81
July 20—The Typewriter Exchange, rent machine	4 00
Aug. 8—W. J. Benson Company, repairs, No. E-2479	19 35
Aug. 8—State Printing Department, June	784 15
Aug. 30—Standard Oil Company	6 72
Sept. 26—Mildred R. Griffith, Allen's Press Clipping Bureau	7 35
Nov. 18—Recorder Printing and Publishing Company	12 00
	\$1,017 59

AFFIDAVIT.

I, C. E. Cooper, Deputy State Controller, do hereby certify the foregoing to be a true and correct statement, in detail, of the expenditures of the appropriations hereinabove designated during the seventy-second and seventy-third fiscal years, vouchers for same being on file in the Controller's office.

C. E. COOPER,
Deputy State Controller.

Subscribed and sworn to before me this thirty-first day of October, 1922.

F. R. SWAIN,
Bookkeeper, Controller.

APPENDIX

STATEMENT No. 1.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources	Amount	Total
I. Taxes		\$30,022,705 69
1. State corporation franchise tax	\$22,272,149 04	
a. Railroads and street railroads	\$10,119,465 10	
b. Gas and electric companies	4,087,463 33	
c. Telephone and telegraph companies	1,073,476 50	
d. Car companies	155,532 14	
e. Express companies	83,196 24	
f. National banks	1,280,889 80	
g. State and savings banks	1,326,000 33	
h. Insurance companies	1,852,652 10	
i. Building and loan companies	26,877 00	
j. Oil, mining and general corporation franchises	2,244,796 50	
k. Public service corporations	3,750 00	
l. Delinquent lieu taxes	4,022 76	
m. Penalties	12,097 24	
n. Advance 1921 taxes	1,930 00	
2. Poll tax	654 66	
3. Inheritance tax	6,804,732 08	
4. Corporation license tax (Secretary of State)	936,732 68	
5. General property tax (delinquencies of former years)	8,437 23	
II. Fines, fees and licenses		13,795,009 57
1. Secretary of State	278,793 33	
a. Office fees	\$272,813 33	
b. Candidates' filing fees	5,980 00	
2. Surveyor General	174,551 58	
a. Fees, etc. (General Fund)	\$5,462 20	
b. Fees (School Land Deposit Fund)	20 00	
c. Rent agricultural lands	6,009 32	
d. Rent mineral lands	903 25	
e. Sale of script	162,156 81	
3. Clerk of Supreme Court	8,645 77	
a. Fees (General Fund)	\$6,916 62	
b. Fees (Library Fund)	1,729 15	
4. Insurance Commissioner, fees	137,384 68	
5. State Board of Education	15,748 86	
a. Sale of diplomas, etc.	\$14,748 76	
b. Filing fees (high school text books)	1,000 10	
6. Fish and Game Commission	513,031 24	
a. Fines	\$30,646 16	
b. Sales of hunting licenses	241,743 35	
c. Sales of angling licenses	147,340 40	
d. Sales of wholesale dealers' licenses and fish packers' licenses and tax	34,446 23	
e. Inspection of crawfish, etc.	863 03	
f. Sales of market fishermen's licenses	48,360 00	
g. Sale of game and fish breeders' licenses	145 00	
h. Sales of trappers' licenses	3,390 00	
i. Sales fish and game marking tags	3,685 59	
j. Distribution of fish	13 47	
k. Sales kelp licenses	20 00	
l. Miscellaneous sales	1,032 50	
m. Miscellaneous refunds	1,345 51	
7. Medical Examiners, fees, fines, etc.	101,883 53	
8. Railroad Commission, fees, etc.	115,577 00	
9. Industrial Accident Commission	4,875,987 90	
a. Fees, (Compensation Insurance Fund)	\$4,706,120 23	
b. Fees (Industrial Accident Fund)	2,956 90	
c. Fees (Accident Prevention Fund)	143,999 52	
d. Death claims (Industrial Rehabilitation Fund)	22,911 25	
10. Board of Pharmacy, fees	16,278 66	
11. Board of Examiners in Veterinary Medicine, fees	400 00	
12. Water Commission, fees, etc.	16,209 66	
13. Board of Optometry, fees and fines	4,165 50	
14. Bureau of Labor Statistics, fees and fines	17,491 51	
15. County Recorders, land title fees	2,928 36	
16. Board of Health	11,198 90	
a. Fees, etc. (Nurses' Registration Fund)	\$9,091 40	
b. Fines (Pure Food and Drug Law)	2,107 50	
17. John S. Chambers, Controller, fees (Sec. 710, C. C. P.)	8 50	
18. Dental Examiners, fees, etc.	16,195 07	
19. Corporation Commissioner, fees	214,935 86	

STATEMENT No. 1—Continued.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources		Amount	Total
II. Fines, fees and licenses—Continued.			
20.	Real Estate Commissioner		\$138,793 69
	a. Fees for 1920	\$18,583 64	
	b. Fees for 1921	120,210 05	
21.	Board of Bar Examiners, fees	5,445 00	
22.	Prison Directors, detectives' licenses		950 00
23.	District Courts of Appeal, fees		7,020 80
	a. First District (General Fund)	\$1,370 65	
	Library Fund	1,370 60	
	b. Second District (General Fund)	1,719 03	
	Library Fund	1,719 02	
	c. Third District (General Fund)	420 75	
	Library Fund	420 75	
24.	Motor Vehicle Department		6,869,382 91
	a. Licenses (Motor Vehicle Fund)	\$6,463,561 71	
	b. Refunds	87,136 23	
	c. Testing fees (Testing Fee Fund)	1,650 00	
	d. Licenses (Transfer and Operators' License Fund)	317,034 97	
25.	State Market Commission		21,238 80
	a. Licenses (Market Commission Fund)	\$1,062 74	
	b. Licenses (Fish Exchange Fund)	20,176 06	
26.	Department of Agriculture		66,951 90
	a. Fees (Meat Hygiene Fund)	\$1,865 00	
	b. Fees and Licenses (Cattle Protection Fund)	64,311 40	
	c. Licenses, (Stallion Registration Board Contingent Fund)	775 50	
27.	Superintendent of Banks, fees and licenses		143,548 08
28.	Building and Loan Commission		12,990 64
	a. Fees	\$12,940 91	
	b. Refunds	49 73	
29.	Board of Embalmers, fines		2 00
30.	Board of Architecture (Northern District), fees		3,335 60
31.	Board of Architecture (Southern District), fees		3,039 36
32.	Dairy fines (Justices of the Peace)		894 88
III. Other department collections			\$1,308,874
1.	Superintendent of Public Instruction, sale of textbooks		29,541 27
2.	State Treasurer		447,425 27
	a. Interest on deposits	\$447,257 09	
	b. Registration of bonds		168 18
3.	Superintendent of Printing		585,629 13
	a. Printing Fund	\$580,410 63	
	b. Sale of fire arms records	786 00	
	c. Sale of index to laws	4,432 50	
4.	Lunacy Commission		6,192 55
5.	State Library		527 22
6.	Mining Bureau		4,737 84
7.	Secretary of State, sale of ballot paper		48,630 09
8.	Department of Agriculture		123,978 49
	a. General Fund, receipts, etc.	\$48,511 96	
	b. Apple Standard Prosecution Fund	31,994 22	
	c. Fertilizer collections	26,710 59	
	d. Shipping Point Inspection Fund (special deposit)	15,583 40	
	e. Black Scale Fund (special deposit)	1,178 32	
9.	Board of Control		56,919 51
	a. Fire trails (contributions)	\$4,300 00	
	b. Sale of forms	2,862 23	
	c. Telephone service	5,996 17	
	d. Rent of State offices	14,023 40	
	e. Refund revolving funds	2,250 00	
	f. Pro rata budget hearings	241 75	
	g. Miscellaneous sales and refunds	2,488 89	
	h. From Emergency Fund (to Support, etc.)	3,000 00	
	i. For sundry normal schools (deficiency support)	21,757 07	
10.	California Redwood Park Commission, rents, etc.		5,293 60
IV. Institution receipts and refunds			1,536,776 07
1.	San Quentin Prison		420,411 73
	a. Prison Fund	\$119,921 31	
	b. Jute Revolving Fund	174,391 15	
	c. Manufacturing Revolving Fund	125,394 27	
	d. Refunds	705 00	

STATEMENT No. 1—Continued.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources	Amount	Total
2. Folsom Prison		\$29,160 64
a. Prison Fund	\$19,403 98	
b. Refunds	9,756 66	
3. Preston School of Industry		3,541 35
a. Contingent Fund	\$2,541 35	
b. Refunds	1,000 00	
4. Whittier State School		22,744 09
a. Contingent Fund	\$21,784 46	
b. Refunds	959 63	
5. California Training School for Girls		999 77
a. Contingent Fund	\$292 56	
b. Refunds	707 21	
6. Agnews Hospital		109,311 36
a. Contingent Fund	\$107,640 69	
b. Refunds	1,670 67	
7. Mendocino Hospital		110,539 61
a. Contingent Fund	\$109,539 51	
b. Refunds	1,000 10	
8. Napa Hospital		367,971 53
a. Hospital Contingent Fund	\$137,205 00	
b. Refunds	2,370 26	
c. Napa Farm Contingent Fund	31,512 26	
d. Refunds (Emergency Revolving Fund)	196,884 01	
9. Norwalk Hospital		34,187 66
a. Contingent Fund	\$28,610 64	
b. Refunds	5,577 02	
10. Stockton Hospital		103,659 55
a. Contingent Fund	\$102,198 06	
b. Refunds	1,461 49	
11. Southern California Hospital		105,550 83
a. Contingent Fund	\$103,295 99	
b. Refunds	2,254 84	
12. Sonoma Home		47,897 69
a. Contingent Fund	\$46,969 57	
b. Refunds	928 12	
13. Pacific Colony (Contingent Fund)		4,467 99
14. Industrial Farm for Women		248 00
a. Contingent Fund	\$123 00	
b. Refunds	125 00	
15. Home for Adult Blind		66,144 29
a. Adult Blind Fund	\$65,644 29	
b. Refunds	500 00	
16. School for Deaf and Blind		14,858 44
a. Contingent Fund	\$14,335 85	
b. Refunds	522 59	
17. California Polytechnic School		29,265 54
a. Contingent Fund	\$28,402 94	
b. Refunds	862 60	
18. Chico Normal School (Contingent Fund)		13,882 00
19. Fresno Normal School		3,523 15
a. Contingent Fund	\$2,740 82	
b. Refunds	782 33	
20. Humboldt Normal School		109 75
a. Contingent Fund	\$91 75	
b. Refunds	18 00	
21. San Diego Normal School		6,535 98
a. Contingent Fund	\$6,533 74	
b. Refunds	2 24	
22. San Francisco Normal School		270 40
a. Contingent Fund	\$226 40	
b. Refunds	44 00	
23. San Jose Normal School		2,671 24
a. Contingent Fund	\$2,630 83	
b. Refunds	40 41	
24. Santa Barbara Normal School		10,377 70
a. Contingent Fund	\$8,942 13	
b. Refunds	6,435 57	
25. Veterans' Home		28,445 78
a. Veterans' Home Fund		28,433 86
b. Refunds	\$11 92	
V. San Francisco Harbor Commission, rent of wharves, etc.		\$2,420,678 96
VI. Sale of State Lands		112,474 00
1. Principal	77,923 76	
2. Interest	34,177 68	
3. Penalties on school lands (delinquent interest)	320 56	
4. Costs of foreclosure suits	46 00	
5. Costs of advertising	6 00	

STATEMENT No. 1—Continued.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources		Amount	Total
VII. From	United States Government		\$1,628,036 43
1.	Support Veterans' Home	\$74,506 79	
2.	25% account forest reserves	181,003 31	
3.	Vocational education	82,387 82	
4.	Social hygiene	13,559 84	
5.	Construction rural roads	1,272,640 54	
6.	5% school lands	4,138 13	
VIII. Bonds,	sales, interest, redemption, etc.		11,926,929 74
1.	Sale of bonds, General Fund (surplus)	3,122,000 00	
	Accrued interest	41,885 67	
2.	Sale of bonds, Third Highway Fund	4,122,000 00	
	Accrued interest, Third Highway Interest and Sinking Fund	58,749 55	
3.	Sale of bonds, Second Highway Fund	1,000,000 00	
	Accrued interest, Second Highway Interest and Sinking Fund	20,500 00	
4.	Sale of bonds, Nurses' Registration Fund	4,062 33	
5.	Sale of bonds, Compensation Insurance Fund	2,180,910 03	
6.	Interest on bonds, School Fund	398,345 46	
7.	Redemption bonds, School Land Fund	249,212 50	
8.	Interest on bonds, School Land Fund	6,951 35	
9.	Redemption bonds, Teachers' Permanent Fund	12,600 00	
10.	Interest on bonds, Teachers' Permanent Fund	45,360 25	
11.	Redemption bonds, Compensation Insurance Fund	10,350 00	
12.	Interest on bonds, Compensation Insurance Fund	215,475 88	
13.	Redemption bonds, Dissolved Saving Bank Fund	2,780 00	
14.	Interest on bonds, Dissolved Saving Bank Fund	2,614 30	
15.	Redemption bonds, Estates Deceased Persons Fund	23,500 00	
16.	Interest on bonds, Estates Deceased Persons Fund	62 33	
17.	Interest on bonds, Bond Investment Fund	227,268 47	
18.	Interest on bonds, University Fund	49,845 00	
19.	Interest on bonds, Sacramento State Building Interest and Sinking Fund	2,205 00	
20.	Interest on bonds, Nurses' Registration Fund	637 50	
21.	State Treasurer, return of warrant for purchase of bonds (Teachers' Permanent Fund)	75,000 00	
22.	Industrial Accident Commission, refunds account overpayment purchase of bonds (Compensation Insurance Fund)	150 06	
23.	Industrial Accident Commission, refunds account non-purchase of bonds (Compensation Insurance Fund)	54,464 06	
IX. Estates	deceased persons—receipts from counties, etc.		95,708 18
X. Miscellaneous	receipts and refunds		4,629,764 63
1.	Board of Health, receipts, etc.	10,180 56	
2.	Sundry banks, unclaimed deposits	510 05	
3.	Sundry counties, cities, schools and Secretary Board of Education, teachers' pension fees	240,471 17	
4.	Sixth District Agricultural Society	7,412 30	
a.	Receipts (Contingent Fund)	\$1,734 94	
b.	Refunds	5,677 36	
5.	Sundry counties and Reclamation Board, assessment Sacramento and San Joaquin Drainage District No. 1.	28,876 84	
6.	Sundry counties and Reclamation Board, assessment Sacramento and San Joaquin Drainage District No. 3.	5,999 31	
7.	Sutter County, assessment Sacramento and San Joaquin Drainage District No. 4.	52 81	
8.	Reclamation Board, assessment Sacramento and San Joaquin Drainage District No. 6.	51 37	
9.	Reclamation Board, refunds (Revolving Fund)	118,921 31	
10.	Oil well assessments (Petroleum and Gas Fund)	129,935 78	
11.	Department of Engineering	120,441 02	
a.	Refunds (Revolving Fund)	\$67,883 40	
b.	Refunds (General Fund)	52,100 31	
c.	Refunds (San Fran. State Bldg. Fund)	457 31	
12.	Department of Engineering, Highway	2,218,990 57	
a.	Refunds (Second State Highway Fund)	\$402,236 39	
b.	Refunds (Third State Highway Fund)	1,027,623 47	
c.	Refunds (Motor Vehicle Fund)	789,130 71	
13.	Sundry counties, interest on highway monies expended.	1,388,742 50	
14.	State Agricultural Society	127,856 54	
a.	Receipts (Contingent Fund)	\$126,285 09	
b.	Refunds	1,571 45	
15.	Panama-California Exposition Commission, receipts	457 77	
16.	State Water Commission	11,403 91	
a.	Contribution (River Lands Association)	\$500 00	
b.	Contribution (San Joaquin hydrographic investigation)	7,000 00	
c.	Refunds	3,903 91	

STATEMENT No. 1—Continued.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources	Amount	Total
17. Land Settlement Board	\$192,131 01	
a. Receipts (Land Settlement Fund)	\$72,821 97	
b. Receipts (General Fund)	99,851 90	
c. Interest	19,457 14	
18. Industrial Welfare Commission	14,865 34	
a. Contribution (Canners' Auditing Fund)	\$13,708 40	
b. Refunds	1,156 94	
19. District Court of Appeal No. 1, cash bail forfeited	50 00	
20. Interest on judgment, E. Meyer Estate Company	18 52	
21. L. Marre, rent of land sold to State for taxes	300 00	
22. Superintendent of Banks, banks in liquidation	9,871 52	
23. San Diego Harbor Commission, receipts	903 79	
24. Superintendent of Weights and Measures, sale of equipment, etc.	1,319 74	
XI. Care of inmates of institutions, from counties		\$475,684 28
1. Preston School of Industry	84,820 68	
2. Whittier School	64,669 63	
3. Training School for Girls	36,249 47	
4. Pacific Colony	485 75	
5. Sonoma Home	289,458 75	
XII. Miscellaneous refunds		572,517 65
Board of Education	14,520 29	
a. Teachers' Retirement Salary Fund	\$2,469 08	
b. Vocational Education Fund	10,000 00	
c. General Fund	2,051 21	
Superintendent of Public Instruction	20,750 00	
Purchasing Department	477,729 67	
a. Revolving Fund	\$463,655 79	
b. General Fund	14,073 88	
Insurance Commissioner	176 93	
Mining Bureau	2,505 78	
a. Petroleum and Gas Fund	\$1,469 94	
b. General Fund	1,035 84	
Attorney General	941 88	
Adjutant General	2,252 70	
Thos. A. Brown, Sergeant-at-Arms Senate	8 00	
Sundry counties, account excess payment on bonded indebtedness	1,832 04	
Civil Service Commission	520 32	
Board of Charities and Corrections	961 02	
Superintendent Capitol Building and Grounds	5,499 78	
Bureau of Criminal Identification	217 00	
State Controller	1,797 73	
P. F. Cournee, salary Superior Judge H. M. Owen, deceased	16 10	
Clerk District Court of Appeal No. 3	21 85	
Board of Forestry	1,808 99	
A. R. Fink, agent	16 96	
First Federal Trust Company, salary Geo. D. Leslie, deceased	753 33	
Hickman-Coleman Company	33 96	
A. J. Messier, Assistant Secretary Board of Health	133 35	
Industrial Accident Commission	4,961 39	
Immigration and Housing Commission	1,976 21	
Labor Bureau	603 34	
Mrs. Mary Lewis, salary Superior Judge T. L. Lewis, deceased	6 70	
E. Lansford, attache Assembly	10 00	
Lassen County, account orphans	50 00	
Lunacy Commission	1,956 61	
Legislative Counsel Bureau	2,036 46	
Charles H. Lee, Water Commissioner	416 65	
J. B. Kavanaugh, Chief Clerk Assembly	639 84	
J. E. McFarland	75 54	
R. P. Merritt, Federal Food Commissioner	50 00	
Edith F. Moore	22 91	
Alma McKinnon	64 11	
Prison Directors	1,363 51	
Superintendent of Printing	500 00	
P. C. Phillips, Asst. Minute Clerk of Assembly	49 00	
Isabella H. Pirie	57 14	
E. C. Pennock	200 00	
Railroad Commission	165 00	
Reclamation Board	1,304 54	
F. J. Rodriguez, Clerk San Luis Obispo County	1 00	

STATEMENT No. 1—Concluded.

Receipts into the State Treasury for the Seventy-second Fiscal Year, Ending
June 30, 1921.

Sources	Amount	Total
XII. Miscellaneous refunds—Continued.		
Surveyor General.....	\$800 00	
Clerk Supreme Court.....	269 07	
Sundry Sheriffs.....	43 69	
Soldiers' Employment Committee.....	533 50	
William Schlep.....	188 70	
W. H. Sutton.....	150 00	
Grace Stoermer, Secretary Senate.....	38 90	
City and County of San Francisco, account orphans.....	2,520 09	
University of California.....	18,912 27	
D. R. Weller, Justice District Court of Appeal.....	37 65	
L. R. Works, Superior Judge.....	16 15	
Actual receipts.....		\$68,525,160 17
From canceled warrants.....	\$2,710 28	2,710 28
Total receipts, including canceled warrants.....		\$68,527,870 45
<i>Transfers.</i>		
Transferred from—		
San Francisco Harbor Improvement Fund to San Francisco Seawall Sinking Fund.....	\$133,106 96	
San Francisco Harbor Improvement Fund to Second San Francisco Seawall Sinking Fund.....	360,000 00	
San Francisco Harbor Improvement Fund to Third San Francisco Seawall Sinking Fund.....	80,000 00	
San Francisco Harbor Improvement Fund to India Basin Sinking Fund.....	34,120 00	
Second San Francisco Seawall Sinking Fund to General Fund.....	60,000 00	
Third San Francisco Seawall Sinking Fund to General Fund.....	13,333 32	
India Basin Sinking Fund to General Fund.....	5,686 66	
General Fund to Highway Interest and Sinking Fund.....	1,456,000 00	
General Fund to San Francisco Building Interest and Sinking Fund.....	76,000 00	
General Fund to Sacramento Building Interest and Sinking Fund.....	107,261 50	
General Fund to Veterans' Home Fund.....	180,000 00	
General Fund to State Library Fund.....	125,000 00	
General Fund to Teachers' Permanent Fund.....	133,907 93	
Teachers' Permanent Fund to Teachers' Retirement Salary Fund.....	412,500 00	
General Fund to State University Fund.....	1,399,758 05	
Industrial Rehabilitation Fund to Accident Prevention Fund.....	7,623 58	
General Fund to Vocational Education Fund.....	82,387 82	
General Fund to Insurance Commissioner's Special Fund.....	60,000 00	
General Fund to Market Commission Fund.....	20,000 00	
General Fund to State School Fund.....	7,038,232 50	
General Fund to State High School Fund.....	1,161,173 92	
General Fund to Second San Francisco Seawall Sinking Fund.....	60,000 00	
General Fund to Third San Francisco Seawall Sinking Fund.....	13,333 32	
General Fund to India Basin Sinking Fund.....	5,686 66	
General Fund to Second Highway Interest and Sinking Fund.....	609,500 00	
General Fund to Third Highway Interest and Sinking Fund.....	224,240 45	
General Fund to University of California Building Interest and Sinking Fund (a-c interest).....	80,100 00	
General Fund to University of California Building Interest and Sinking Fund (a-c red.).....	40,000 00	
General Fund to Interest and Sinking Fund.....	141,435 00	
Bond Investment Fund to General Fund.....	113,634 24	
Bond Investment Fund to School Land Fund.....	113,634 23	
Real Estate Commission Fund to General Fund.....	37,785 43	
Transfer and Operators' License Fee Fund to Motor Vehicle Fund (Motor Vehicle Department).....	923 30	
General Fund to School Book Fund.....	255,000 00	
General Fund to Ballot Paper Revolving Fund.....	20,000 00	
School Fund to School Land Fund.....	151 20	
Total transfers.....		\$14,661,516 07
Total receipts, including transfers.....		\$83,189,386 52

RECEIPTS BY COUNTIES

Showing Amount Each County Contributed to Certain Receipts Appearing in Statement No. 1.

Counties	Property tax delinquency General Fund	Poll tax	Inheritance tax	State school lands sixteenth and thirty-sixth sections, principal	State school lands sixteenth and thirty-sixth sections, interest	Payments account Whittier School	Payments account Preston School of Industry	Payments account Sonoma State Home	Payments account California School for Girls	Payments account Pacific Colony	Estates of deceased persons	Interest on highway moneys	Penalties state school lands delinquent interest	Costs foreclosure suits school lands	Cost advertising state lands	Total
Alameda	\$240 91	\$32 00	\$51,011 28			\$3,653 37	\$8,363 57	\$38,294 00	\$1,354 33		\$1,035 36	\$33,253 09				\$597,267 91
Alpine	176 35		37 35		\$192 80			20 00								426 50
Amador	44 61	8 00		\$375 00	12 72			720 00								1,864 26
Butte	50 63		20,149 57	1,239 02	264 76	785 52	1,148 88	2,300 00	1,591 61							79,766 86
Calaveras	164 86	3 00		712 83	309 20			238 06								9,445 25
Colusa	9 15		577 83	218 40				336 87								21,617 02
Colusa Coasta	27 60		16,308 61					2,070 39	3 87							46,388 52
Contra Costa	08		150 03													8,476 73
Del Norte	10 61		5,046 85	904 20	142 37		156 41	360 00								29,804 42
El Dorado	582 59	12 00	77,655 91	2,177 22	890 11	3,400 32	3,168 83	8,090 00	1,144 21		1,847 11		\$4 70			120,900 03
Fresno	17 37		14,682 50	1,212 50	38 53	240 00		720 00			1,589 83					28,691 72
Humboldt	54 42	4 00	13,737 53	160 00	22 40	382 89	475 01	1,840 00	2,891 37							82,889 69
Imperial	172 00		14,988 42	5,761 50	3,746 54	1,465 46	1,363 48	680 00	129 32							71,395 61
Inyo	14 16		412 02	1,485 13	593 65			500 00								14,016 71
Kern	988 48	40 00	2,026 36	2,533 78		3,294 49	2,585 29	2,585 00	2,057 01		766 79		17 50	\$46 00		64,441 04
Kings	11 22		150 22			76 12		1,513 00								10,556 72
Lake	190 20	17 00	2,796 17	1,346 15	130 12			480 00								15,265 83
Lassen	40 48		125 32		1,434 32	480 00		425 34								1,633,060 93
Los Angeles	935 82	350 66	1,395,003 08	2,585 73	533 23	17,975 59	25,153 13	43,429 00	8,218 83	\$402 50	23,818 08	114,655 28				23,241 26
Madiera	51		8,091 52		525 84			1,300 00	238 06							72,142 15
Marin	14 80		40,109 26			121 25		948 00	158 65							14,025 68
Mariposa	50 22	12 00	1,543 33	1,675 46	211 75			1,635 00			52 92					98,244 04
Merced	92 22	24 00	8,105 26	70 00	418 09	64 52		1,635 00								23,241 26
Mered			1,761 31	320 00		528 57		980 00	249 27							5,756 17
Modoc	103 70	28 00	323 11	325 72	262 15			480 00								14,586 91
Monterey			431 80	6,749 44	1,558 36			480 00								93,777 69
Nevada	641 22		5,968 32	5,908 39	1,014 92	1,253 44	998 99	1,360 00	770 97		556 01	75,605 43	14 56			43,670 35
Nevada	2 15		20,405 07		154 00		261 29	1,312 00	421 94							24,046 03
Nevada	204 29		1,239 98					2,280 00								44,969 23
Orinda	62 04		12,104 70			2 80	1,983 04	3,137 62	1,640 00	447 75		212 96				24,948 23
Placer	37 14		3,131 00	158 36	39 67			3,360 00								2,542 67
Plumas	228 51		848 90					480 00	225 33							44,475 12
Riverside	17,639 16		17,639 16	3,454 00	2,846 61	2,850 02	2,752 36	1,430 00	1,159 43	27 73						71,898 93
Sacramento	58 05		45,957 07			798 99		13,700 00	1,179 83							2,101 32
San Benito	42 83	4 00	217 17	1,181 63	535 89			120 00								58,176 37
San Bernardino			22,490 15	4,444 00	6,869 57	4,610 64	3,136 07	3,480 00	1,174 10				11,829 37	127 17		186,149 34
San Diego	364 94		90,434 84	6,601 57	1,438 13	3,716 72	1,721 52	3,369 50	2,929 34		55 50			10 29		4,131,006 49
San Francisco	117 36		4,008,135 49			2,972 38	6,180 61	81,815 00	5,625 28			26,470 35				94,242 90
San Joaquin	42 80		67,021 91			1,134 28	2,062 42	8,060 00	333 80							63,281 34
San Luis Obispo	204 73		6,630 00	2,007 45	1,314 83	280 00	1,457 00	1,150 00								80,016 10
San Mateo	15 75		50,308 03					380 00								114,806 38
Santa Barbara	150 54	8 00	44,225 81	14 68		2,075 82	2,472 86	2,700 00	193 57							133,010 47
Santa Clara	82 24		92,400 54	1,136 87	102 98	2,931 80	1,968 18	11,700 00	1,355 46							48,070 79
Santa Cruz	2 77		27,075 07	27 00	16 81		149 03	3,780 00			216 32					56,539 98
Siskiyou	193 05	28 00	159 66	7,258 00	639 81	1,158 70	240 00	1,040 00	214 84		3,058 00					9,490 89
Siskiyou	38 21		4 64													38,094 75
Siskiyou	129 67		4,861 53	3,279 49	547 90	1,081 39	157 68	2,780 00								94,083 73
Siskiyou	284 78	16 00	61,753 09			1,345 70	1,464 51	3,800 00	254 64		2,536 47					51,143 35
Siskiyou	58 33		2,823 64	83 65	42 43			14,230 00	238 06							26,183 59
Stanislaus	16 05		2,591 61		223 86			2,040 00	33 30							11,118 38
Butter	4 34		6,393 96					101 59								29,126 38
Tehama	36 71	6 00	1,330 76	5,271 00	1,744 69	300 90	135 48	480 00	240 00						\$3 00	14,569 12
Tehama	51 30		300 90													11,118 38
Tulare	436 72	26 00	15,934 70		814 52	1,393 39	3,831 65	2,020 00	1,222 33							57,012 53
Tulare	203 67	4 00	240 82	3,300 19			66 45	240 00			185 85					11,737 76
Tulare	127 01	4 00	18,440 13		142 23		388 05	80 00	210 32							45,852 14
Yuba	148 67		15,811 52	30 70	515 27			1,460 00								50,518 55
Yuba	31 61		715 73	440 71	323 70			480 00			979 11					13,447 46
Totals	\$8,437 23	\$654 66	\$6,804,732 08	\$77,923 76	\$34,177 68	\$64,669 63	\$84,820 68	\$289,458 75	\$36,249 47	\$485 75	\$70,913 67	\$1,388,742 50	\$320 56	\$46 00	\$6 00	\$8,561,638 42



RECEIPTS BY COUNTIES.

Showing Amount Each County Contributed to Certain Receipts Appearing in Statement No. 2.

Counties	Property tax delinquencies California State Fund	Sale of tax deeded lands	Inheritance tax	Payments account Whittier School	Payments account Preston School of Industry	California School for Girls	Payments account Sonoma State of Home	Pacific Colony	State school lands sixteenth and thirty-sixth sections, principal	State school lands sixteenth and thirty-sixth sections, interest	Penalties state school lands delinquent interest	Poll tax	Estates of deceased persons	Total
Alameda	\$13 33	\$11 00	\$178,557 44	\$4,581 01	\$11,051 87	\$1,742 25	\$42,270 00						\$16,441 23	\$24,668 13
Alpine	6 79						730 00		\$120 00	\$86 40				213 19
Amador	41 53		393 98							11 20				116 71
Butte	93 78		15,426 71	1,163 87	448 97	864 46	2,015 00		230 40	159 11				20,402 30
Calaveras	517 79	30 75	1,966 48		9 03		680 00			84 88	\$10 80	\$4 00		2,903 73
Colusa	23 10		8,510 10		71 62		820 00							9,529 49
Contra Costa			48,694 73		1,604 22	96 42	3,210 00							53,734 84
Del Norte														
El Dorado	29		1,938 42		76 13		260 00		96 00	79 48				3,030 74
Fresno	146 45	98 24	30,508 61	4,116 55	5,124 69	351 18	9,010 00	\$195 45	40 00	688 04	7 65			50,406 86
Glenn			5,800 96	162 49	92 67		720 00			126 04				7,941 31
Humboldt	17 12		4,435 27	590 00	1,189 32	3,201 63	1,840 00			22 40		12 00		11,307 74
Imperial	2 55	5 51	403 93	1,544 32	2,428 28	218 65	1,240 00		160 00	4,611 03	19 31		31 32	10,662 60
Inyo	2 23		89 69	51 62	168 39		1,060 00		320 00	751 71				2,468 25
Kern	289 19	0 93	9,451 53	3,138 28	3,365 13	2,614 72	3,380 00		1,800 00	2,981 26	9 12	4 00		27,117 25
Kings			478 10	630 67	265 45		1,440 00							2,814 22
Lake	71 24		1,965 86		370 07		510 00		470 40	77 13		12 00		1,140 77
Lassen	20 43				250 17		720 00		800 00	1,485 48				5,612 01
Los Angeles	455 84	193 90	992,363 43	15,748 36	12,840 27	7,668 58	30,058 50	5,074 46	286 93	456 47	14 03	60 16	20,703 80	1,084,924 73
Madras	3 26		1,581 77	49 29	367 14	140 00	1,320 00							3,966 80
Marin			37,763 49	108 00	480 00	240 00	1,308 00							39,899 49
Mariposa							240 00		360 00	118 44			164 71	883 15
Mato	42 05		728 90	480 00			410 00		90 00	283 72				1,974 67
Merced			4,438 10	668 28	59 29	408 39	900 00			112 64			8 00	6,996 97
Modoc	75 87		5,998 45				410 00			80 00				6,990 87
Monterey	102 38	46 25	3,697 43	952 19	859 12	670 79	2,220 00		576 00	1,291 12				1,873 74
Napa	107 98		20,653 69		451 36	227 66	1,542 00		1,098 29	8 40		7 50		22,838 59
Nevada	76 97		2,436 79				2,020 00							4,533 76
Nevada	223 40		12,011 14	1,217 84	2,729 53	553 27	1,350 00	212 25						19,336 03
Placer	1 60		1,061 53		980 04	160 65	3,320 00			89 42				5,613 24
Plumas	7 70		337 01		40 65	117 81	489 00		4 57	67 20				1,054 94
Plumas	259 00	92 80	1,863 26	1,303 21	1,303 21	1,364 00	705 00	460 00	3 20	2,395 80	50 46		6,949 61	20,276 08
Sacramento			80,311 89	914 95	5,747 09	1,363 76	15,080 00							103,617 39
San Benito			1,070 90				120 00			350 00				2,174 36
San Bernardino			15,001 76	3,884 10	2,067 25	2,218 90	3,530 00		107 30	1,600 00	62 09	1 00		35,153 50
San Diego	766 63	56 10	297,807 41	4,920 58	4,961 68	3,058 63	6,465 00		972 99	432 00				319,936 73
San Francisco	04		3,872,490 40	3,603 21	7,247 05	6,376 88	86,012 50			43 74				4,023,345 26
San Joaquin			88,794 30	1,126 52	2,066 25	532 54	7,525 00		32 25	25 00			47,615 18	101,552 78
San Jose	223 40	74 11	5,035 53	240 47	2,886 56		1,320 00		454 40	981 73		23 24		11,291 78
San Mateo	1 40	7 09	241,910 14	804 02	332 29	437 42	3,440 00							2,902 64
Santa Barbara	88 93	42 94	139,883 82	2,695 44	1,489 97	265 80	6,909 00		40 00	62 68		4 00		151,111 99
Santa Clara	4 38		116,352 65	4,214 87	2,484 44	778 35	12,370 00		86 40	89 60				136,668 29
Santa Cruz			5,732 12	169 03	126 45		3,580 00		29 40	14 58				1,230 40
Shasta	139 51	2 70	426 13	197 70			1,835 00		759 59	640 29		16 00		4,068 98
Sierra														
Sierraview	248 32	1 54	4,658 36	1,137 23	329 22		2,325 00		610 40	546 16				10,033 23
Solano	48 72		1,231 28	979 32	185 08		4,205 00						1,627 33	8,276 73
Sonoma	27 66		16,392 51	480 00	461 16	167 49	15,900 00			31 91				32,360 73
Stanislaus		47	5,171 59		1,063 04		2,140 00			193 06				9,674 53
Sutter			4,410 81		495 48		480 00							5,386 29
Tehama			13,095 80		40 65		140 00			128 00				14,573 77
Tehama	32 52	38 48	247 21				80 00		320 00	157 68	41 06			603 47
Tulare	206 32	20 83	3,292 21	1,699 72	2,714 24	1,022 16	3,260 00			537 05		24 00		12,847 03
Tuolumne	49 06	1 07	1,048 46		338 71		340 00			638 16	2 38			2,681 72
Yuba	2 08	4 78	6,340 63	833 20	936 65		720 00			94 10				9,131 44
Yuba	28 96	16 50	24,571 83	186 43	397 82		1,683 00			760 82				27,633 95
Yuba			3,094 92	482 22	207 10	57 14	1,900 00			127 01				7,866 91
Totals	\$4,254 40	\$755 01	\$6,344,644 35	\$66,796 80	\$83,634 51	\$37,263 93	\$306,125 00	\$7,219 75	\$12,942 97	\$29,264 00	\$279 52	\$155 66	\$11,773 90	\$7,005,099 89



STATEMENT No. 2.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
I. Taxes		\$38,451,396 66
1. State corporation franchise tax	\$31,111,611 22	
a. Railroad companies (steam)	\$9,933,539 01	
b. Railroad companies (electric)	2,633,443 68	
c. Gas and electric companies	6,640,711 48	
d. Telephone and telegraph companies	1,705,161 94	
e. Car companies	229,268 86	
f. Express companies	105,994 86	
g. National banks	1,652,576 23	
h. Banks, state and savings	1,978,255 90	
i. Insurance companies	3,089,953 69	
j. Building and loan societies	42,748 00	
k. Oil, mining and general corporation franchises	3,020,745 00	
l. Public service corporations	4,684 00	
m. Delinquent lieu taxes	50,896 96	
n. Advance 1922 taxes	3,586 00	
o. Penalties	20,045 61	
2. Poll tax		155 66
3. Inheritance tax		6,344,644 35
4. Corporation license tax (Secretary of State)		990,730 94
5. General property tax (delinquencies of former years)		4,254 49
II. Fines, fees and licenses		15,312,479 70
1. Secretary of State, office fees		260,879 97
2. Surveyor General		99,792 58
a. Fees, General Fund	\$3,479 71	
b. Permit fees, mineral lands	325 00	
c. Rent of agricultural lands	5,648 00	
d. Rent of mineral lands	2,039 95	
e. Sale of script	88,299 92	
3. Clerk of Supreme Court, fees		8,688 50
a. General Fund	\$6,950 80	
b. Library Fund	1,737 70	
4. Insurance Commissioner, fees		156,680 34
5. Department of Education		18,482 19
a. Sales of diplomas, etc.	\$16,052 19	
b. Text book filing fees	2,430 00	
6. Fish and Game Commission		557,760 20
a. Fines	\$31,255 79	
b. Sales of hunting licenses	262,975 17	
c. Sales of angling licenses	182,369 20	
d. Sales of wholesale dealers' licenses and fish packers' licenses and tax	28,970 32	
e. Inspection of crawfish and abalone	465 31	
f. Sales of market fishermen's licenses	43,600 00	
g. Sales of game and fish breeders' licenses	110 00	
h. Sales of trappers' licenses	3,161 00	
i. Sales of fish and game marking tags	3,688 67	
j. Sales of fish importers' licenses	10 00	
k. Miscellaneous sales	542 75	
l. Refunds	611 99	
7. Medical Examiners, fees, fines, etc.		86,817 57
8. Railroad Commission, fees, etc.		113,696 92
9. Department of Labor and Industrial Relations		4,826,809 92
Division of Workmen's Compensation, Insurance and Safety:		
a. Fees (Industrial Accident Fund)	\$2,802 55	
b. Fees (Compensation Insurance Fund)	4,690,983 44	
c. Fees (Accident Prevention Fund)	116,526 43	
d. Death claims (Industrial Rehabilitation Fund)	16,497 50	
Division of Labor, fees and fines		17,581 00
10. Board of Pharmacy, fees		6,912 17
11. Board of Examiners in Veterinary Medicine, fees		230 00
12. Department of Public Works (Division of Water Rights) fees		17,242 72
13. Board of Optometry, fees and fines		6,758 85
14. County Recorders, land title fees		1,156 90
15. Board of Health		21,444 00
a. Fees, etc., (Nurses' Registration Fund)	\$19,323 25	
b. Fines (Pure Food and Drug Law)	2,120 75	
16. Ray L. Riley, Controller, fees (Sec. 710, C. C. P.)		16 00
17. Dental Examiners, fees, etc.		15,441 18
18. Corporation Commissioner, fees		232,989 11
19. Real Estate Commissioner		158,686 17
a. Fees for 1921	\$15,265 20	
b. Fees for 1922	143,420 97	
20. Board of Bar Examiners, fees		8,985 00
21. Prison Directors, detectives' licenses		1,200 00

STATEMENT No. 2—Continued.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
II. Fines, fees and licenses—Continued.		
22. District Courts of Appeal, fees	\$8,236 90	
a. First District (General Fund)	\$1,600 33	
(Library Fund)	1,609 32	
b. Second District (General Fund)	2,109 13	
(Library Fund)	2,109 12	
c. Third District (General Fund)	400 00	
(Library Fund)	400 00	
23. Department of Finance (Division of Motor Vehicles)	8,318,807 59	
a. Licenses (Motor Vehicle Fund)	\$7,704,135 51	
b. Refunds	201,862 05	
c. Testing fees (Testing Fee Fund)	3,050 00	
d. Licenses (Transfer and Operators' License Fund)	409,506 88	
e. Licenses (Aircraft Fund)	83 15	
f. Licenses (Aircraft Operators' Fund)	170 00	
24. Superintendent of Banks, fees and licenses	187,039 30	
25. Building and Loan Commissioner, fees, etc	13,873 09	
26. Board of Embalmers, fines	28 00	
27. Board of Architecture (Northern District) fees	2,865 40	
28. Board of Architecture (Southern District) fees	3,360 01	
29. Dairy fines (Justices of the Peace)	455 00	
30. Department of Agriculture	157,224 12	
a. Fees (Meat Hygiene Fund)	\$7,875 35	
b. Fees and licenses (Cattle Protection Fund)	69,035 66	
c. Licenses (Stallion Registration Board Contingent Fund)	714 00	
d. Licenses (Market Commission Fund)	1,143 82	
e. Licenses (Fish Exchange Fund)	21,457 44	
f. Fees (Division of Chemistry Fund)	27,144 36	
g. Fees (Standardization Fund)	26,973 09	
h. Fees (Warehouse Standardization Fund)	1,043 31	
i. Fees (Grain Standardization Fund)	2,224 74	
31. Superintendent of Public Instruction, dental and foreign language fees	2,339 00	
III. Other department collections		\$1,427,244 23
1. Superintendent of Public Instruction, sale of text books	12,820 48	
2. State Treasurer	665,204 14	
a. Interest on deposits	\$664,570 36	
b. Registration of bonds	450 28	
c. Interest on balances, state funds (National City Bank, N. Y.)	183 50	
3. Department of Agriculture	109,634 93	
a. General Fund, receipts, etc.	\$76,206 88	
b. Apple Standard Prosecution Fund	26,585 44	
c. Fertilizer collections	386 94	
d. Shipping Point Inspection Fund (special deposit)	6,068 02	
4. Mining Bureau, receipts	6,877 85	
5. Secretary of State, sale of ballot paper	4,286 33	
6. California Redwood Park Commission, rents, etc	5,717 44	
7. Department of Finance (Division of Printing)	515,504 25	
a. Receipts (Printing Fund)	\$513,186 65	
b. Sales of fire arms records	834 00	
c. Sales of index to laws	22 50	
d. Sale of old buildings, printing office site	1,461 10	
8. Department of Finance (Division of Libraries) receipts, etc.	1,384 48	
9. Department of Institutions	32,958 05	
a. Receipts	\$5,801 82	
b. From appropriations of various institutions for support	27,156 23	
10. Department of Education (from appropriations of various schools and colleges for support)	12,641 50	
11. Superintendent Capitol Building and Grounds, receipts	358 00	
12. Department Weights and Measures, sale of equipment, etc.	559 37	
13. Board of Control	6,335 90	
a. Telephone service	\$1,414 09	
b. Rent of state offices	4,889 54	
c. Miscellaneous sales	13 00	
d. Refunds	19 27	
14. Department of Finance (Board of Control)	52,961 51	
a. Telephone service	\$1,029 41	
b. Rent of state offices	38,029 58	
c. Fire trails (contributions)	4,200 00	
d. Miscellaneous sales	811 58	
e. Janitor service	222 27	
f. Refunds	8,668 67	

STATEMENT No. 2—Continued.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
IV. Institution receipts, refunds, etc.		\$1,352,895 50
1. San Quentin Prison		\$398,805 50
a. Prison Fund	\$44,090 12	
b. Jute Revolving Fund	228,639 46	
c. Manufacturing Revolving Fund	124,632 83	
d. Refunds	1,443 09	
2. Folsom Prison		28,971 65
a. Prison Fund	\$20,265 22	
b. Refunds	8,706 43	
3. Preston School of Industry		5,601 59
a. Contingent Fund	\$940 16	
b. Refunds	4,661 43	
4. Whittier State School		30,996 19
a. Contingent Fund	\$25,919 59	
b. Refunds	5,076 60	
5. California Training School for Girls		1,911 13
a. Contingent Fund	\$1,359 34	
b. Refunds	551 79	
6. Agnews Hospital		104,780 91
a. Contingent Fund	\$103,819 92	
b. Refunds	960 99	
7. Mendocino Hospital		127,672 89
a. Contingent Fund	\$126,771 50	
b. Refunds	901 39	
8. Napa Hospital		134,643 47
a. Contingent Fund	\$132,822 79	
b. Refunds	1,820 68	
9. Norwalk Hospital		36,301 08
a. Contingent Fund	\$31,119 62	
b. Refunds	5,181 46	
10. Stockton Hospital		95,493 22
a. Contingent Fund	\$89,537 98	
b. Refunds	5,955 24	
11. Southern California Hospital		104,236 57
a. Contingent Fund	\$103,349 13	
b. Refunds	887 44	
12. Sonoma Home		51,682 80
a. Contingent Fund	\$50,064 46	
b. Refunds	1,618 34	
13. Pacific Colony		5,842 05
a. Contingent Fund	\$5,592 05	
b. Refunds	250 00	
14. Industrial Farm for Women		7,694 52
a. Contingent Fund	\$227 20	
b. Refunds	7,467 32	
15. Home for Adult Blind		53,061 74
a. Adult Blind Fund	\$52,926 09	
b. Refunds	135 65	
16. School for Deaf and Blind		13,724 00
a. Contingent Fund	\$12,831 02	
b. Refunds	892 98	
17. California Polytechnic School		56,639 81
a. Contingent Fund	\$55,646 85	
b. Refunds	992 96	
18. Chico Teachers College		23,365 93
a. Contingent Fund	\$20,428 43	
b. Refunds and contributions	2,937 50	
19. Fresno Teachers College		15,886 02
a. Contingent Fund	\$11,198 52	
b. Refunds and contributions	4,687 50	
20. Humboldt Teachers College		2,070 29
a. Contingent Fund	\$661 90	
b. Refunds	1,408 39	
21. San Diego Teachers College		22,310 72
a. Contingent Fund	\$9,260 72	
b. Refunds and contributions	13,050 00	
22. San Francisco Teachers College		2,548 09
a. Contingent Fund	\$2,488 09	
b. Refunds	60 00	
23. San Jose Teachers College		5,432 91
a. Contingent Fund	\$4,028 56	
b. Refunds	1,404 35	
24. Santa Barbara Teachers College		6,750 86
a. Contingent Fund	\$4,193 62	
b. Refunds and contributions	2,557 24	
25. Veterans' Home		16,471 56
a. Veterans' Home Fund	\$16,199 64	
b. Refunds	271 92	

STATEMENT No. 2—Continued.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
V. San Francisco Harbor Commission, rent of wharves, etc.		\$2,438,358 58
VI. Sale of State lands		43,241 50
1. Principal	\$12,942 97	
2. Interest	29,264 00	
3. Penalties on school lands (delinquent interest)	279 52	
4. Sale tax deeded lands	755 01	
VII. From United States Government		3,411,905 34
1. Support Veterans' Home	76,380 00	
2. 25 per cent account forest reserves	166,450 18	
3. Vocational education	118,440 67	
4. Vocational rehabilitation	24,414 09	
5. 5 per cent school lands	4,832 27	
6. Lease of oil lands	777,061 32	
7. Construction of rural roads	2,218,798 53	
8. Fire prevention	22,749 98	
9. Social hygiene	2,778 30	
VIII. Bonds, sales, interest, redemption, etc.		29,125,140 99
1. Sale of bonds, General Fund (surplus)	3,036,472 22	
Accrued interest	7,250 00	
2. Sale of bonds, Compensation Insurance Fund	1,648,077 49	
3. Sale of bonds, Third Highway Fund	18,012,550 00	
Accrued interest, Third Highway Interest and Sinking Fund	154,707 70	
4. Sale of bonds, Sacramento State Building Fund	2,860,000 00	
Accrued interest, Sacramento State Building Interest and Sinking Fund	45,760 00	
5. Sale of bonds, Third San Francisco Seawall Fund	1,000,000 00	
Accrued interest, Third San Francisco Seawall Sinking Fund	17,222 22	
6. Sale of bonds, Second Highway Fund	1,000,000 00	
Accrued interest, Second Highway Interest and Sinking Fund	19,250 00	
7. Interest on bonds, School Fund	429,822 79	
8. Redemption bonds, School Land Fund	250,312 50	
Accrued interest, School Land Fund	13,684 79	
9. Redemption bonds, Teachers' Permanent Fund	8,550 00	
10. Interest on bonds, Teachers' Permanent Fund	53,991 50	
11. Redemption bonds, Compensation Insurance Fund	8,500 00	
12. Interest on bonds, Compensation Insurance Fund	263,953 40	
13. Redemption bonds, Dissolved Savings Bank Fund	1,000 00	
14. Interest on bonds, Dissolved Savings Bank Fund	2,487 50	
15. Redemption bonds, Estates Deceased Persons Fund	16,000 00	
16. Interest on bonds, Estates Deceased Persons Fund	1,166 66	
17. Interest on bonds, Bond Investment Fund	217,146 25	
18. Interest on bonds, University Fund	49,845 00	
19. Interest on bonds, Sacramento State Building Interest and Sinking Fund	4,830 00	
20. Interest on bonds Nurses' Registration Fund	552 50	
21. Refund account purchase of bonds, Compensation Insurance Fund	8 47	
IX. Estates Deceased Persons, receipts from counties, etc.		139,360 88
X. Miscellaneous receipts and refunds		3,537,538 94
1. Board of Health, receipts, etc.	8,444 46	
2. Sundry banks unclaimed deposits	1,617 00	
3. Superintendent of Banks, banks in liquidation	42,086 83	
4. Sundry counties, cities, colleges, etc., teachers' pension fees	250,138 29	
5. Sixth District Agricultural Society	745 32	
a. Receipts (Contingent Fund)	\$744 28	
b. Refunds	1 04	
6. Sundry counties and Reclamation Board, assessment Sacramento and San Joaquin Drainage District No. 1	32,211 58	
7. Reclamation Board, assessment Sacramento and San Joaquin Drainage District No. 3	4,619 58	
8. Sundry counties, assessment Sacramento and San Joaquin Drainage District No. 6	48,523 93	
9. Reclamation Board, refunds (Revolving Fund)	100,566 46	
10. Oil well assessments (Petroleum and Gas Fund)	148,000 87	
11. Department of Public Works (Division of Highways)	1,874,612 56	
a. Refunds (Second Highway Fund)	\$228,991 41	
b. Refunds (Third Highway Fund)	571,744 56	
c. Refund (Motor Vehicle Fund)	1,072,876 59	
d. Vallejo-Sears Point survey (contribution)	1,000 00	
12. Department of Engineering, refunds	6,719 65	
13. Department of Public Works (Division of Engineering-Irrigation) refunds and contributions	35,318 26	
14. Department of Public Works (Division of Architecture)	96,312 59	
a. Refunds (General Fund)	\$13,088 57	
b. Refunds (Architectural Revolving Fund)	48,707 78	
c. Refunds (San Francisco State Building Fund)	33,130 49	

STATEMENT No. 2—Continued.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
X. Miscellaneous receipts and refunds—Continued.		
d. Refunds (Fish and Game Preservation Fund).....	\$1,196 15	
e. Refunds (Sacramento State Building Fund).....	219 60	
15. Department of Public Works (Division of Water Rights).....		\$6,661 49
a. City of San Luis Obispo Cooperative Fund (contribution).....	\$500 00	
b. San Joaquin Hydrographic Investigation (contribution).....	2,000 00	
c. San Jacinto River Investigation (contribution).....	1,250 00	
d. Refunds.....	2,911 49	
16. Department of Public Works (Division of Land Settlement).....		182,107 11
a. Receipts (Land Settlement Fund).....	\$71,956 42	
b. Receipts (General Fund).....	95,619 42	
c. Interest.....	9,506 17	
d. Refunds.....	5,025 10	
17. State Agricultural Society.....		119,556 23
a. Receipts (Contingent Fund).....	\$119,458 33	
b. Refunds.....	97 90	
18. Department of Labor and Industrial Relations (Division of Industrial Welfare).....		17,252 37
a. Contribution (Canners' Auditing Fund).....	\$16,237 56	
b. Refunds.....	1,014 81	
Division of Immigration and Housing, refunds.....		209 98
Division of Workmen's Compensation, Insurance and Safety, refunds.....		2,095 76
Division of Labor, refunds.....		1,376 77
19. Department of Education.....		33,043 82
a. Refunds (Vocational Education Fund).....	\$22,924 44	
b. Refunds (Teachers' Retirement Salary Fund).....	2,175 04	
c. Refunds (Vocational Rehabilitation Fund).....	51 54	
d. Refunds (General Fund).....	7,892 80	
20. Ford Motor Company.....		5,447 75
a. Interest account franchise tax.....	\$5,328 75	
b. Cost of trials.....	119 00	
21. San Diego Harbor Commission, receipts.....		739 45
22. Inyo County royalty on minerals.....		6,902 42
23. Los Angeles Rindge Condemnation Fund (special deposit).....		2,000 00
24. Mono County, judgment Superior Court.....		2,504 60
25. City of Redding Condemnation Fund (special deposit).....		57,356 18
26. First National Bank of Santa Barbara, costs of suit.....		48 27
27. Los Angeles County, unclaimed deposit by Glendale.....		7 50
28. L. Marre, rent Balliot mine.....		100 00
29. University of California, sale of reports.....		3 75
30. Department of Finance (Napa State Farm).....		160,858 48
a. Receipts (Contingent Fund).....	\$36,909 72	
b. Refunds (Emergency Revolving Fund).....	123,948 76	
31. Department of Finance (Division of Purchases and Custody).....		281,432 22
a. Refunds (Purchasing Department Revolving Fund).....	\$281,366 42	
b. Refunds (General Fund).....	65 80	
32. Board of Forestry, refunds and contributions.....		7,887 36
XI. Care of inmates of institutions—from counties.....		\$501,029 99
1. Whittier School.....		66,786 80
2. Preston School.....		83,634 51
3. Training School for Girls.....		37,263 93
4. Sonoma Home.....		306,125 00
5. Pacific Colony.....		7,219 75
XII. Miscellaneous refunds.....		24,311 24
Mining Bureau.....		3,500 27
a. General Fund.....	\$3,251 20	
b. Petroleum and Gas Fund.....	249 07	
Adjutant General.....		7,172 50
Attorney General.....		373 02
P. C. Albertson.....		82
Sundry counties, account excess payment bonded indebtedness.....		1,276 51
Harriet Bird.....		49 88
Civil Service Commission.....		687 94
Board of Charities and Corrections.....		539 07
Criminal Identification Bureau.....		109 00
J. C. Carly Company, agent.....		73 35
Ray L. Riley, Controller.....		2,344 85
Clerk First District Court of Appeal.....		93 56
Clerk Second District Court of Appeal.....		344 40
Clerk Third District Court of Appeal.....		42 50
Board of Equalization.....		257 91

STATEMENT No. 2—Continued.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
XII. Miscellaneous refunds—Continued.		
A. R. Fink, agent	\$60 32	
J. C. Hayburn Company	4 15	
J. B. Kavanaugh, Chief Clerk of Assembly	101 63	
Legislative Counsel Bureau	655 00	
Department of Institutions	2,467 13	
McKinley Orphanage	8 67	
Prison Directors	850 00	
R. R. Paulson	2 33	
Railroad Commission	1,000 00	
Robertson-Govan Company, agents	44 00	
Real Estate Commissioner	20 90	
Grace Stoermer, Secretary of State	11 25	
Secretary of State	315 00	
Florence B. Shackelford	133 30	
E. B. Rugh	1 88	
Surveyor-General	450 55	
Superintendent of Public Instruction	501 39	
Clerk Supreme Court	734 97	
Sundry sheriffs	15 00	
Veterans' Welfare Board	25 00	
B. E. Tarver, agent	33 33	
A. T. Trainor, agent	9 86	
Actual receipts		\$95,764,903 55
From canceled warrants		2,369 58
Total receipts, including canceled warrants		\$95,767,273 13
Transfers.		
Transferred from:		
San Francisco Harbor Improvement to San Francisco Seawall Sinking Fund	\$127,972 21	
San Francisco Harbor Improvement Fund to Second San Francisco Seawall Sinking Fund	360,000 00	
San Francisco Harbor Improvement Fund to Third San Francisco Seawall Sinking Fund	99,444 44	
San Francisco Harbor Improvement Fund to India Basin Sinking Fund	34,120 00	
Second San Francisco Seawall Sinking Fund to General Fund	60,000 00	
Third San Francisco Seawall Sinking Fund to General Fund	16,111 10	
India Basin Sinking Fund to General Fund	5,686 66	
General Fund to School Book Fund	527,000 00	
General Fund to Veterans' Home Fund	220,000 00	
General Fund to State Library Fund	147,950 00	
General Fund to Market Commission Fund	18,620 00	
General Fund to Teachers' Permanent Fund	340,236 60	
General Fund to Vocational Education Fund	118,440 67	
Compensation Insurance Fund to General Fund	100,000 00	
General Fund to Water Commission Revolving Fund	50,000 00	
General Fund to Land Settlement Fund	750,000 00	
General Fund to Division of Chemistry Fund	5,791 01	
General Fund to State University Fund	1,882,849 83	
School Land Fund to Estates Deceased Persons Fund	5,000 00	
General Fund to Vocational Rehabilitation Fund	24,414 09	
General Fund to State School Fund	12,658,092 05	
General Fund to State High School Fund	2,802,429 90	
Teachers' Permanent Fund to Teachers' Retirement Salary Fund	262,340 00	
Standardization Fund to Warehouse Standardization Fund	312 00	
General Fund to Second San Francisco Seawall Sinking Fund	60,000 00	
General Fund to Third San Francisco Seawall Sinking Fund	19,444 44	
General Fund to India Basin Sinking Fund	5,686 66	
General Fund to First Highway Interest and Sinking Fund, Account Interest	640,000 00	
General Fund to First Highway Interest and Sinking Fund, Account Redemption	400,000 00	
General Fund to Second Highway Interest and Sinking Fund	655,750 00	
General Fund to Third Highway Interest and Sinking Fund	982,077 30	
General Fund to Sacramento State Building Interest and Sinking Fund	74,240 00	
General Fund to University State Building Interest and Sinking Fund, Account Interest	78,300 00	
General Fund to San Francisco State Building Interest and Sinking Fund, Account Interest	35,200 00	
General Fund to San Francisco State Building Interest and Sinking Fund, Account Redemption	20,000 00	

STATEMENT No. 2—Concluded.

Receipts into the State Treasury for the Seventy-third Fiscal Year, Ending
June 30, 1922.

Sources	Amount	Total
Transfers—Concluded.		
Transferred from—Continued.		
General Fund to University State Building Interest and Sinking Fund, Account Reemption	\$40,000 00	
General Fund to Interest and Sinking Fund	141,435 00	
Bond Investment Fund to School Land Fund	108,573 12	
Bond Investment Fund to General Fund	108,573 13	
Industrial Rehabilitation Fund to Accident Prevention Fund ..	5,000 00	
Real Estate Commission Fund to General Fund	35,763 13	
University Fund to State University Fund, Account error	24,922 50	
General Fund to Veterans' Welfare Fund	450,000 00	
General Fund to Veterans' Farm and Home Building Fund	950,000 00	
Tax Land Fund to Veterans' Dependents' Education Fund	755 01	
Total transfers		\$20,452,530 85
Total receipts, including transfers		\$121,219,803 98

May	27, 1919	Salaries, two Bailiffs	3,600 00	3,600 00	3,600 00	3,600 00			
May	27, 1919	Salary, Clerk	5,000 00	5,000 00	5,000 00	5,000 00			
May	27, 1919	Salary, Chief Deputy Clerk	2,700 00	2,700 00	2,700 00	2,700 00			
May	27, 1919	Salaries, six Deputies to Clerk	12,600 00	12,613 20	12,613 20	12,613 20		382 80	
May	27, 1919	Salary, Stenographer to Clerk	1,500 00	1,500 00	1,500 00	1,500 00		58 70	
May	27, 1919	Pay, Porter to Clerk	1,080 00	1,080 00	1,080 00	1,080 00			
May	27, 1919	Postage, etc.	150 00	150 00	150 00	150 00		122 08	
May	27, 1919	Postage, etc., Clerk	1,266 72	2,000 00	2,000 00	2,000 00		303 45	
May	27, 1919	By amount returned	6 75	1 71	1 71	1 71		838 01	
May	27, 1919	Printing, etc., Clerk	232 37	1,250 00	1,250 00	1,250 00		32,119 06	
May	27, 1919	Expenses (Sec. 47, C. C. P.)	3,093 35	32,400 00	32,400 00	32,400 00		8,663 01	
May	14, 1917	By amounts returned	5 00	235 61	235 61	235 61		4 98	
June	7, 1913	Uses, Supreme Court Library Fund	8,667 99					1,979 70	
April	14, 1909	Furniture, etc.	8,276 55					8,276 55	
		Furniture, Clerk	102 50					102 50	
<i>District Courts of Appeal.</i>									
May	27, 1919	Salaries, Justices	\$6,388 73	\$63,000 00	\$63,000 00	\$63,000 00		\$63,000 00	
May	27, 1919	Salaries, Officers, etc., Division No. 2, District No. 1	5,473 54	10,320 00	10,320 00	10,320 00		3,420 00	\$13,288 73
May	27, 1919	Salaries, Officers, etc., Division No. 2, District No. 2		5,680 00	5,680 00	5,680 00		1,000 00	10,153 54
May	27, 1919	Salaries, six additional Justices, First and Second Districts		42,000 00	42,000 00	42,000 00		42,037 65	
May	27, 1919	By amount returned	37 65					8,100 00	
May	27, 1919	Salaries, three Clerks		8,100 00	8,100 00	8,100 00		8,000 00	
May	27, 1919	Salaries, five Deputy Clerks	2,139 80	10,000 00	10,000 00	10,000 00		4,139 80	
May	27, 1919	Salaries, five Bailiffs	223 60	8,000 00	8,000 00	8,000 00		7,866 70	
May	27, 1919	By amount returned		75 54	75 54	75 54		432 41	
May	27, 1919	Salaries, five Phonographic Reporters	209 80	12,000 00	12,000 00	12,000 00		11,507 15	702 65
May	27, 1919	Pay, three Porters	14 50	3,240 00	3,240 00	3,240 00		3,240 00	14 50
May	27, 1919	Salaries, Secretaries, First District	139 66	3,000 00	3,000 00	3,000 00		3,000 00	139 66
May	27, 1919	Salaries, Secretaries, Second District	3,000 00	3,000 00	3,000 00	3,000 00		1,314 51	4,685 49
May	27, 1919	Salaries, Secretaries, Third District	250 00	3,000 00	3,000 00	3,000 00		3,000 00	250 00
May	27, 1919	Postage, etc., First District		750 00	750 00	750 00		749 99	00 00
May	27, 1919	Postage, etc., Second District	119 81	750 00	750 00	750 00		631 87	237 94
May	27, 1919	Postage, etc., Third District		21 85	21 85	21 85		771 45	40 00
May	27, 1919	By amount returned		21 85	21 85	21 85		391 89	
May	27, 1919	Postage, etc., Division No. 2, District No. 1	16 89	375 00	375 00	375 00		510 22	232 78
May	27, 1919	Postage, etc., Division No. 2, District No. 2	368 00	375 00	375 00	375 00		438 76	61 24
May	27, 1919	Printing, etc., District No. 1		500 00	500 00	500 00		440 90	147 03
May	27, 1919	Printing, etc., District No. 2		500 00	500 00	500 00		401 69	354 21
May	27, 1919	Printing, etc., District No. 3	87 93	500 00	500 00	500 00		271 13	419 65
May	27, 1919	Printing, etc., Division No. 2, District No. 1	255 90	500 00	500 00	500 00		533 79	390 07
May	27, 1919	Printing, etc., Division No. 2, District No. 2	190 78	500 00	500 00	500 00		1,377 00	75 00
May	27, 1919	Printing, etc., Division No. 2, District No. 1	423 86	1,432 00	1,432 00	1,432 00		184 25	97 42
May	27, 1919	Furniture, etc., Division No. 2, District No. 1		250 00	250 00	250 00		1,962 42	25 58
May	27, 1919	Furniture, Division No. 2, District No. 1	31 67	1,000 00	1,000 00	1,000 00		2,532 33	
May	27, 1919	Uses, District No. 1, Library Fund	988 00					8,171 99	
May	27, 1919	Uses, District No. 2, Library Fund						507 26	
May	27, 1919	Uses, District No. 3, Library Fund							
\$141,008 69									
\$175,382 95									

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 27, 1919	<i>Superior Courts.</i> State's portion, salaries, Superior Judges. By amount returned.....		\$289,000 00 38 95}	\$294,615 00		\$294,615 00	\$611,006 64
May 27, 1919	<i>EXECUTIVE.</i> Governor.						
May 27, 1919	Salary of Governor.....		\$10,000 00	\$10,000 00			
May 27, 1919	Salary, Secretary.....		5,000 00	5,000 00			
May 27, 1919	Salary, Executive Secretary.....		3,600 00	3,600 00			
May 27, 1919	Stenographer.....		2,000 00	2,000 00			
May 27, 1919	Salary, Messenger.....		1,500 00	1,500 00			
May 27, 1919	Postage, traveling, etc.....	\$0 25	9,200 00	9,200 25			
May 27, 1919	Support, Governor's residence.....		8,750 00	8,750 00			
May 27, 1919	Printing, etc.....	416 71	750 00	690 76	\$505 95		
May 27, 1919	Special contingent (Secret Service).....	5 24	5,000 00	5,000 24			
May 27, 1919	Payment of rewards (750 00)	750 00	750 00	750 00	1,500 00		
May 27, 1919	Payment of rewards (illegal voting)	250 00	250 00	250 00	500 00		
May 27, 1919	Payment of rewards (highway robbers)	1,000 00	1,000 00	1,000 00	2,000 00		
May 10, 1915	Furnishing Governor's residence.....	1 64			1 64		
May 8, 1909							
May 28, 1911	Furnishing, etc., Governor's residence.....	28 98			28 98		
May 27, 1919	<i>Lieutenant Governor.</i> Salary.....		\$4,000 00	\$4,000 00		\$45,746 25	\$49,746 25
May 27, 1919	<i>ADMINISTRATIVE.</i> <i>Board of Control.</i> Salaries, members.....		\$15,000 00	\$14,582 00	\$417 10		
May 27, 1919	Salary, Secretary.....	\$58 05	3,600 00	3,600 00	58 05		
May 27, 1919	Salaries, three Clerks.....		5,400 00	5,400 00			
May 27, 1919	Salaries, two Stenographers.....	57 66	3,000 00	2,947 54	110 12		
May 27, 1919	Salary, Messenger.....		900 00	900 00			
May 27, 1919	Salary, Superintendent of Accounts.....		3,600 00	3,600 00			
May 27, 1919	Salaries, two assistant Superintendents of Accounts.....		5,400 00	5,269 35	319 35		
May 27, 1919	By amount returned.....	1,794 05	91,000 00				
May 27, 1919	Support and maintenance.....	2,393 01	12,687 25	106,386 85	1,490 36		
May 27, 1919	By amount returned.....						
May 27, 1919	<i>Secretary of State.</i> Salary, Secretary of State.....		\$5,000 00	\$5,000 00			
May 27, 1919	Salary, Deputy.....		3,000 00	3,000 00			
May 27, 1919	Salary, Bookkeeper.....	\$100 00	2,400 00	2,400 00	\$100 00		

May	27, 1919	Salary, Corporation Secretary	2,800 00	2,800 00	2,800 00	2,800 00
May	27, 1919	Salary, Statistician	2,400 00	2,400 00	2,400 00	2,400 00
May	27, 1919	Salary, Keeper of Archives	2,000 00	2,000 00	2,000 00	2,000 00
May	27, 1919	Salaries, six Recording Clerks	406 40	10,200 00	9,329 60	1,276 80
May	27, 1919	Salary, one Register Clerk	1,800 00	1,800 00	1,800 00	1,800 00
May	27, 1919	Salaries, two Certificate Clerks	3,200 00	3,200 00	3,200 00	3,200 00
May	27, 1919	Salary, Messenger	58 43	900 00	900 00	900 00
May	27, 1919	Pay of Porter	720 00	720 00	720 00	720 00
May	27, 1919	Salaries, two special Legislative Clerks	1,000 00	1,000 00	1,000 00	1,000 00
May	27, 1919	Salary, Superintendent Corporation License Tax Department	2,400 00	2,400 00	2,400 00	2,400 00
May	27, 1919	Salaries, six Clerks, Corporation License Tax Department	260 80	10,600 00	10,509 15	351 65
May	27, 1919	Salary, Messenger, Corporation License Tax Department	38 75	600 00	600 00	38 95
May	27, 1919	Pay of Porter, Corporation License Tax Department		360 00	360 00	
May	27, 1919	Postage, etc.		7,162 63	4,176 51	2,986 12
May	27, 1919	Contingent and traveling expenses		1,230 00	1,234 78	132 03
May	27, 1919	Printing, etc.	136 81	8,004 08	4,529 07	3,475 01
May	27, 1919	Compiling and printing State Roster		500 00		500 00
May	27, 1919	Compiling, printing, etc., Constitutional Amendments		30,000 00	30,000 00	
January	24, 1921	Deficiency in compiling, etc., Constitutional Amendments		14,203 78	14,203 78	
May	18, 1915	Office equipment	74 43	60 00	60 00	14 43
May	15, 1917	Equipment of vault	687 30		55 00	632 30
		Purchase of ballot paper, Ballot Paper Revolving Fund			69,059 29	
		Repayment candidates filing fees (Sec. 8, Primary Laws)			5,980 00	
						\$177,659 08
May	27, 1919	Salary, Controller	\$5,000 00	\$5,000 00	\$5,000 00	\$5,000 00
May	27, 1919	Salary, Deputy	3,000 00	3,000 00	3,000 00	3,000 00
May	27, 1919	Salary, Bookkeeper	2,400 00	2,400 00	2,400 00	2,400 00
May	27, 1919	Salary, Redemption Tax Expert	\$28 00	2,400 00	2,400 00	\$28 00
May	27, 1919	Salaries, five Clerks	48 40	3,600 00	3,600 00	48 40
May	27, 1919	Salaries, five Clerks	3,042 70	8,000 00	6,189 30	4,853 40
May	27, 1919	Salary, Statistician		2,400 00	2,400 00	
May	27, 1919	Salary, Warrant Registrar		2,400 00	2,400 00	
May	27, 1919	Salary, Stenographer	375 00	1,200 00	444 70	1,130 30
May	27, 1919	Salary, Stenographer-Clerk		1,500 00	1,500 00	
May	27, 1919	Pay of Porter	720 00	720 00	720 00	720 00
May	27, 1919	Salary, Inheritance Tax Attorney (Sacramento)		3,600 00	3,600 00	
May	27, 1919	Salary, one Assistant Inheritance Tax Attorney (Sacramento)		2,700 00	2,700 00	
May	27, 1919	Salaries, two Assistant Inheritance Tax Attorneys (San Francisco)		6,000 00	6,000 00	
May	27, 1919	Salaries, two Assistant Inheritance Tax Attorneys (Los Angeles)		6,000 00	6,000 00	
May	27, 1919	By amount returned		200 00		200 00
May	27, 1919	Salaries, extra Clerks, Tax Collecting Department	2,133 50	6,000 00	4,179 90	3,953 60

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 27, 1919	Salary, Superintendent Franchise Tax Department	\$11 95	\$2,400 00	\$2,400 00	\$11 95		
May 27, 1919	Salary, Franchise Tax Expert	811 95	2,400 00	2,400 00	1,641 95		
May 27, 1919	Contingent and traveling expenses	3,430 81	10,000 00	9,696 10	3,934 71		
	By amount returned	200 00					
May 27, 1919	Expenses, Inheritance Tax Department	5,669 36	33,750 00	35,857 63	4,107 73		
	By amount returned	500 00	46 00				
May 27, 1919	Expenses, branch Inheritance Tax Department (San Francisco)	292 83	9,000 00	9,337 02	455 81		
	By amount returned	500 00					
May 27, 1919	Expenses, branch Inheritance Tax Department (Los Angeles)	12 70	8,200 00	8,562 07	150 63		
	By amount returned	500 00					
May 27, 1919	Collecting, etc., municipal statistics	3,384 08	1,625 00	28 10	1,980 98		
May 27, 1919	Printing, etc.	1,136 68	2,600 00	3,596 92	91 49		
	By amount returned		51 73				
May 27, 1919	Printing, etc., Tax Collecting Department	763 48	1,250 00	656 59	1,356 89		
May 27, 1919	Postage, etc., Tax Collecting Department	797 50	1,800 00	1,004 40	1,503 10		\$125,472 73
	<i>Treasurer.</i>						
May 27, 1919	Salary, Treasurer		\$5,000 00	\$5,000 00			
May 27, 1919	Salary, Deputy		3,200 00	3,200 00			
May 27, 1919	Salary, Cashier		2,700 00	2,700 00			
May 27, 1919	Salary, Bond Officer		2,500 00	2,500 00			
May 27, 1919	Salary, Deposit Officer		2,500 00	2,500 00			
May 27, 1919	Salary, Bookkeeper		2,200 00	2,200 00			
May 27, 1919	Salary, Stenographer Secretary		1,500 00	1,500 00			
May 27, 1919	Salaries, four Watchmen		5,280 00	5,280 00			
May 27, 1919	Pay of Porter		720 00	714 00	\$6 00		
May 27, 1919	Postage, etc.	\$733 76	2,000 00	2,243 48	490 28		
May 27, 1919	Printing, etc.	367 14	950 00	1,035 52	281 62		
May 17, 1915	Equipment	1 48			1 48		\$28,873 00
	<i>Attorney General.</i>						
May 27, 1919	Salary, Attorney General		\$6,000 00	\$6,000 00			
May 27, 1919	Salary, Assistant		4,000 00	4,000 00			
May 27, 1919	Salary, Chief Deputy		4,000 00	4,000 00			
May 27, 1919	Salaries, seven Deputies		21,000 00	21,500 00			
May 27, 1919	Salary, Service Agent		1,800 00	1,800 00			
May 27, 1919	Salaries, two Clerks		3,000 00	2,946 75	\$2,453 25		
May 27, 1919	Salary, Photographic Reporter	\$1,800 00	1,800 00	1,800 00			
May 27, 1919	Salaries, five Stenographers	112 50	7,500 00	7,479 85	132 65		

\$2,549,199 85

May	24, 1919	<i>Purchasing Department.</i> Support,----- By amount returned----- Uses, Purchasing Department Revolving Fund-----	\$60,565 86 14,073 88)			\$72,573 06 432,222 67	\$2,066 68	\$504,795 73
		<i>Motor Vehicle Department.</i> Uses, Motor Vehicle Fund: expenses, \$462,409.32; refunds, \$15,951.15 Uses, Transfer and Operators' License Fund----- Uses, Testing Fee Fund----- Uses, Operator's License Fund-----				\$478,360 47 307,886 11 4,301 51 6 50		\$790,554 59
May	27, 1919	<i>REGULATIVE.</i> <i>Railroad Commission.</i> Salaries, Commissioners----- Support, etc.,----- By amount returned-----	\$153 74 209,875 00 165 00)	\$40,000 00	\$39,309 55	\$690 45		
May	27, 1919	Support,----- By amount returned-----	3,512 48 4,921 85		6 00 4,851 34	3,506 48 70 51		
May	14, 1917	Control of Public Utilities-----						\$471,027 68
May	24, 1919	Uses, Railroad Commission Fund-----						
		<i>Superintendent of Banks.</i> Salaries, etc., State Banking Fund-----				\$137,987 52		\$137,987 52
May	27, 1919	<i>Insurance Commissioner.</i> Salary, Commissioner----- Salary, Deputy----- Rent, printing, etc., Insurance Commissioner Special Fund-----		\$6,000 00 2,700 00		\$6,000 00 2,700 00		
May	27, 1919	<i>Board of Health.</i> Salary, Secretary----- Salary, Assistant Secretary----- By amount returned-----		\$4,500 00 2,400 00)		\$4,500 00 2,113 95	\$419 40	
May	27, 1919	Salary, Attorney----- Salary, Stenographer----- By amount returned-----		3,000 00 2,400 00)		3,000 00 2,400 00	753 33	
May	27, 1919	Salary, Deputy Stenographer----- Salary, Clerk----- Salaries, two Copyists----- By amount returned-----	\$753 33 111 10	1,600 00 1,600 00 1,800 00 64 11)	1,600 00 1,600 00 1,749 20	111 10 1,600 00 114 91		
May	27, 1919	Salary, Director Pure Food Laboratory----- Salary, Assistant Director Pure Food Laboratory----- Salary, Consulting Nutrition Expert----- Printing, etc.,----- Traveling and contingent expenses----- By amount returned-----	149 35 494 09 1,109 06 291 44 28,614 33)	3,600 00 1,800 00 1,200 00 4,000 00 21,000 00 5,803 12)	3,600 00 1,737 10 1,200 00 3,014 41	212 25 1,479 68		
May	27, 1919	Support, Department of Sanitary Engineering----- Support, District Health Offices----- By amount returned-----	500 22 28 36) 200 00	12,500 00 1 50)	11,900 38	2,318 37 1,301 34		

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 27, 1919	Support, Pure Food Laboratory.....	\$1,277 06	\$32,500 00	\$36,177 71	\$2,310 57		
May 27, 1919	By amount returned.....	525 00	4,186 22				
May 27, 1919	Support, Hygienic Laboratory.....	375 41	25,000 00	25,380 08	995 33		
May 24, 1919	Prevent on of Contagious Diseases.....	1,000 00					
May 27, 1919	By amount returned.....	30 419 27		27,142 52	3,501 75		
May 14, 1919	Support, Child Hygiene.....	225 00		12,428 62	1,855 34		
May 14, 1919	Support, Social Hygiene.....	14,283 96					
May 14, 1919	By amount from Federal Government.....	912 73					
May 14, 1919	By amount from State of California.....	13,559 81		28,077 72	12 11		
May 14, 1917	By amount returned.....	27 42					
May 24, 1919	Department of Tuberculosis (Subsides).....	11,965 32		11,965 32			
May 24, 1919	County Aid for Tubercular Patients: expenses, \$20,391.92; aid, \$94,747.26.....	191,387 00		115,159 18	76,227 91	\$357,810 96	
May 24, 1919	Uses, Nurses' Registration Fund.....			11,523 20			
May 24, 1919	Uses, Corporation Commissioner.....			\$121,217 17		\$121,217 17	
May 27, 1919	Uses, Corporation Commission Fund.....						
May 27, 1919	Salary, Commissioner, Building and Loan Inspection Fund.....			\$3,690 00			
May 27, 1919	Salary, Secretary, Building and Loan Inspection Fund.....			2,400 00			
May 27, 1919	Salary, Deputy, Building and Loan Inspection Fund.....			1,800 00			
May 27, 1919	Traveling expenses, Building and Loan Inspection Fund.....			1,294 03			
May 27, 1919	Office expense, Building and Loan Inspection Fund.....			1,677 77			
May 27, 1919	Office rent, Building and Loan Inspection Fund.....			842 50			
May 27, 1919	Salary, Commissioner.....		\$4,000 00	\$4,000 00			
May 27, 1919	Salary, Deputy.....	\$179 30	2,400 00	2,400 00	\$179 30		
May 27, 1919	Salary, Deputy, Los Angeles.....		2,400 00	2,187 05	212 95		
May 27, 1919	Salary, Assistant Deputy.....		2,100 00	2,100 00			
May 27, 1919	Salary, Stenographer.....	246 80	2,700 00	2,250 00	696 80		
May 27, 1919	Salary, Stenographer.....		1,200 00	1,200 00			
May 27, 1919	Salary, Attorney.....		2,400 00	2,400 00			
May 27, 1919	Office rent.....	160 00	2,550 00	2,400 00	270 00		
May 27, 1919	Printing, etc.....	346 48	3,000 00	3,346 48			
May 27, 1919	Bureau of Labor Statistics.....						\$11,614 30

May	27, 1919	Salaries of Assistants, traveling, etc.----- By amount returned-----	69 79	27,500 00 500 00	28,069 79	-----	
May	24, 1919	Uses, Labor Bureau Contingent Fund Support, Free Employment Bureaus By amount returned-----	75,410 28 28 34	-----	75,364 04	74 58	
May	24, 1921	Support, deficiency----- By amount returned-----	-----	35,000 00 75 00	35,066 41	8 59	
						\$171,647 47	
May	19, 1919	<i>Water Commission.</i>					
January	25, 1921	Salaries, members----- Salaries and support----- By amount returned-----	\$5,337 98	\$15,000 00 12,418 13 416 65	\$7,919 85 10,924 30	*\$12,418 13 1,910 48	
May	27, 1919	Support----- By donation----- Niles Cone investigation, special deposit----- By amount returned----- San Joaquin Hydrographic Investigation Fund, special deposit-----	9,944 86 1,000 00 145 35 5 32	46,900 00 2,898 59 500 00	58,615 55 150 67	2,627 90	
				7,000 00	6,050 32	949 68	
		*Reappropriated for salaries and support.				\$83,660 69	
May	27, 1919	<i>Industrial Accident Commission.</i>					
May	27, 1919	Salaries, members----- Support----- By amount returned----- Uses, Compensation Insurance Fund----- Uses, Accident Prevention Fund----- Uses, Industrial Accident Fund----- Uses, Industrial Rehabilitation Fund-----	\$391 44 1,284 85	\$15,000 00 210,000 00 3,676 54	\$15,000 00 215,267 20	----- \$85 63	
					3,946 124 55 150,929 32 3,933 28 19,323 69	-----	
						\$4,352,578 04	
May	27, 1919	<i>Immigration and Housing Commission</i>					
May	14, 1917	Support----- By amount returned----- Support----- Uses, Board of Medical Examiners, Contingent Fund----- Uses, Optometry Fund----- Board of Dental Examiners. Uses, State Dentistry Fund-----	\$3,148 77 1,000 00 2,691 06	\$72,500 00 976 21	\$73,868 20 30 58	\$3,756 78 2,660 48	
					\$80,771 70	\$80,771 70	
					\$3,600 52	\$3,600 52	
					\$16,808 26	\$16,808 26	

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
	<i>Board of Examiners in Veterinary Medicine.</i>						
	Uses, Contingent Fund.....			\$460 77		\$460 77	
	<i>Board of Bar Examiners.</i>						
	Expenses, Bar Examination Fund.....			\$4,214 00		\$4,214 00	
	<i>Board of Architecture (Northern District).</i>						
	Expenses, by special deposits.....	\$1,278 31	\$3,335 60	\$2,746 60	\$1,867 31	\$2,746 60	
	<i>Board of Architecture (Southern District).</i>						
	Expenses, by special deposits.....		\$3,039 36	\$2,203 62	\$835 74	\$2,203 62	
	<i>Civil Service Commission.</i>						
May 27, 1919	Salaries, three members.....		\$0,000 00	\$9,000 00		\$9,000 00	
May 27, 1919	Support.....	\$649 24	26,000 00	27,003 57	\$165 99	\$27,003 57	
May 14, 1917	By amount returned.....	500 00	20 32	92 40	108 78		
	Support.....	201 18					\$36,065 97
	<i>Eureka Harbor Commission.</i>						
May 27, 1919	Salaries, three members.....		\$1,200 00	\$1,200 00		\$1,200 00	
May 27, 1919	Salary, Harbor Master.....		1,200 00	1,200 00		1,200 00	
May 27, 1919	Salary, Secretary.....		1,000 00	1,000 00		1,000 00	
May 27, 1919	Contingent expenses.....	\$1,075 67	1,300 00	391 30	\$2,184 37		
	<i>Department of Weights and Measures.</i>						
May 27, 1919	Salary, Superintendent.....		\$4,000 00	\$3,989 25	\$10 75	\$3,989 25	
May 27, 1919	Salary, Deputy.....		1,800 00	1,800 00		1,800 00	
May 27, 1919	Support.....	\$57 01	7,500 00	8,054 69	822 06	8,054 69	
June 16, 1913	By amount returned.....	605 98	713 76				
	Expenses.....	22			22		
	<i>Lepidatine Counsel Bureau.</i>						
May 27, 1919	Support and salaries.....	\$1,334 87	\$12,500 00	\$14,991 52	\$879 81	\$14,991 52	
May 31, 1919	By amount returned.....	146 05	2,036 46		146 05		
May 24, 1919	Support, etc.....	5,503 24		5,416 30	86 94	5,416 30	
	Publication, Index of Laws.....						\$20,407 82

May	27, 1919	<i>Industrial Welfare Commission.</i> Support..... By amount returned..... Canners' Auditing Fund, special deposits..... By special deposits.....	\$809 38 1,129 48 8,593 50	\$35,000 00 27 46 13,708 40	\$36,473 74 15,093 88	\$492 58 7,208 02	\$51,567 62
January	24, 1919	<i>Soldiers' Employment Committee.</i> Expenses..... By amount returned.....	\$21,911 26 33 50		\$51 32	\$21,893 44	\$51 32
		<i>Real Estate Commission.</i> Uses, Real Estate Commission Fund (Act 1919 for 1920) Uses, Real Estate Commission Fund (Act 1919 for 1921)			\$42,294 73 39,840 19		\$82,134 92
		<i>DEFENSIVE.</i> <i>National Guard.</i> Salary, Adjutant General..... Salary, Assistant..... Salary, Chief Clerk..... Salaries, three Clerks..... Salary, Clerk-Stenographer..... Salary, Military Storekeeper..... Salary, Assistant Military Storekeeper..... Expenses of Encampment..... Repairs, etc., Naval Armory, San Diego..... Sacramento Armory..... Los Angeles Armory..... Expenses, insurrections, etc..... Support..... By amount returned..... Allowance for officers, N. G. C..... Cash Revolving Fund for use Adjutant General..... Support..... Traveling expenses and per diem of officers, etc..... Organization, high school cadets.....	\$1,158 35 200 00 561 30 18,020 34 800 00 17 21 502 27 43,383 53 149,530 62 4,628 19 750 00 121,548 16 4,830 67 62,853 91	\$5,000 00 3,000 00 1,900 00 5,100 00 1,500 00 1,200 00 900 00 12 50 353 23 210,450 00 2,252 70	\$5,000 00 2,596 75 1,900 00 5,054 30 1,500 00 1,200 00 900 00 18,020 34 800 00 4 71 149 02 43,383 53 200,082 85 4,610 02 121,242 89 4,662 67 46,744 38	\$1,561 60 45 70 561 30 18,020 34 800 00 4 71 149 02 43,383 53 200,082 85 4,610 02	\$6,167,553 55
May	27, 1919	<i>CONSTRUCTIVE.</i> <i>Department of Engineering.</i> Salary, State Engineer..... Salary, two Assistants..... Salary, State Architect..... Salary, Architectural Designer..... Salaries, three Architectural Draughtsmen..... Salary, Engineers' Draughtsman..... Salary, Mechanical Engineer..... Salaries, two Filing Clerks..... Salary, Blueprint Pressman.....	\$1,072 60 77 05 3,703 20 258 05 58 05	\$5,000 00 4,800 00 4,800 00 6,000 00 2,000 00 2,700 00 3,600 00	\$5,000 00 4,500 00 4,800 00 2,700 00 4,883 60 2,000 00 2,700 00 1,979 05 1,500 00	\$2,572 60 77 05 4,809 60 258 05 1,679 00	\$198,019 24

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
27, 1919	Salary, Secretary		\$3,000 00	\$564 50	\$2,435 50		
27, 1919	Salaries, two Clerks-Stenographers	\$14 60	3,000 00	2,794 35	270 25		
May	Salary, Electrical Engineer	276 60	2,000 00	1,820 05	547 55		
May	Salary, Structural Engineer	136 15	2,400 00	2,146 65	389 50		
May	Salary, Auditor		2,400 00	2,400 00			
May	Salary, General Superintendent	48 40	3,000 00	3,000 00	48 40		
May	Salary, Assistant State Architect		3,000 00	3,000 00			
May	Salary, Specification Writer	119 10	2,100 00	1,859 85	359 25		
May	Salary, Estimator		2,100 00	2,100 00			
May	Pay, Porter		300 00	300 00			
May	Contingent and traveling expenses	2,258 50	20,000 00	900 00			
May	Printing, etc.	2 83	346 30	19,561 01	3,046 62		
May	Uses, Department of Engineering Revolving Fund	575 73	2,500 00	2,063 54	412 19		
May	Rectifying river channels			68,543 30			
February	By amount returned	123,501 44		121,329 94	30,580 51		
May	By contribution	6,396 37					
May	Restraint debris	21,812 04		21,194 15	20,174 76		
May	Rectifying river channels	41,368 91			6 76		
April	Protecting banks, Mad River	6 76					
April	By amount from state	2,039 13					
May	By contribution		1,800 21	4,059 34	1,760 21		
May	Restoring, etc., Mission S. F. de Solano	109 84	1,800 21	124 36	28 28		
June	By amount returned	42 80		405 78	488 83		
June	Restoring, etc., Mission S. F. de Solano	894 61					
May	Preservation, etc., James M. Marshall Blacksmith Shop	1,500 00		1,502 65	12 85		
May	By amount returned	15 50					
May	John Muir Trail	88			88		
May	John Muir Trail	95			95		
May	Restoring, etc., Old Custom House, Monterey	186 85			186 85		
May	Restoring, etc., Old Theatre, Monterey	48			48		
May	Curbs, etc., Monterey Custom House	29 39			29 39		
April	Curbs, etc., Mission San Francisco Solano	102 12			102 12		
June	Restoration of Greek Chapel, Fort Ross	24 61			24 61		
June	Restoration, etc., Fort Ross	1,053 28			1,053 28		
May						\$290,053 12	
<p style="text-align: right;"><i>San Francisco Harbor Commission.</i> Improvement, wharves, docks, etc., San Francisco Harbor Improvement Fund</p>							\$1,651,852 41

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
	<i>Superintendent of Public Instruction.</i>						
May 27, 1919	Salary, Superintendent.....	\$41 95	\$5,000 00	\$5,000 00			
May 27, 1919	Salary, Deputy.....		3,000 00	3,000 00	\$11 95		
May 27, 1919	Salary, Statistician.....		2,400 00	2,400 00			
May 27, 1919	Salary, Secretary.....	14 00	1,800 00	1,800 00	14 00		
May 27, 1919	Salary, Bookkeeper.....	35 00	2,100 00	2,100 00	\$35 00		
May 27, 1919	Printing, etc.....	638 96	12,000 00	12,638 96			
May 27, 1919	Postages, etc.....	118 27	7,000 00	7,324 33	293 94		
May 27, 1919	By amount returned.....	100 00	400 00				
March 23, 1903	Textbooks.....	2,775 26		814 56	1,960 70	\$35,077 85	
	<i>State Library.</i>						
May 27, 1919	Salary, Librarian.....		\$5,000 00	\$5,000 00			
May 27, 1919	Support (State Library Fund).....			139,789 01		\$144,789 01	
	<i>Elementary Schools.</i>						
May 27, 1919	Support (State School Fund).....			\$7,471,347 51		\$7,471,347 51	
	<i>High Schools.</i>						
May 27, 1919	Support (State High School Fund).....			\$1,162,403 16		\$1,162,403 16	
	<i>University of California.</i>						
May 27, 1919	Support, etc., College of Agriculture.....	\$61,109 56	\$37,500 00	\$39,809 18	\$58,800 82		
May 27, 1919	By amount returned.....						
January 24, 1921	Support (deliciency).....		370,000 00	370,000 00			
May 27, 1919	Support, Scripps Institute.....	1,458 39	17,300 00	17,493 87	1,458 37		
May 27, 1919	Support, Curvus Experiment Station.....	24,552 81		15,434 74	9,118 07		
May 27, 1919	Support, etc., Los Angeles Branch.....	41,000 00		39,291 63	1,708 37		
May 27, 1919	Support, etc., College of Agriculture.....	6,398 92		6,598 92			
May 27, 1919	Cooperative agricultural extension work.....	66,375 72		59,810 47	6,676 25		
May 27, 1919	Salaries.....	6,227 12	74,725 00	74,724 96	6,227 16		
May 27, 1919	Support, etc.....	16,666 74	200,000 00	199,999 92	16,666 82		
May 27, 1919	Support, Medical School.....	4,166 66	50,000 00	49,999 92	4,166 74		
May 27, 1919	Support, extension courses.....	4,169 58	50,000 00	50,000 00	4,166 82		
May 27, 1919	Support, Farm in Riverside County.....	30,000 00			30,000 00		
May 27, 1919	Investigation deciduous fruits and nuts.....	71,719 61		51,819 57	19,900 04		

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May	Salaries..... By amount returned.....	\$5,073 00	\$101,250 00	\$100,885 39	\$1 83		
May	By amount from Chapter 6, Statutes 1921..... Uses (San Jose Normal School Contingent Fund) Maintenance Training School.....	21,397 73	3,330 90	1,823 91			
May	Maintenance Training School.....	1,330 00		22,728 68			
March	Maintenance Training School.....	1,333 00		1,303 87	49 13		
April	Training School Building.....				07		
May	Grounds, etc.....	138 43		137 39	1 04		
May	Printing, etc.....	533 82	\$1,250 00	1,575 20	216 37		
June	By amount returned.....	7 75					
June	Furniture, etc.....	438 14		301 82	133 62		
June	Class rooms.....	170 38		54 16	116 22		
June	Repairing, etc.....	183 54		181 45	2 11		
May	Street improvements.....	9,373 43			9,373 42		
May	Repairs, improvements, etc.....	6,827 06					
May	By amount returned.....	95 15		6,077 06	45 15		
May	Improvement heating plant.....	100 30		92 43	78 83		
May	Construction of Assembly Hall.....	1,578 30		1,523 71	4 58		
June	Gymnasium, etc.....	15 22			13 22		
January	Support and salaries, State Normal Schools (deficiency).....			8,328 40		\$177,552 51	
May	Support.....	\$806 02	\$7,400 00	\$8,306 02			
May	Salaries.....	2,736 33	32,000 00	34,756 33			
May	Uses (Chico Normal School Contingent Fund) Printing, etc.....	208 32	600 00	15,006 48			
May	Maintenance Training School.....	6,125 91		600 84	\$207 08		
March	Covered passageway.....	25 31		4,866 80	1,259 11		
May	Power house.....	79 07		79 07	25 31		
June	Water supply.....	20 30		20 39	79 07		
June	Repairs.....	76			76		
June	Street work.....	75 70			75 70		
May	Repairs, etc.....	35 73			35 73		
May	By amount returned.....	238 31		161 83	55 73		
May	Repairs to buildings, etc.....	638 81		362 72	76 48		
May	By amount returned.....	96 20			372 38		
May	Development, etc., water supply.....	4,484 86		4,352 49	132 37		
May	Building Trades School Unit.....	24,511 68		24,384 59	589 09		
May	By amount returned.....	462 00					

\$113,398 70

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
	Uses (Santa Barbara Normal School Contingent Fund):						
May 27, 1919	Printing, etc.	\$280 71	\$400 00	\$4,503 26	\$264 15		
April 21, 1911	Buildings, etc.	8 56		416 56	8 56		
April 21, 1911	Reception room	56			56		
June 17, 1913	Equipment	6 15			6 15		
May 17, 1915	Repairs, etc.	07			07		
May 17, 1915	Improvement of grounds	02			02		
May 14, 1917	Sewer system	20 03			20 03		
May 17, 1917	Machinery Building	106 93			106 93		
May 14, 1917	Construction, etc., Gymnasium	30 46			30 46		
May 24, 1919	Repairs, improvements, etc.	518 11		454 26	63 85		
January 24, 1921	Support and salaries, State Normal School (deficiency)			438 74		\$77,801 44	
	Uses (Fresno Normal School):						
May 27, 1919	Support	\$1,338 42	\$10,450 00	\$11,488 66	\$799 76		
May 27, 1919	By amount returned	250 00	60,000 00				
May 27, 1919	Salaries	4,735 85	8 42	65,227 76			
May 27, 1919	By amount from Chapter 6, Statutes 1921	1 22	483 49	375 80	225 42		
May 27, 1919	Printing, etc.		600 00	2,369 09			
May 24, 1919	Uses (Fresno Normal School Contingent Fund):	10,080 00		10,092 50			
April 21, 1911	Maintenance Training School	12 50					
June 7, 1913	Improvement, grounds, etc.	7 90			7 90		
June 14, 1913	Equipment, etc.	22 86			22 86		
May 17, 1915	Construction of buildings, etc.	58 86			29 11		
May 17, 1915	Furnishings, etc., new buildings	29 65			29 65		
May 17, 1915	Grounds	416 18			4 09		
May 14, 1917	Care and improvement of grounds	194 06			412 09		
May 14, 1917	Completion of plant and equipment	118 88			173 34		
May 14, 1917	Claims of contractors	9,107 32			20 72		
May 24, 1919	Repairs, etc.	4,697 73			25 93		
January 24, 1921	By amount returned	273 91		3,610 28	9,107 32		
January 24, 1921	Support and salaries, State Normal Schools (deficiency)			3,304 01	701 36		
	Uses (Humboldt Normal School Contingent Fund):						
May 27, 1919	Support	\$3,567 15	\$5,950 00	\$5,040 89	\$4,476 26		
May 27, 1919	By amount returned			44 20			

May	27, 1919	Salaries.....	6,218 49	28,060 00	28,965 35	5,331 14	
May	27, 1919	By amount returned.....	464 67	18 00			
May	24, 1919	Printing, etc.....	5,231 28	900 00	525 14	839 53	
May	17, 1915	Maintenance Training School.....	19 98		4,786 76	444 52	
May	14, 1917	Construction, etc.....	39			19 98	
June	6, 1917	Painting temporary buildings.....	14,000 00			14,000 00	
June	1, 1917	Equipment, etc., buildings.....	126,747 66			6,851 71	
June	1, 1917	Construction of buildings, etc.....	3,026 20		122,922 15		
June	1, 1917	By amount returned.....					\$162,284 49
<i>California Polytechnic School.</i>							
May	27, 1919	Support.....	\$2,361 33	\$26,900 00	\$29,767 90		
May	27, 1919	By amount returned.....	500 75	5 82			
May	27, 1919	Salaries.....	4,020 16	48,500 00	52,872 69	\$3 50	
May	27, 1919	By amount returned.....	376 63	356 03	830 37	546 26	
April	12, 1909	Uses (California Polytechnic School Contingent Fund).....	22	1,000 00	30,172 96		
March	6, 1911	Barns.....	96 64			96 64	
April	21, 1911	Dining Hall.....	1 19			1 19	
March	23, 1911	Water system.....	21			21	
May	17, 1915	Power, etc.....	49 03		45 02	4 01	
May	5, 1913	Repairs, etc.....	70 88			70 88	
May	17, 1915	Water system.....	144 37			144 37	
May	17, 1915	Water supply.....	143 62			143 62	
June	6, 1913	Repairs.....	16 40			16 40	
May	15, 1917	Repairs, etc.....	52 34		22 69	29 65	
May	24, 1919	Repairs, improvements, etc.....	4 81			4 81	
March	23, 1911	Heating system.....	3,995 00			3,995 00	
May	14, 1917	Construction of barns.....					\$113,711 63
<i>State Normal Schools, Deficiency.</i>							
January	24, 1921	Support and salaries.....	\$45,000 00				
January	24, 1921	Less amount expended by various schools.....	20,855 51				
January	24, 1921	To amount transferred to and expended by various schools.....			\$21,757 07	\$2,387 42	
<i>California School for Deaf and Blind.</i>							
May	27, 1919	Support.....	\$0 02	\$40,000 00	\$40,496 85	\$3 17	
May	27, 1919	By amount returned.....	500 00			15 41	
May	27, 1919	Salaries.....	8,375 25	90,000 00	98,359 84	17,492 45	
April	14, 1909	Uses (School for Deaf and Blind Contingent Fund).....	2 64			2 64	
April	21, 1911	Improvements.....	8 80		7 26	1 54	
April	21, 1911	Water supply.....	58 80		58 80		
May	7, 1913	Arts Building.....	231 14		69 54	161 60	
June	7, 1913	Gymnasium.....	123 93			123 99	
June	7, 1913	Machinery.....	17 53			17 53	
June	7, 1913	Dairy barns.....	20			20	
June	7, 1913	Equipment.....					
\$21,757 07							

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
June 7, 1913	Repairs.....	\$1 99			\$1 99		
May 17, 1915	Repairs, etc.....	65			65		
May 17, 1915	Electric wiring.....	12 28			12 28		
May 17, 1915	Wire escapars.....	25 70			25 70		
May 17, 1915	Water system.....	413 06			413 06		
May 17, 1915	Repairs, etc.....	6 31	\$6 31				
May 17, 1915	Heating system.....	121 97			121 97		
May 14, 1917	Completion of heating plant.....	2,192 61	1 08		2,191 53		
May 14, 1917	Completion, etc., wiring.....	3 75			3 75		
May 24, 1917	Repairs, etc., to buildings.....	151 20			67 29		
May 24, 1919	Readers, etc.....	2,060 68			498 35		
May 24, 1919	Purchase of books.....	279 35			279 35		
May 27, 1919	<i>Hastings College of Law.</i> Payment of interest.....		\$7,000 00	\$7,000 00		\$7,000 00	
May 27, 1919	<i>Textbooks for Orphans.</i> Textbooks for orphans.....	\$6 92	\$750 00	\$712 63	\$294 29	\$294 29	
March 22, 1907	By amount returned.....	250 00		102 41	9,897 59	\$815 04	
January 24, 1921	<i>Manufacture School Text Books.</i> Manufacture school textbooks, State School Text-book Fund.....		\$225,000 00	\$179,368 72		\$413,521 00	
	School textbook deficiency, School Textbook Fund.....			294,152 28			
	<i>Teachers' Pensions.</i> Teachers' Pensions, Teachers' Retirement Salary Fund.....					\$20,817 72	
May 27, 1919	<i>DEVELOPMENTAL.</i> <i>State Agricultural Society.</i> Aid.....	\$71 75	\$35,000 00	\$35,063 38	\$1,079 82		
May 27, 1919	By amount returned.....	1,000 00	71 45	107,591 58			
May 27, 1919	U. S. (State Agricultural Society Contingent Fund) Salary, Secretary.....		3,000 00	3,000 00			
May 27, 1919	Salaries, employees.....	271 94	6,900 00	6,932 09	219 85		
May 27, 1919	Traveling expenses, Directors.....	1 96	2,000 00	2,000 00			
April 25, 1911	By amount returned.....		500 00	2,501 96			
April 21, 1911	Cauldner statistics.....	1,703 91	5,000 00	6,340 40	363 51		
June 6, 1913	Dairy Building.....	7 84		9 30			
May 17, 1915	Drainage.....	9 30		20 15	11 06		
May 14, 1917	Woman's Building.....	40 81		7 80			
June 1, 1917	Erection and repairing barns.....	7 80		5 46			
	Construction of Payiloon.....	5 46					
						\$414,999 13	\$14,224,545 20

May	27, 1919	Repairs to buildings, etc. By amount returned	3,093 57 22 82				1 24 569 49 51 20	
May	27, 1919	Purchase of additional land	6,442 22					\$171,015 13
May	27, 1919	Improvement of grounds						
May	24, 1919	<i>Premiums 25th Agricultural District.</i> Payment of premiums	\$3,000 00				\$1,500 00	\$1,500 00
May	27, 1919	<i>Mining Bureau.</i> Salary, State Minerologist	\$1,580 74	\$3,600 00				
May	27, 1919	By amount returned	1,010 06	50,000 00 25 78			\$1,394 90	
May	27, 1919	Uses (Mining Bureau Fund)					4,510 46	
May	27, 1919	Uses (Petroleum and Gas Fund)					150,852 08	\$210,184 22
May	27, 1919	<i>Department of Agriculture.</i> Support	\$23,284 35	\$200,000 00				
May	27, 1919	By amount returned	1,273 72	45,304 57 5,000 00			\$268,929 05	\$1,532 69
May	27, 1919	Salary, Director of Agriculture					5,000 00	
May	27, 1919	Black Scale Fund (Special Deposit)	69 59				1,243 91	
May	15, 1917	By special deposit	1,178 32					
May	27, 1919	Search for beneficial insects	1,252 83				1,252 83	
May	27, 1919	Combating walnut codling moth	3,733 00	10,000 00				
May	27, 1919	By amount returned		88 57			11,122 49	2,649 08
May	27, 1919	Regulation of fruits and vegetables	59 42	7,500 00				
May	27, 1919	By amount returned		5 00			7,564 42	
May	27, 1919	Support, potato inspection	6,824 39				7,591 98	435 41
May	27, 1919	By amount returned	1,203 00				33,946 41	
May	27, 1919	Uses (Standard Apple Prosecution Fund)						
May	27, 1919	Uses (Fertilizer collections)	3,496 92				23,194 60	7,012 91
May	27, 1919	By collections	26,710 55				62,751 15	
May	27, 1919	Uses (Cattle Protection Fund)					1,383 81	
May	27, 1919	Uses (Meat Hygiene Fund)					6,500 00	
May	27, 1919	Printing, etc.						
May	27, 1919	Uses (Stallion Registration Board Contingent Fund)					778 94	
May	27, 1919	Shipping Point Inspection Fund (by special deposits)	168 07	15,583 40			13,033 53	2,549 87
May	27, 1919	Inspection, etc., sheep scabbies		4,500 00			4,711 15	44 02
June	11, 1915	By amount returned	348 05	87 10			348 05	
June	11, 1915	Tubercular testing						
April	22, 1909	<i>Fish and Game Commission.</i> Uses (Fish and Game Preservation Fund)	\$5,181 75				\$611,751 95	\$611,751 95
April	22, 1909	<i>Investigation of Water Resources.</i> Joint investigation (co-operative with U. S. Government)		\$30,000 00				
April	22, 1909	By amount returned		22 00			\$28,022 28	\$28,022 28

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 26, 1913	<i>Reclamation Board.</i> Uses (Reclamation Board Revolving Fund) Expenses..... By amount returned..... Uses (Sacramento-San Joaquin Drainage District Fund No. 1) Uses (Sacramento-San Joaquin Drainage District Fund No. 2) Uses (Sacramento-San Joaquin Drainage District Fund No. 3) Uses (Sacramento-San Joaquin Drainage District Fund No. 4) Uses (Sacramento-San Joaquin Drainage District Fund No. 5) Uses (Sacramento-San Joaquin Drainage District Fund No. 6) Uses (Sacramento-San Joaquin Drainage District Fund No. 7) Purchase of warrants, Sacramento and San Joaquin Drainage District Cooperative work with Sacramento and San Joaquin Drainage District No. 6 By amount returned.....	\$6 25 1,204 54		\$111,712 85 1,210 79 15,560 46 161,086 00 12,725 94 192 14 291 94 1,860,893 38 92,481 08 1,606 93		\$2,257,531 51	
January 30, 1919		72,726 15		100 00	\$71,119 22		
May 27, 1919		3,000,000 00 100 00		100 00	\$3,000,000 00		
May 24, 1919		\$30,445 40		\$29,310 35	\$1,135 05		
May 17, 1915	<i>Los Angeles Exposition.</i> Support..... Furnishings, etc., building..... Uses (Sixth District Agricultural Association Contingent Fund).....	413 35		198 00	215 35		
May 24, 1919	<i>Land Settlement Board.</i> Uses (Land Settlement Fund) Expenses..... By amount returned..... Expenses..... Salaries, expenses, etc.....	\$317,495 68 99,851 90 495 99		\$81,278 60 391,254 43 961 89 193,800 07	\$26,063 15 234 10 56,199 93	\$29,991 68	\$669,594 99
June 1, 1917		495 99					
January 24, 1921			\$250,000 00				

*\$10,000 available on taking effect of act, balance in annual payments of \$800,000, except last payment which will be \$290,000.

\$4,471,978 05

		\$23,903 60	\$43,033 08	
<i>Market Commission.</i>				
<i>Uses (Market Commission Fund)</i>				
<i>Uses (Fish Exchange Fund)</i>				
PROTECTIVE.				
<i>Board of Forestry.</i>				
May	27, 1919		\$3,000 00	\$23,903 60
May	27, 1919		2,400 00	19,129 48
May	27, 1919	\$748 60	1,600 00	
May	27, 1919	4,893 44	13,500 00	\$2,348 60
			681 14	
May	27, 1919	1,734 82	3,000 00	15,991 24
May	15, 1917	14,000 00		1,476 18
		52 54		10,941 29
				\$33,508 71
<i>Sutter's Fort.</i>				
May	27, 1919	\$12 60	\$1,080 00	\$12 60
May	27, 1919	18 40	1,320 00	18 40
May	27, 1919	11 67	1,200 00	11 67
May	27, 1919	300 94	1,000 00	417 34
May	14, 1917	15	883 60	15
				\$4,483 60
<i>Marshall Monument.</i>				
May	27, 1919	\$20 95	\$900 00	\$20 95
May	27, 1919	249 30	375 00	259 75
March	8, 1907	2 12		2 12
May	14, 1917	3 92		3 92
May	27, 1919	162 92	3 75	159 17
				\$1,268 30
<i>State Burial Grounds.</i>				
May	27, 1919	\$87 50	\$250 00	\$161 80
				\$175 70
<i>Fire Trails.</i>				
May	24, 1919	\$18,492 62		\$423 46
May	27, 1919	76 11		
		268 19		
			\$1 83	
			9 87	
May	27, 1919		800 00	29 10
			800 00	
			1,500 00	
May	27, 1919	24	1,500 00	672 25
			1,500 00	
May	24, 1919	1,033 78		273 02
			2,000 00	
			2,000 00	
May	27, 1919	2,859 74		32 29

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 724 fiscal year	Appropriation 724 fiscal year	Amount expended during 724 fiscal year	Amount unexpended at end of 724 fiscal year	Total amount expended during 724 fiscal year	Grand total amount expended during 724 fiscal year
May 27, 1919	Forest fires, Tamalpais Fire District, contingent on like amount from Tamalpais Fire District.	\$324 50	\$2,500 00	\$2,664 50	\$160 00	\$32,576 78	
	<i>California Industrial Park.</i>						
May 14, 1917	Improvements, support, etc.	\$5,246 96			\$5,246 96		
May 28, 1917	Purchase of additional land	150,000 00		\$37,360 00	\$92,640 00		
May 24, 1919	Improvements, support, etc. By amount returned	17,017 90 5,293 60		18,259 49	4,052 01		
	* Available at the rate of \$15,000 per year.					\$75,619 49	\$447,632 58
	BENEVOLENT.						
	<i>Veterans' Home.</i>						
May 27, 1919	Support, etc. (Veterans' Home Fund)	\$291 95	\$12,200 00	\$275,110 40	\$196 76		
March 13, 1909	Printing, etc.	4 85		1,255 19	4 00		
April 12, 1909	Distilled water	90			1 82		
April 12, 1909	Addition to hospital	1 82			1 04		
April 21, 1911	Storehouse	1 04			50		
April 12, 1909	Grounds	50		18 90	2 81		
March 21, 1911	Repairs, etc.	21 71			255 63		
March 21, 1911	Additional buildings	255 63			1 38		
April 21, 1911	Fire escapes	1 38			29		
April 21, 1911	Plumbing	29			61		
April 21, 1911	General repairs	61			3 06		
April 21, 1911	Repairs to Cottage, etc.	3 06			24 65		
April 21, 1911	Additional buildings	24 65			6 93		
April 21, 1911	Painting	6 93			5 70		
June 7, 1913	Painting buildings	5 70			1 19		
June 7, 1913	Repairs	1 19			59 46		
June 7, 1913	Painting buildings	62 23			78		
June 7, 1913	Repairs to plumbing	78			18 70		
June 7, 1913	Assembly building	95 47			21		
June 7, 1913	Repairs to plumbing	21			10		
June 7, 1913	Assembly building	10			81		
June 7, 1913	Repairs, etc.	81			20		
May 17, 1915	Repairs, etc.	20			2 39		
May 17, 1915	Construction of bath rooms	2 39			1 90		
May 17, 1915	Painting, etc.	1 90			5 39		
May 17, 1915	Wiring	5 39			193 74		
May 14, 1917	Tubercular ward	196 80			91 38		
May 14, 1917	Painting buildings	96 81					
May 14, 1917	Repairs to buildings, etc.						

May	14, 1917	Electric wiring.....	72 71			50 20	22 51
May	14, 1917	Plumbing, repairs, etc.....	1 00				1 00
May	14, 1917	Purchase of dairy cows.....	1,575 41				1,575 41
May	14, 1917	Quarters for inebriates.....	36				36
May	14, 1917	Construction.....	36				36
May	15, 1917	Enlarge ment of kitchen.....	678 06			670 83	7 23
May	15, 1917	Repairs, improve ments, etc.....	24,705 66			24,333 68	713 00
May	24, 1919	By amount returned.....	341 02				
May	15, 1917	Purchase of boilers.....	12,467 59			7,399 62	5,067 97
<i>Women's Relief Corps Home.</i>							
May	27, 1919	Support.....	\$962 88	\$9,600 00	\$10,562 19		\$0 69
May	14, 1917	Repairs, etc.....	6 11		6 11		
May	14, 1917	Physicians and nurses.....	58				58
May	14, 1917	Traveling expenses, Directors.....	38				38
May	24, 1919	Repairs, improve ment, etc.....	6 93		6 19		74
<i>Home for Adult Blind.</i>							
May	22, 1919	Support.....	\$250 00	\$27,500 00	\$27,748 90		\$251 10
May	27, 1919	By amount returned.....	2 45	17,500 00	17,501 45		1 00
May	27, 1919	Salaries.....	39	300 00	59,938 97		11 11
May	27, 1919	Uses (Adult Blind Fund).....	100 13		100 13		
June	7, 1913	Dormitory.....	102 68				102 68
June	7, 1913	New floors.....	2 71				2 71
May	17, 1915	Repairs, etc.....	2 71				2 71
May	14, 1917	Improve ment of grounds.....	262 46				262 46
May	14, 1917	Water supply.....	268 43		54 00		214 43
May	14, 1917	Purchase of burial plot.....	10 00				10 00
May	14, 1917	Repairs to buildings.....	43				43
May	24, 1919	Repairs, improve ments, etc.....	3 80				3 80
<i>Support of Orphans, etc.</i>							
May	14, 1917	Support of orphans, etc.....	\$4 52				\$4 52
May	14, 1917	Support of orphans, etc.....	20 38				20 38
January	29, 1919	Support of orphans, etc.....	57,145 50	\$101 50	\$101 50		57,044 00
May	27, 1919	Support of orphans, etc.....	8,565 84		8,562 79		3 05
May	27, 1919	Support of orphans, etc.....	565,794 35				9,592 87
January	24, 1921	By amount returned.....	107 14		586,308 62		30,000 00
May	27, 1919	Support of orphans, etc. (deficiency).....		\$30,000 00			30,000 00
May	27, 1919	Support of orphans, etc.....		1,065,000 00			548,604 73
May	27, 1919	By amount returned.....		2,520 03	518,915 36		
<i>Children's Agents (Board of Control).</i>							
May	27, 1919	Salaries and support.....	\$440 89	\$21,000 00	\$21,797 82		\$25 97
May	19, 1915	By amount returned.....	250 00	132 90			1,210 15
May	19, 1915	Expenses.....	860 15				
May	19, 1915	By amount returned.....	350 00				
							\$309,283 72
							\$10,574 49
							\$105,632 73
							\$1,113,888 27
							\$21,797 82

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May	<i>CURATIVE.</i> <i>Board of Charities and Corrections.</i> Salaries and expenses By amounts returned	\$160 20 734 82	\$30,000 00 226 20	\$30,808 17	\$53 05	\$30,868 17	
May	<i>Lunacy Commission.</i> Salaries, officers and employees	\$24 20	\$20,000 00	\$20,020 00	\$4 20		
May	Traveling and contingent expenses By amounts returned	83 14 500 00	2,500 00 300 00	3,239 84	143 30		
May	Depreciation of insane By amount returned	12,614 21 562 30	4,000 00	12,682 85	493 66		
May	Printing, etc. By amount returned	594 31	3,600 00	4,529 70	64 61		
April	Salary, Dental Surgeon	595 90	3,600 00	3,600 00	260 18		
April	Traveling expenses, State Dental Surgeon			355 72		\$44,408 11	
May	<i>Stockton State Hospital.</i> Support	\$3,693 93	\$300,210 00	\$285,907 61	\$19,219 22		
May	By amount returned	1,025 77	197 13	237,625 54	24,652 62		
May	Salaries	21,406 04	240,740 00	140,640 46			
May	By amount returned	77	131 35				
June	Usses, etc., Contingent Fund	35 81			35 81		
May	Street improvement	21 93		17 13	4 80		
May	Cottage for females	187 10			187 10		
May	Borders	6 58			6 58		
May	Farm buildings	54 75		16 38	38 37		
May	Cottage for males	1 67			1 67		
May	Repairs to mechanical equipment	95 77			95 77		
May	Alterations, etc., kitchen and bakery	109 89			109 89		
May	Continuous baths	18 84			18 84		
May	Receiving ward	1 04			1 04		
March	Wiring	2 36			2 36		
March	Sewing room	11 74			11 74		
March	Fire protection	58			58		
March	Furnishing sewing room	2 78			2 78		
March	Heating system	86 09			86 09		
June	Elevator	268 14			268 14		
June	Ward No. 25	60 61		113 67			
June	Dairy herd	2 18			2 18		
June	Dairy herd	60 61			60 61		
May	Grading, etc., on farm	2 18			2 18		
May	Construction Tubercular Hospital	5 19			5 19		

May	14, 1917	Additional dairy herd	5,175 00		3,968 84	1,206 16
May	14, 1917	Cottage for disturbed patients	211 84		239 50	6 36
May	14, 1917	By amount returned	34 02		49 64	67 63
May	14, 1917	Purchase of X-Ray apparatus	117 27			2,017 79
May	1, 1917	Removal of bodies from cemetery	2,017 79			
May	24, 1919	Completion, etc., Tubercular Hospital	1,274 42		1,416 56	88 52
May	24, 1919	By amount returned	230 66		642 89	14,254 48
May	24, 1919	Construction of sewer system	14,897 37		471 91	258 21
May	24, 1919	Repairs and alterations	390 91		2,330 71	4 94
May	24, 1919	By amount returned	75 00		44,706 47	
May	24, 1919	Improvement of heating plant	2,537 94			
May	27, 1919	By amount returned	30 98			
May	27, 1919	Construction of cottage	43,408 98			
May	27, 1919	By amount returned	1,302 43			
<i>Napa State Hospital.</i>						
May	27, 1919	Support	\$4,493 64	\$318,540 00	\$318,079 45	\$5,965 69
May	27, 1919	By amount returned	1,000 00	11 50	264,798 22	268 50
May	27, 1919	Salaries	1,567 96	262,140 00	158,797 86	79 63
May	27, 1919	By amount returned	36 32	1,322 44	34,710 98	239 85
April	12, 1909	Uses, etc., Contingent Fund	319 48		42 19	34 83
March	20, 1909	Uses, etc., Napa State Farm Contingent Fund	51 99		4 08	46 46
March	20, 1909	Cottage for females	34 83		41 04	49 99
March	20, 1909	Kitchen appliances	26		5 91	13 93
March	20, 1909	Improvements	34		417 80	29 29
April	21, 1911	Water system	4 54			1 89
April	21, 1911	Pipe line	49 99		2 00	84 65
June	4, 1913	Cold storage	46 95		437 80	
June	9, 1913	Cottage	431 73		12 00	1,134 87
June	17, 1913	Laundry	29			441 51
June	7, 1913	Boilers	1 89			76 76
June	7, 1913	Cottage	86 65		9 04	30 30
June	6, 1913	Heating system	437 80			87 87
June	6, 1913	Bakery, etc.	1,146 87		367 14	339 68
June	6, 1913	Dormitories, etc.	441 51			59 59
June	6, 1913	Dairy buildings			2 31	93 93
June	6, 1913	Rewiring				19,095 70
June	17, 1915	Reclamation	9 34			2,322 86
May	17, 1915	Cottage for women	706 82			1 18
May	17, 1915	Cottage for men				35 70
May	17, 1915	Home				7 66
May	17, 1915	Remodeling cottage				6 69
May	18, 1915	Power house				1,352 85
May	14, 1917	Cottage for females	3 24			
May	14, 1917	Pathological Laboratory	19,095 70			
May	14, 1917	Purchase of laundry machinery	2,322 86			
May	14, 1917	Construction of power house, etc.	1 18			
May	14, 1917	Elevators	37 70			
May	14, 1917	Construction of sewer line	7 66			
May	13, 1917	Reclamation	65 52			
May	24, 1919	Construction, etc., two cottages				
May	24, 1919	Improvement of heating plant				

\$718,147 31

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
June 11, 1917	Additional water supply	\$324 85		\$14 50	\$280 35		
May 27, 1919	Construction, etc., employees' quarters. By amount returned	49,943 47 571 95		43,108 96	7,409 47	\$821,174 74	
May 27, 1919	Support By amount returned	\$30,253 13	\$150,200 00	\$150,284 44	\$32,247 03		
May 27, 1919	Salaries	1,902 30	176 64				
May 27, 1919	By amount returned	157 49	64,200 00	61,074 18	6,181 39		
May 17, 1915	Uses, etc., Contingent Fund	3,394 00	104 08	33,040 37			
May 14, 1917	Support, etc.	34 35		34 35			
May 14, 1917	Bakery equipment	14 68			14 68		
May 14, 1917	Purchases of dairy herd	922 37			5 53		
May 14, 1917	Construction, etc., Superintendent's Cottage.	5 53					
May 14, 1917	Construction of farm buildings.	4,210 37		222 37			
May 14, 1917	By amount returned	3,838 12		8,048 87			
May 14, 1917	Construction of Administration Building	43,033 63		10,755 44	32,278 19		
May 24, 1919	Purchase of three cottages	51 10		51 10			
May 27, 1919	Purchase of equipment	5,832 68		5,668 74	163 94		
May 27, 1919	Purchase of water tower, etc.	19,908 93		15,988 92	3,920 01		
May 27, 1919	Improvements on farm.	1,993 72		1,940 45	53 27		
May 27, 1919	Construction, etc., two cottages	148,977 71		96,091 76	54,593 03		
May 27, 1919	By amount returned	1,710 08					
May 27, 1919	Construction, etc., officers' quarters	42,660 00		45,042 37	16 21		
June 7, 1913	By amount returned	2,098 58		3 96			
June 7, 1913	New site, etc.	3 96					
May 27, 1919	Support By amount returned	\$11,381 56	\$241,920 00	\$240,336 20	\$14,635 94		
May 27, 1919	Salaries	7 00	1,663 67	158,437 01	12,254 02		
May 27, 1919	Uses, etc., Contingent Fund	14,019 63	156,672 00	107,638 16			
June 12, 1915	Cottage, etc.	365 36		440 94	124 42		
May 14, 1917	Furnishing worker's cottage	4,300 00		1,453 28	3,046 72		
May 14, 1917	Construction, etc., female cottage	5,003 01		657 11	2,445 90		
May 21, 1911	Construction of worker's cottage for men.	15 78			15 78		
April 21, 1911	Reconstruction.	5 71			5 71		
June 27, 1913	Furnishing, etc.	593 20			593 20		
June 27, 1913	Cottage	5,177 06		38 00	5,139 06		
June 14, 1913	Surses' Home.	2,011 51		798 56	1,212 95		

24, 1919	Improvement to heating plant.	949 14			400 90	548 24
27, 1919	Construction, etc., quarters for employees.	20,843 19			16,358 17	4,573 25
May	By amount returned.	83 23				\$526,453 42
<i>Mendocino State Hospital.</i>						
May	Support.	\$0 40	\$163,885 00		\$148,575 09	\$16,310 41
May	By amount returned.	1,000 00	10		110,923 94	11,149 72
May	Salaries, etc., Contingent Fund.	2,121 66	119,952 00		104,548 06	
May	Uses, etc., Contingent Fund.	1 48			1 20	28
7, 1911	Cottages.	3,042 91			28 23	3,014 68
8, 1913	Domes, etc.	3 90			3 65	25
June	Gas plant.	144 86			142 60	2 26
May	Pipe line, etc.	3 37			3 37	3 37
May	Elevators.	32 36			31 32	1 04
May	Water softening.	22 11			20 00	2 11
May	Reconstruction of Ward No. 7.	114 33			112 76	1 57
May	New laundry and Bakery.	156 81			186 46	570 35
May	Plumbing repairs.	177 80			170 75	7 14
May	Enlarging operating room.	647 85			644 48	33 37
May	By amount returned.	3 50				3 42
May	Reconstruction of Ward No. 5.	3 42				13
May	Purchase, etc., new boilers.	11 88			11 75	13 45
May	Repairs, etc., Administration Building.	55 28			41 83	1 51
May	Reconstruction of Ward No. 7.	1,014 44			1,012 93	
May	Sundry improvements.	3,404 20			3,486 79	25 74
May	By amount returned.	108 33			58 27	7 97
May	Improvements.	66 24				25 46
May	Shelters for women patients.	978 73			1,046 63	
May	By amount returned.	93 36				
\$371,046 74						
<i>Southern California State Hospital.</i>						
May	Support.	\$13,604 85	\$294,637 50		\$285,092 33	\$25,380 88
May	By amounts returned.	1,184 22	1,016 64		246,223 00	\$,133 74
May	Salaries.	18,625 26	235,707 50		111,016 80	
May	By amount returned.		23 98			107 70
May	Uses, etc., Contingent Fund.	107 70			1,429 28	342 61
June	Power plant.	1,471 89				274 71
March	Cottages.	274 71				63 51
25, 1909	Storm drains, etc.	63 51			178 36	19 48
June	Laundry.	197 84				9 39
May	17, 1915	9 39				81
May	Cottages.	81				100 93
May	Purchase, etc., boilers.	100 93				8 85
May	Wiring, old buildings.	20 45			11 60	137 93
May	Construction of cottages.	147 47				9 54
May	Pumps, Motor, etc.	147 47				1,244 63
May	Nurses' home, etc.	1,559 48			314 85	
May	Improvement of heating plant.					
24, 1919						\$644,404 15

\$4,381,752 92

June	1, 1917	Expenses.....	\$58,424 51			\$7,139 97			
May	27, 1919	By amount returned.....	323 80						
		Buildings, equipment, etc.....	72,590 22			1 348 67			\$124,174 64
		By amount returned.....	1,324 75						
May	27, 1919	Transportation of Prisoners and Insane.	\$127,683 16			\$0 28			
May	14, 1917	By amount returned.....	43 69						
		Transportation of prisoners and insane.....	25,251 65			24,186 65			\$128,791 57
		By amount returned.....							
May	27, 1919	Support.....	\$15,500 55	\$138,500 00		\$20,454 75			
May	14, 1917	By amount returned.....	89 20	410 87					
		Support.....	2,805 94			2,765 89			
May	27, 1919	By amount returned.....	20 00			60 05			
		Salaries.....	461 06	95,000 00		603 27			
		By amount returned.....	67 59	371 97					
March	21, 1911	Uses, etc., Contingent Fund	10 00			10 00			
May	17, 1915	Furniture.....	74 56			39 68			
May	17, 1915	Cottages.....	8 16			8 16			
May	14, 1917	Repairs, etc.....	52 88			4 47			
May	14, 1917	Power house.....	1,184 85			377 24			
May	14, 1917	Construction, etc., buildings	203 97			78 10			
May	27, 1919	General repairs.....	76 35						
May	27, 1919	By amount returned.....	23,252 79			23,034 22			
May	27, 1919	Buildings.....	522 70			1,294 10			
May	27, 1919	By amount returned.....	10,353 02			9,058 92			
May	27, 1919	Repairs.....							\$344,092 25
May	27, 1919	Support.....	\$7 134 29	\$137,500 00		\$13,081 50			
May	14, 1917	By amount returned.....	1,000 00						
May	27, 1919	Support.....	1,163 78			1,163 78			
		Salaries.....	5,681 26	80,000 00		85,681 20			
March	10, 1909	Uses, etc., Contingent Fund	581 95			12,622 34			06
April	12, 1909	Cottage.....	447 17			361 95			
March	13, 1911	Furnishings, etc., Assembly Hall	135 00			447 17			
March	16, 1911	Water system.....	6 83			15 16			
March	16, 1911	Farm implements.....	399 93			6 83			
March	16, 1911	Trades building equipment	6 33			399 94			
March	21, 1911	Water power.....	3 00			6 00			
March	21, 1911	Supplies.....	333 07			3 00			
April	1, 1911	Concrete flooring	1 04			331 27			
May	30, 1913	Repairs to buildings	64 39			1 80			
June	7, 1913	Cottage.....	682 40			64 39			
June	7, 1913	Hospital.....	10,616 40			678 57			
June	7, 1913	Trades Building.....				3 83			
						10,616 40			

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 17, 1915	Repairs, etc.	\$230 21		\$230 21			
May 14, 1917	Repairs, etc., to buildings.	73 62		73 53	\$0 29		
May 24, 1919	Repairs, improvements and equipment. By amount returned	47,268 80 861 34		21,950 40	26,179 80	\$256,063 36	
May 27, 1919	Support By amount returned	\$21,830 91	\$73,250 00	\$77,253 22	\$18,524 28		
May 14, 1917	Support	571 68	124 88		6,770 58		
May 27, 1919	Salaries By amount returned	11,482 99	52,030 00	58,592 18	4,951 46		
June 14, 1913	Support	8 71	1 94				
May 17, 1915	Maintenance, etc.	39 60		39 60			
May 17, 1915	Commissary Building	2 31		2 34			
May 17, 1915	Cottages for males	45 61			45 61		
May 14, 1917	Cottages	7 16			2 41		
May 14, 1917	Equipment, etc., Trades Building	4,784 55		1,406 54	3,378 01		
May 14, 1917	Construction, etc., ice plant	13 20		13 20	1 90		
May 14, 1917	Trades Building, etc.	1,406 22			767 94		
May 14, 1917	Furnishing, etc., three cottages	88 16		36 86	51 30		
May 14, 1917	Service connections, etc.	17 29		3 08	14 21		
May 14, 1917	Heating office	17 90			121 01		
May 14, 1917	Improvement of grounds By amount returned	229 45		126 34			
May 14, 1917	Construction of three cottages	176 70		123 21	212 63		
May 15, 1917	By amount returned	159 14					
May 24, 1917	Water system By amount returned	3 41		87	2 54		
May 24, 1917	Construction of cottages	86,909 02		31,300 45	55,608 11		
May 24, 1919	Farm buildings, etc.	352 54			49 70		
May 24, 1919	Furnishings, etc., cottages	49 70		1,774 50	11,225 50		
May 27, 1919	Improvements, etc., grounds	13,000 00					
May 27, 1919	By amount returned	90 63		90 47	9 46		
May 27, 1919	Completion of cottages By amount returned	19,666 98		17,403 70	2,428 10		
May 27, 1919	Uses, etc., Contingent Fund	164 82		309 15		\$189,118 74	
May 27, 1919	Expenses By amount returned	\$21,079 80		\$20,109 13	\$1,187 76		\$20,109 13
	PENAL. Bureau of Criminal Identification.	217 00					
	By amount returned						\$780,276 35

May 18, 1915 and	<i>Board of Prison Directors.</i>	\$203 28		\$716 79	\$287 19	
June 14, 1913	Assisting, etc., paroled prisoners	513 51		2,548 22	169 43	
May 14, 1917	By amount returned	2,835 41		14,970 15	500 00	
May 24, 1919	Assisting, etc., paroled prisoners	15,139 58				
May 27, 1919	Printing, etc.	250 00	\$250 00			
	Uses, etc., Detective License Fee Fund.			869 38		\$19,104 54
May 27, 1919	<i>Advisory Pardon Board.</i>	\$194 27	\$2,500 00	\$2,333 14	\$361 13	\$2,333 14
May 27, 1919	<i>San Quentin Prison.</i>	\$21,419 99	\$212,500 00	\$222,836 41	\$11,083 58	
May 27, 1919	Support.	1,162 01	138,000 00	139,156 76	5 25	
	Salaries.			248,092 88		
	Purchase of jute, Jute Revolving Fund.			120,932 77		
	Manufacturing Department, Manufacturing Revolving Fund.			313,476 53		
April 14, 1909	<i>San Quentin Prison Fund.</i>	83 32			83 32	
April 21, 1911	Cottages, etc.	4 65		362 90	15	
	By amount returned	358 40		705 00	3,406 83	
May 17, 1915	Water supply.	4,111 83			2,000 00	
May 17, 1915	Machinery, etc.	2,000 00			1 99	
May 17, 1915	Purchase of live stock	65 33		63 34		
May 14, 1917	Electrication, etc.	3 75		1,205 90	252 16	
May 14, 1917	Electrification, etc.	1,454 40		400 00	870 00	
May 14, 1917	By amount returned	1,270 00		31 82	11 97	
May 14, 1917	Purchase of live stock.	37 29			5,000 00	
May 14, 1917	Construction, etc., small buildings	6 50			170 21	
May 14, 1917	By amount returned	5,000 00			132 99	
May 14, 1917	Addition to farm buildings.	09		2,578 21	20 99	
May 14, 1917	Repairs to buildings.	170 21		1,447 15	977 88	
May 14, 1917	Purchase of machinery.	2,622 89				
May 24, 1919	Completion of electrical equipment.	88 31		27,548 94		
May 24, 1919	By amount returned	1,468 14				
May 24, 1919	Repairs and improvements	27,821 82				
May 24, 1919	Purchase, etc., machinery and equipment.	705 00				
	By amount returned					\$1,078,838 70
May 27, 1919	<i>Folsom Prison.</i>	\$180 91	\$172,500 00	\$174,160 84	\$6,267 12	
May 27, 1919	Support.	7,500 00	247 05	117,136 90	233 04	
May 27, 1919	By amount returned	2,860 33	112,500 00	13,756 28		
May 27, 1919	Salaries.	1,000 00	1,009 61	217 28		
June 7, 1913	Uses, etc., Folsom Prison Fund	182 36		16 84		
May 17, 1915	Erection of cells, etc.	35 00			464 63	
May 17, 1915	By amount returned	481 47			08	
May 17, 1915	Cells, etc.					
May 17, 1915	Refrigerating plant.					

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
May 17, 1915	Bake oven.....	\$44 81		\$67 35	\$0 06		
May 14, 1917	By amount returned.....	22 60					
May 14, 1917	Sewage disposal.....	3 48		3 48			
May 14, 1917	School building.....	1,122 03		791 82	529 76		
May 14, 1917	By amount returned.....	198 99					
May 15, 1917	Repairs to buildings.....	31 07		24 78	6 20		
May 15, 1917	Purchase of dairy cows.....	377 82		377 82			
May 15, 1917	Purchase of boilers, etc.....	4 25			9 00		
May 24, 1919	By amount returned.....	12 00					
May 24, 1919	Electrical construction, etc.....	4,000 00		2,800 82	1,109 18		
May 24, 1919	Construction, etc., machine and blacksmith shop.....	1,953 03		107 24	1,845 79		
May 24, 1919	Repairs, improvement and equipment.....	6,732 10		6,743 02	244 27		\$315,923 90
May 27, 1919	By amount returned.....	235 19					
May 27, 1919	<i>Arrest of Criminals Without the State.</i>						
May 27, 1919	Arrest of criminals without the state.....	\$17,737 53		\$17,838 40	\$86 29		
May 27, 1919	By amount returned.....	137 16					
May 24, 1921	Arrest of criminals without the state (deficiency).....		\$15,000 00	10,907 55	4,092 45		
May 14, 1917	Arrest of criminals without the state.....	7,456 16			8,306 16		
May 14, 1917	By amount returned.....	850 00					\$1,465,055 36
May 14, 1917	<i>State Lands.</i>						
May 14, 1917	Restitution of principal (School Land Fund).....			\$13,816 90			
May 14, 1917	Restitution of interest (School Fund).....			157 23			
May 14, 1917	Costs of foreclosure suits principal (School Land Fund).....			150 00			
May 14, 1917	Costs of foreclosure suits interest (School Fund).....			20 72			
May 14, 1917	Refund of script (School Land Fund).....			46,488 71			
May 14, 1917	Refund of rental (School Land Fund).....			257 74			
May 14, 1917	Surrender of certificates of deposit (School Land Fund).....			2,140 00			
May 14, 1917	Deposit Fund.....						\$63,031 30
May 14, 1917	<i>Bonds.</i>						
May 14, 1917	<i>Purchase of Bonds.</i>						
May 14, 1917	Teachers' Permanent Fund.....			\$127,041 67			
May 14, 1917	Estate Deceased Persons Fund.....			255,228 99			
May 14, 1917	School Land Fund.....			873,001 92			
May 14, 1917	Compensation Insurance Fund.....			3,278,186 04			
May 14, 1917	Sacramento State Building Interest and Sinking Fund.....			50,933 33			
May 14, 1917	General Fund (surplus).....			3,163,507 89			\$7,747,899 84

STATEMENT No. 3—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 72d fiscal year	Appropriation during 72d fiscal year	Amount expended during 72d fiscal year	Amount unexpended at end of 72d fiscal year	Total amount expended during 72d fiscal year	Grand total amount expended during 72d fiscal year
April 1, 1911	Reimbursement to counties and cities, account of bonded debt. By amount returned Appropriation to Counties (Motor Vehicle Fund). Appropriation to Counties by United States Government (U. S. Forest Reserve Fund). Expenses, Historical Survey Commission. Support, Historical Survey Commission. Preparation of war record, Historical Survey Commission.		\$1,832 04	\$166,343 30 2,425,585 74			
June 12, 1915		\$61 42		181,003 31	\$61 42		
May 24, 1919		6,403 62		4,906 79	1,586 83		
January 24, 1921		1,330 60		1,330 60			
May 27, 1919	Preparation of war record, Historical Survey Commission (deficiency).	2,656 00	2,500 00	2,038 19	461 81		
May 24, 1919	Official advertising. Rent of state offices, Sacramento and Los Angeles.	70,758 66)	3,000 00	517 95	5,138 05		
January 24, 1921	By amount returned. Rent, etc., state offices, Sacramento and Los Angeles (deficiency).	7,189 26)		77,600 72	347 20		
May 14, 1917	By amount returned.		47,850 00	54,498 75	543 47		
May 24, 1919	Traveling expenses, County Treasurer. Uses, etc., Panama-California International Exposition Commission Fund. Repayment of bank deposits (School Land Fund). Repayment of estates of deceased persons. Printing, etc., sale of state bonds. Expenses, etc., presidential and vice-presidential elections. Reissue of cancelled warrants (various funds).	1,330 14 3,745 55	7,192 22)	1,828 20	1,330 14 1,917 35		
May 27, 1919		1,218 33	10,000 00	7,729 65	3,488 68		
January 20, 1921			692 40	590 00	93 40		
				359 07		\$3,291,261 34	\$3,291,261 34
	Total expenditures— TRANSFERS.						\$65,598,516 32
	Transferred from— San Francisco Harbor Improvement Fund to San Francisco Seawall Sinking Fund. San Francisco Harbor Improvement Fund to San Francisco Harbor Improvement Fund. Second San Francisco Seawall Sinking Fund to San Francisco Harbor Improvement Fund. Third San Francisco Seawall Sinking Fund to San Francisco Harbor Improvement Fund. India Basin Sinking Fund to San Francisco Seawall Sinking Fund. Second San Francisco Seawall Sinking Fund to General Fund.			\$133,106 96			
				360,000 00			
				80,000 00			
				34,120 00			
				60,000 00			

Third San Francisco Seawall Sinking Fund to General Fund	13,333 32		
India Basin Sinking Fund to General Fund	5,686 66		
General Fund to Highway Interest and Sinking Fund	1,456,000 00		
General Fund to San Francisco Building Interest and Sinking Fund	76,000 00		
General Fund to Sacramento Building Interest and Sinking Fund	107,261 50		
General Fund to Veterans' Home Fund	180,000 00		
General Fund to State Library Fund	125,000 00		
General Fund to Teachers' Permanent Fund	133,907 93		
Teachers' Permanent Fund to Teachers' Retirement Salary Fund	412,500 00		
General Fund to State University Fund	1,399,758 05		
Industrial Rehabilitation Fund to Accident Prevention Fund	7,623 58		
General Fund to Vocational Education Fund	82,387 82		
General Fund to Insurance Commissioner's Special Fund	60,000 00		
General Fund to Market Commission Fund	20,000 00		
General Fund to State School Fund	7,038,232 50		
General Fund to State High School Fund	1,161,173 92		
General Fund to Second San Francisco Seawall Sinking Fund	60,000 00		
General Fund to Third San Francisco Seawall Sinking Fund	13,333 32		
General Fund to India Basin Sinking Fund	5,686 66		
General Fund to Second Highway Interest and Sinking Fund	609,500 00		
General Fund to Third Highway Interest and Sinking Fund	224,240 45		
General Fund to University of California Building Interest and Sinking Fund (acc Interest)	80,100 00		
General Fund to University of California Building Interest and Sinking Fund (acc red)	40,000 00		
Bond Fund to Interest and Sinking Fund	141,435 00		
Bond Investment Fund to General Fund	113,634 24		
Bond Investment Fund to School Land Fund	113,634 23		
Real Estate Commission Fund to General Fund	37,785 43		
Transfer and Operators' License Fee Fund to Motor Vehicle Fund (Motor Vehicle Department)	923 30		
General Fund to School Book Fund	255,000 00		
General Fund to Ballot Paper Revolving Fund	20,000 00		
School Fund to School Land Fund	151 20		
Total transfers			14,061,516 07
Total expenditures, including transfers			\$80,260,032 39

DETAIL OF EXPENDITURES FROM EMERGENCY FUND ON RESOLUTIONS, SEVENTY-SECOND FISCAL YEAR.

(Expended under supervision of Board of Control and Controller)

Purpose of allowance	Unexpended balance of resolution	Resolutions and returns, seventy-second fiscal year	Amount expended during seventy-second fiscal year	Amount unexpended on resolutions during seventy-second fiscal year	Total amount expended during seventy-second fiscal year
JUDICIAL.					
*Postage, etc., Clerk District Court of Appeal No. 3	\$101 28		\$96 03	\$5 25	
*Postage, etc., Clerk District Court of Appeal No. 1, Division 2	30 97		30 45	52	
*Postage, etc., Clerk District Court of Appeal No. 1	219 67	\$54 63	262 10	12 20	
*Postage, etc., Clerk District Court of Appeal No. 3		250 00	233 23	16 77	
*Postage, etc., Clerk District Court of Appeal No. 1		675 00	554 60	120 40	
Furniture, etc., District Court of Appeal No. 2		1,315 61	1,315 61		\$2,492 02
EXECUTIVE.					
*Repairs to Governor's Mansion	\$32 79			\$2,500 00	
P. By amount returned	2,467 21		\$1,133 81	66 19	\$1,133 81
Repairs, etc., Governor's Mansion	1,400 00				
ADMINISTRATIVE.					
Salary of Electrician, Superintendent Capitol Building and Grounds		\$2,280 00	\$2,280 00		
Office rent, Attorney General			225 00		
*Compiling election returns, Secretary of State	\$225 00			\$52 50	
Wiring Senate and Assembly Chambers, Superintendent of Capitol Building and Grounds		2,000 00	1,947 50		
Office rent, Attorney General		1,500 00	1,486 85	13 15	
Support, Board of Control		1,421 00	1,032 50	368 50	
		3,000 00	3,000 00		\$9,991 85
REGULATIVE.					
Support, Industrial Welfare Commission	\$5,220 39	\$3,000 00	\$7,662 69	\$557 70	
Support, Industrial Welfare Commission	1,000 00		1,000 00		\$8,662 69
CONSTRUCTIVE.					
*Repairs to trusses, Capitol Building, Department of Engineering	\$1,956 91		\$1,010 74	\$916 17	\$1,010 74

DETAIL OF EXPENDITURES FROM EMERGENCY FUND ON RESOLUTIONS, SEVENTY-SECOND FISCAL YEAR—Continued.

Purpose of allowance	Unexpended balance of resolution	Resolutions and returns seventy-second fiscal year	Amount expended during seventy-second fiscal year	Amount unexpended on resolutions during seventy-second fiscal year	Total amount expended during seventy-second fiscal year
CONNECTIVE.					
Support and salaries, Preston School of Industry.....		\$14,800 00	\$14,797 02	\$2 98	\$14,797 02
PENAL.					
Support, Folsom State Prison.....		\$6,500 00	\$6,500 00		\$6,500 00
MISCELLANEOUS.					
Support, etc., Pio Pico Mansion.....	\$808 94		\$280 00	\$528 94	
Cost of foreclosure suits, M. P. Van Warner, District Attorney San Luis Obispo County. By amount returned.....		\$81 13 1 00	81 13	1 00	\$361 13
Total.....					\$330,266 34

STATEMENT No. 3—Continued.

Recapitulation of Expenditures for the Seventy-second Fiscal Year, Ending
June 30, 1921.

	Total amount expended during 72d fiscal year	Grand total amount exp- ended during 72d fiscal year
<i>Legislative—</i>		
Senate.....	\$96,893 92	
Assembly.....	144,405 99	
Legislative mailing and printing.....	120,475 32	\$361,775 23
<i>Judicial—</i>		
Supreme Court and Clerk.....	141,008 69	
District Courts of Appeal.....	175,382 95	
Superior Courts.....	294,615 00	611,006 64
<i>Executive—</i>		
Governor.....	45,746 25	
Lieutenant Governor.....	4,000 00	49,746 25
<i>Administrative—</i>		
Board of Control.....	142,686 64	
Secretary of State.....	177,659 08	
Comptroller.....	125,472 73	
Treasurer.....	28,873 00	
Attorney General.....	68,548 09	
Surveyor General.....	27,615 81	
State Printing Office.....	542,772 50	
Board of Equalization.....	41,053 26	
Superintendent Capitol Building and Grounds.....	99,168 42	
Purchasing Department.....	504,795 73	
Motor Vehicle Department (Refunds \$15,951.15).....	790,554 59	2,549,199 85
<i>Regulative—</i>		
Railroad Commission.....	471,027 68	
Superintendent of Banks.....	137,987 52	
Insurance Commissioner.....	67,412 58	
Board of Health.....	357,810 96	
Corporation Commissioner.....	121,217 17	
Building and Loan Commissioner.....	11,614 30	
Bureau of Labor Statistics.....	171,647 47	
Water Commission.....	83,660 69	
Industrial Accident Commission.....	4,352,578 04	
Immigration and Housing Commission.....	73,898 78	
Board of Medical Examiners.....	80,771 70	
Board of Optometry.....	3,600 52	
Board of Dental Examiners.....	16,808 26	
Board of Examiners in Veterinary Medicine.....	460 77	
Board of Bar Examiners.....	4,214 00	
Board of Architecture (Northern District).....	2,746 60	
Board of Architecture (Southern District).....	2,203 62	
Civil Service Commission.....	36,095 97	
Eureka Harbor Commission.....	3,791 30	
Department of Weights and Measures.....	13,843 94	
Legislative Counsel Bureau.....	20,407 82	
Industrial Welfare Commission.....	51,567 62	
Soldiers' Employment Committee.....	51 32	
Real Estate Commission.....	82,134 92	6,167,553 55
<i>Defensive—</i>		
National Guard.....	198,019 24	198,019 24
<i>Constructive—</i>		
Department of Engineering.....	290,053 12	
San Francisco Harbor Commission.....	1,651,852 41	
State Highway Commission.....	10,997,848 77	
San Francisco State Building.....	428,460 27	
Sacramento State Building.....	1,579 67	
Improvement, etc., Sacramento River.....	500,000 00	13,869,794 24
<i>Educational—</i>		
Board of Education.....	248,890 77	
Superintendent of Public Instruction.....	35,077 85	
State Library.....	144,789 01	
Support of elementary schools.....	7,471,347 54	
Support of high schools.....	1,162,403 16	
Support of State University.....	3,198,447 20	
San Jose Normal School.....	177,532 51	
Chico Normal School.....	113,398 70	
San Diego Normal School.....	99,950 06	
San Francisco Normal School.....	104,901 00	

STATEMENT No. 3—Continued.
Recapitulation of Expenditures for the Seventy-second Fiscal Year, Ending
June 30, 1921.

	Total amount expended during 72d fiscal year	Grand total amount exp- ended during 72d fiscal year
<i>Educational—Continued.</i>		
Santa Barbara Normal School.....	\$77,801 44	
Fresno Normal School.....	97,176 23	
Humboldt Normal School.....	162,284 49	
California Polytechnic School.....	113,711 63	
Deficiency—Support and salaries State Normal Schools—amount transferred to various schools.....	21,757 07	
California School for Deaf and Blind.....	158,741 37	
Hastings College of Law.....	7,000 00	
Textbooks for orphans.....	815 04	
Manufacture School Textbooks.....	413,521 00	
Teachers' Pensions.....	414,999 13	\$14,224,545 20
<i>Developmental—</i>		
State Agricultural Society.....	171,015 13	
Premiums 25th Agricultural District.....	1,500 00	
State Mining Bureau.....	210,184 22	
Department of Agriculture.....	449,353 22	
Fish and Game Commission.....	611,751 95	
Investigation of water resources.....	28,022 28	
State Reclamation Board.....	2,257,531 51	
Los Angeles Exposition.....	29,991 68	
Land Settlement Board.....	669,594 99	
Market Commission.....	43,033 08	4,471,978 06
<i>Protective—</i>		
Board of Forestry.....	33,508 71	
Sutter's Fort.....	4,483 60	
Marshall Monument.....	1,268 30	
State Burial Grounds.....	175 70	
Fire trails.....	32,576 78	
California Redwood Park.....	75,619 49	147,632 58
<i>Benevolent—</i>		
Veterans' Home.....	309,283 72	
Women's Relief Corps Home.....	10,574 49	
Home for Adult Blind.....	105,632 73	
Support of orphans, etc.....	1,113,888 27	
Children's agents (Board of Control).....	21,797 82	1,561,177 03
<i>Curative—</i>		
Board of Charities and Corrections.....	30,868 17	
Lunacy Commission.....	44,408 11	
Stockton Hospital.....	718,147 31	
Napa Hospital.....	821,174 74	
Norwalk Hospital.....	428,850 32	
Agnews Hospital.....	526,453 42	
Mendocino Hospital.....	371,046 74	
Southern California Hospital.....	644,404 15	
Sonoma Home.....	458,585 15	
Industrial Farm for Women.....	84,848 60	
Pacific Colony.....	124,174 64	
Transportation of Prisoners and Insane.....	128,791 57	4,381,752 92
<i>Corrective—</i>		
Whittier State School.....	344,092 25	
Preston School of Industry.....	256,065 36	
Training School for Girls.....	189,118 74	789,276 35
<i>Penal—</i>		
Bureau of Criminal Identification.....	20,109 13	
Prison Directors.....	19,104 54	
Advisory Pardon Board.....	2,333 14	
San Quentin Prison.....	1,078,838 70	
Folsom Prison.....	315,923 90	
Arrest of criminals without the state.....	28,745 95	1,465,055 36
<i>State Lands—</i>		
Restitution of principal.....	13,816 90	
Restitution of interest.....	157 23	
Costs of foreclosure suits, principal.....	150 00	
Costs of foreclosure suits, interest.....	20 72	
Refunds of script.....	46,488 71	
Refund of rental.....	257 74	
Surrender of certificates of deposit.....	2,140 00	63,031 30

STATEMENT No. 3—Concluded.

Recapitulation of Expenditures for the Seventy-second Fiscal Year, Ending
June 30, 1921.

	Total amount expended during 72d fiscal year	Grand total amount exp- ended during 72d fiscal year
<i>Purchase of Bonds—</i>		
Teachers' Permanent Fund.....	\$127,041 67	
Estates Deceased Persons Fund.....	255,228 90	
School Land Fund.....	873,001 92	
Compensation Insurance Fund.....	3,278,186 04	
Sacramento State Building Interest and Sinking Fund.....	50,933 33	
General Fund (surplus).....	3,163,507 89	\$7,747,899 84
<i>Redemption of Bonds—</i>		
San Francisco State Building Bond Interest and Sinking Fund.....	40,000 00	
State Highway Interest and Sinking Fund.....	800,000 00	
State University Building Bond Interest and Sinking Fund.....	40,000 00	
San Francisco Seawall Sinking Fund.....	115,000 00	995,000 00
<i>Interest on Bonds—</i>		
San Francisco State Building Bond Interest and Sinking Fund.....	36,000 00	
State Highway Interest and Sinking Fund.....	656,000 00	
Sacramento State Building Interest and Sinking Fund.....	5,600 00	
Second State Highway Interest and Sinking Fund.....	630,000 00	
Third State Highway Interest and Sinking Fund.....	282,990 00	
State University Building Bond Interest and Sinking Fund.....	80,100 00	
India Basin Sinking Fund.....	34,120 00	
San Francisco Seawall Sinking Fund.....	16,300 00	
Second San Francisco Seawall Sinking Fund.....	360,000 00	
Third San Francisco Seawall Sinking Fund.....	80,000 00	
Interest and Sinking Fund.....	141,435 00	2,322,545 00
<i>Emergency Fund—</i>		
Expended under direction of Board of Control and Controller.....	330,266 34	330,266 34
<i>Miscellaneous—</i>		
Payment of premium on bonds of state officers.....	2,846 56	
Reimbursement to counties, etc., account bonded debt.....	466,343 30	
Apportionment to counties (Motor Vehicle Fund).....	2,425,585 74	
Refund to counties (Forest Reserve Fund).....	181,003 31	
Historical Survey Commission.....	8,275 58	
Compensation benefits.....	10,947 42	
Official advertising.....	517 95	
Rent of offices in Los Angeles and Sacramento.....	132,099 47	
Traveling expenses County Treasurers.....	1,828 20	
Panama-Pacific International Exposition Fund.....	328 90	
Panama-California International Exposition Fund.....	29,330 94	
Repayment of bank deposits.....	2,198 05	
Repayment of estates of deceased persons.....	13,094 20	
Printing and advertising sale state bonds.....	7,729 65	
Claim of San Bernardino County.....	7,674 00	
Portrait of John M. Eshleman.....	500 00	
Expenses Presidential and Vice-Presidential electors.....	599 00	
Reissue cancelled warrants.....	359 07	3,291,261 34
Total expenditures.....		\$65,598,516 32
Transfers.....		14,661,516 07
Total expenditures and transfers.....		\$80,260,032 39

STATEMENT No. 4.

Showing Amount of Each Appropriation, Amount Expended, and Total Expended, During Seventy-third Fiscal Year, Ending June 30, 1922.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
LEGISLATIVE.							
<i>Senate.</i>							
June 3, 1921	Salaries, Senators		\$40,000 00		\$40,000 00		
June 3, 1921	Mileage, Lieutenant-Governor and Senators		4,400 00		4,400 00		
June 3, 1921	Contingent expenses		15,000 00		15,000 00		
May 27, 1919	Contingent expenses	\$550 57		\$200 00	351 82		
June 3, 1921	By amount returned	11 25			50,000 00		
May 27, 1919	Pay, Officers, Clerks, etc.	9,161 50	50,000 00	210 00	8,951 50	\$410 00	
<i>Assembly.</i>							
June 3, 1921	Salaries, Assemblymen		\$80,000 00		\$80,000 00		
June 3, 1921	Mileage, Assemblymen		7,600 00		7,600 00		
May 27, 1919	Contingent expenses	\$2,270 28			2,371 91		
June 3, 1921	By amount returned	101 63			18,000 00		
June 3, 1921	Contingent expenses		18,000 00		18,000 00		
June 3, 1921	Pay, Officers, Clerks, etc.		50,000 00		50,000 00		
May 27, 1919	Pay, Officers, Clerks, etc.	6,791 00		\$75 00	6,716 00	75 00	
<i>Legislative Printing.</i>							
June 3, 1921	Printing, binding, etc.		\$85,000 00	\$9,706 35	\$75,293 65		
April 15, 1921	Legislative printing, etc. (44th Session)	\$19,079 71		16,079 71		25,786 06	\$26,271 06
JUDICIAL.							
<i>Supreme Court and Clerk.</i>							
June 3, 1921	Salaries, Justice Supreme Court		\$55,734 10		\$265 90		
June 3, 1921	Salaries, two Secretaries		6,000 00		6,000 00		
June 3, 1921	Salary, Reporter of Decisions		3,600 00		3,600 00		
June 3, 1921	Salaries, three Assistant Reporters of Decisions		6,600 00		6,445 20	154 80	
June 3, 1921	Salary, Librarian		1,500 00		1,500 00		
June 3, 1921	Salaries, two Photographic Reporters		6,000 00		6,000 00		
June 3, 1921	Salaries, two Bailiffs		4,800 00		4,696 80	103 20	
June 3, 1921	Salary, Clerk		5,000 00		5,000 00		
June 3, 1921	Salary, Chief Deputy Clerk		3,000 00		2,974 20	25 80	
June 3, 1921	Salaries, Six Deputy Clerks		14,400 00		13,906 30	493 70	

June 3, 1921	Salary, Stenographer to Clerk.....	1,800 00	1,741 95	58 05
June 3, 1921	Pay, Porter to Clerk (Sacramento)	1,080 00	1,080 00	
June 3, 1921	Expenses, (Sec. 47, C. C. P.)	32,400 00	2,021 00	
May 27, 1919	By amount returned.....	185 00	1,974 46	
June 3, 1921	Expenses (Sec. 47, C. C. P.)	150 00	102 40	47 60
June 27, 1919	By amount returned.....		48 31	73 77
June 3, 1921	Postage and contingent expenses	2,000 00	648 87	1,356 13
June 27, 1919	Postage and contingent expenses, Clerk.	5 00	51 41	532 48
June 3, 1921	By amount returned.....	1,250 00	717 52	488 46
June 3, 1921	Printing, etc., Clerk.....		155 90	
June 27, 1919	Printing, etc., Clerk.....		2,202 13	
June 3, 1921	Uses, Supreme Court Library Fund.....			
\$144,982 43				
<i>District Courts of Appeal.</i>				
June 3, 1921	Salaries, Justices District Courts of Appeal.....	\$63,000 00	\$62,980 55	\$19 45
June 3, 1921	Salaries, six additional Justices, Division 2, First and Second District.....	42,000 00	42,000 00	
June 3, 1921	Salaries, three Clerks.....	9,900 00	9,745 20	154 80
June 3, 1921	Salaries, five Deputy Clerks.....	12,000 00	9,462 40	2,537 60
June 3, 1921	Salaries, five Bailiffs.....	10,000 00	9,827 75	172 25
June 3, 1921	Salaries, five Phonographic Reporters.....	15,000 00	14,742 00	258 00
June 3, 1921	Pay, three Porters.....	3,660 00	2,672 90	987 10
June 3, 1921	Salaries, Secretaries, First District, Division No. 1.....	3,660 00	3,556 48	43 52
June 3, 1921	Salaries, Secretaries, First District, Division No. 2.....	3,660 00	3,660 00	
June 3, 1921	Salaries, Secretaries, Second District, Division No. 1.....	3,600 00	3,450 00	150 00
June 3, 1921	Salaries, Secretaries, Second District, Division No. 2.....	3,600 00	3,600 00	
June 3, 1921	Postage, etc., Clerk, First District.....	3,600 00	3,600 00	
June 27, 1919	Postage, etc., Clerk, First District.....	1,500 00	1,277 28	222 72
June 3, 1921	Postage, etc., Clerk, Second District.....	1,500 00	761 11	738 89
June 27, 1919	Postage, etc., Clerk, Second District.....	750 00	140 10	610 90
June 3, 1921	Postage, etc., Clerk, Third District.....	1,200 00	547 81	652 19
June 27, 1919	Postage, etc., Clerk, Third District.....	40 00	784 15	415 85
June 3, 1921	Printing, etc., Clerk, First District.....	1,200 00	59 80	1 44
June 27, 1919	Printing, etc., Clerk, First District.....	147 03	699 75	552 72
June 3, 1921	Printing, etc., Clerk, Second District.....	600 00	52 05	547 95
June 27, 1919	Printing, etc., Clerk, Third District.....	1,652 50	555 35	1 09
June 3, 1921	Rent of quarters, First District.....	93 56	63 05	30 51
June 27, 1919	By amount returned.....	1,000 00	1,746 06	
June 27, 1919	Expenses, Judges pro tempore.....		254 90	745 10
June 27, 1919	Salaries, Officers, etc., District No. 2, Division No. 2.....	1,800 00	250 00	9,903 54
June 27, 1919	Salary, Porter, First District.....		1,645 15	154 85
June 27, 1919	Printing, etc., District No. 1, Division No. 2.....		79 80	339 85
June 27, 1919	Printing, etc., District No. 2, Division No. 2.....		123 95	266 12

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	JUDICIAL—Continued.						
	<i>District Courts of Appeal—Continued.</i>						
May 27, 1919	Postage, etc., District No. 2, Division No. 2	\$232 78		\$223 17			
May 27, 1919	Furnishing, etc., District No. 2, Division No. 2	23 58		369 98			
	By amount returned	344 40					\$9 61
	Uses, District No. 1, Library Fund			1,997 03			
	Uses, District No. 2, Library Fund			2,125 89			
	Uses, District No. 3, Library Fund			1,532 45			
	<i>Superior Courts.</i>						
May 27, 1919	State's portion, salaries, Superior Judges		\$291,000 00	\$6 95			
June 3, 1921	State's portion, salaries, Superior Judges			336,457 30		336,964 25	\$696,430 53
	EXECUTIVE.						
	<i>Governor.</i>						
June 3, 1921	Salary, Governor		\$10,000 00	\$10,000 00			
June 3, 1921	Salary, Private Secretary		5,000 00	5,000 00			
June 3, 1921	Salary, Executive Secretary		3,600 00	3,600 00			
June 3, 1921	Salary, Stenographer		2,000 00	2,000 00			
June 3, 1921	Salary, Messenger		1,500 00	1,500 00			
June 3, 1921	Postage, etc.		9,200 00	9,200 00			
June 3, 1921	Special contingent (Secret Service)		5,000 00	5,000 00			
June 3, 1921	Support, Governor's residence		8,750 00	8,750 00			
May 27, 1919	Printing, etc.	\$305 95		379 50	\$126 45		
June 3, 1921	Printing, etc.	1,500 00	750 00	338 70	411 30		
June 3, 1921	Payment of rewards		750 00		1,500 00		
June 3, 1921	Payment of rewards, illegal voting	500 00	750 00		750 00		
June 3, 1921	Payment of rewards, highway robbers	2,000 00	250 00		500 00		
June 3, 1921	Payment of rewards, highway robbers				250 00		
June 3, 1921	Repairs, painting, etc., Governor's automobile		1,000 00		1,000 00		
May 26, 1921	Repairs, painting, etc., Governor's automobile		2,400 00	1,771 82	628 18		
	<i>Lieutenant Governor</i>						
June 3, 1921	Salary		\$1,000 00	\$4,000 00		4,000 00	

ADMINISTRATIVE.									
<i>Board of Control.</i>									
June 3, 1921	Salaries, members							\$14,166 70	\$833 30
June 3, 1921	Salary, Secretary							280 65	13,319 35
June	General Fund							280 65	
June	General Fund							421 00	
June 3, 1921	*Salaries, two assistant Superintendents of Accounts							233 86	12,766 14
June 27, 1919	Salaries, two Stenographers							3,661 79	524 67
May	Support and maintenance	\$1,490 36						6,952 34	
June	By amount returned	2,696 10							199,187 66
June 3, 1922	Support and maintenance			106,140 00					
<i>Secretary of State.</i>									
June 3, 1921	Salary, Secretary of State			\$5,000 00				\$5,000 00	
June 3, 1921	Salary, Deputy			4,000 00				3,914 00	\$86 00
June 3, 1921	Salary, Deputy			3,600 00				3,290 30	309 70
June 3, 1921	Salary, Bookkeeper			2,400 00				2,400 00	
June 3, 1921	Salary, Keeper of Archives			2,000 00				1,924 75	75 25
June 3, 1921	Salary, Statistician			2,400 00				2,400 00	
June 3, 1921	Salary, Superintendent and Cashier, Corporation License Tax Department			2,700 00				2,674 20	25 80
June 3, 1921	Salary, Registrar			2,100 00				1,919 35	180 65
June 3, 1921	Salary, Chief Recording Clerk			2,100 00				1,919 35	180 65
June	General Fund							240 80	
June	General Fund							849 90	
June	General Fund							154 85	
June	General Fund							266 60	
June	General Fund							738 15	
June 3, 1921	Salary, Messenger			1,500 00				1,448 35	51 65
June 3, 1921	Salary, Porter			1,200 00				1,158 70	41 30
June	General Fund							51 60	
June	General Fund							30 95	
June 3, 1921	*Salary, Porter, Corporation License Tax Department			25,200 00				21,866 05	3,333 95
June 3, 1921	Salaries, fourteen Clerks			500 00				28 37	500 00
June 3, 1921	Salary, Special Legislative Clerks							4,341 36	2,957 75
May 27, 1919	Postage, etc. (Exempt from Sec. 4)							80 46	6,658 64
June 3, 1921	Postage, etc. (Exempt from Sec. 4)			11,000 00					71 87
May 27, 1919	Contingent and traveling								
June 3, 1921	Contingent and traveling			1,250 00					
May 27, 1919	By amount returned (from Sec. 4)			300 00				1,291 96	258 04
June 3, 1921	Printing, etc. (Exempt from Sec. 4)							1,501 95	1,973 06
June 3, 1921	Printing, etc. (Exempt from Sec. 4)			11,000 00				4,532 55	6,585 80
May 27, 1919	By amount returned			118 35					
June 3, 1921	Printing and compiling State Roster			500 00				500 00	500 00
June 3, 1921	Printing and compiling State Roster								
June 3, 1921	Printing and compiling State Roster								
June 3, 1921	Tabulating election returns			1,750 00				500 00	1,750 00

\$25,996 99

*Abolished
†Transferred to "Support Department of Finance."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Secretary of State—Continued.</i>						
May 25, 1921	Compiling, printing, etc., Constitutional Amendments		\$50,000 00	\$110 90	\$19,889 10		
May 15, 1917	Equipment of vault	\$632 30			632 30		
May 25, 1921	Purchase of furniture and equipment		2,500 00	2,500 00			
	Purchase of ballot paper, Ballot Paper Revolving Fund			4,410 11		\$71,945 56	
	<i>Controller.</i>						
June 3, 1921	Salary, Controller		\$5,000 00	\$5,000 00			
June 3, 1921	Salary, Deputy		4,000 00	3,914 00		\$86 00	
General Fund	*Salary, Bookkeeper			206 45			
General Fund	*Salary, Redemption Tax Expert			206 45			
General Fund	*Salaries, two clerks			309 70			
General Fund	*Salaries, Time Clerks			550 40			
General Fund	*Salary, Statistician			20 45			
General Fund	*Salary, Warrant Registrar			206 45			
General Fund	*Salary, Stenographer-Clerk			129 05			
General Fund	*Pay, Payor			61 95			
General Fund	*Salary, Franchise Tax Expert			206 45			
General Fund	*Salary, Superintendent Franchise Tax Department			206 45			
June 3, 1921	Salary, Inheritance Tax Attorney (Sacramento)		3,000 00	3,000 00			
June 3, 1921	Salary, one Assistant Inheritance Tax Attorney (Sacramento)			2,700 00		309 70	
June 3, 1921	Salaries, two Assistant Inheritance Tax Attorneys (San Francisco)			6,000 00			
June 3, 1921	Salaries, two Assistant Inheritance Tax Attorneys (Los Angeles)			6,000 00			
June 3, 1921	Support and maintenance, Controller			6,000 00			
	By amount returned			57,335 00			
	Contingent and traveling expenses	\$3,934 71					
May 27, 1919	Printing, etc., Tax Collection Department	1,356 89					
May 27, 1919	Collection, etc., Municipal Statistics	1,980 98					
May 27, 1919	Expenses, Inheritance Tax Department (General)	4,107 73					
	By amount returned	500 00					
June 3, 1921	Expenses, Inheritance Tax Department (General)		33,750 00				
	By amount returned		450 00				
May 27, 1919	Expenses, Inheritance Tax Department (San Francisco)	455 81					
	By amount returned	500 00					

June 3, 1921	Salary, Fireman.....	1,320 00	102 90	\$1,217 10
June 3, 1921	Salary, additional Fireman.....	440 00	---	440 00
June 3, 1921	Salary, Electrician.....	1,800 00	---	1,800 00
June 3, 1921	Salary, additional Electrician.....	600 00	---	600 00
June 3, 1921	Salary, Head Porter.....	1,320 00	102 90	1,217 10
June 3, 1921	Pay, ten additional Porters.....	4,000 00	---	4,000 00
June 3, 1921	Salary, Head Gardener.....	2,100 00	163 70	1,936 30
June 3, 1921	Salary, Assistant Head Gardener.....	1,320 00	102 90	1,217 10
June 3, 1921	Salaries, emergency Electrician.....	75 00	---	75 00
June 3, 1921	Salaries, seven Special Policemen.....	10,300 00	785 75	9,514 25
June 3, 1921	Salaries, two Elevator Attendants.....	2,400 00	187 10	2,212 90
June 3, 1921	Salaries, two additional Elevator Attendants.....	800 00	---	800 00
June 3, 1921	Salaries, three Telephone Operators.....	3,240 00	252 60	2,987 40
June 3, 1921	Salaries, two additional Telephone Operators.....	720 00	---	720 00
June 3, 1921	Salary, one additional Telephone Operator.....	135 00	---	135 00
June 3, 1921	Salaries, Special Policemen, Capitol and Executive Mansion.....	5,280 00	411 80	4,868 20
June 3, 1921	Salary, Typewriter Expert.....	1,500 00	116 95	1,383 05
June 3, 1921	Salary, Clerk.....	1,800 00	140 30	1,659 70
June 3, 1921	Salary, General Mechanic.....	1,250 00	---	1,250 00
June 3, 1921	Salary, Captain of Police.....	1,440 00	---	1,440 00
June 3, 1921	Salaries, Gardeners, Porters, etc.....	34,250 00	3,103 80	31,146 20
May 17, 1919	Salaries, Gardeners, Porters, etc.....	1,179 78	---	1,179 78
May 27, 1919	Stationery, fuel, lights and supplies.....	288 00	---	288 00
May 27, 1919	By amount returned.....	45 00	713 56	315 61
May 27, 1919	Purchase of implements, etc.....	1,432 38	420 00	1,012 38
May 27, 1919	Purchase of carpets and furniture.....	603 95	334 62	269 33
May 27, 1919	Repairs to Capitol Building and furniture.....	42 80	6 85	36 04
May 27, 1919	Water for Capitol Building and grounds.....	450 00	450 00	---
May 27, 1919	Traveling and contingent expenses.....	68 87	---	68 87
May 14, 1917	By amount returned.....	23 00	37 36	56 51
June 3, 1921	Painting, Capitol Building.....	28 85	---	28 85
June 3, 1921	Expenses, care and maintenance, Capitol Building and grounds and Governor's Mansion.....	29,550 00	186 00	29,364 00
June 3, 1921	Support.....	\$58,600 00	\$4,020 40	\$54,579 60
May 24, 1919	Support.....	\$2,066 68	1,353 57	778 91
June 3, 1921	By amount returned.....	65 80	---	65 80
June 3, 1921	Support—transferred from—	---	---	---
June 3, 1921	Salary, Secretary, Board of Control.....	\$3,319 35	---	\$3,319 35
June 3, 1921	Salaries, two Stenographers, Board of Control.....	2,768 14	---	2,768 14
June 3, 1921	Support and maintenance, Board of Control.....	99,187 66	---	99,187 66

8,063 39

5,373 97

*Abolished.

†Transferred to "Support Department of Finance."

‡One-half transferred to "Support Department of Finance."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Department of Finance—Continued.</i>						
	Support—transferred from—						
	Salary, Superintendent of State Printing		\$4,610 25				
	Salary, Deputy Superintendent of State Printing		2,706 15				
	Support, Purchasing Department		54,379 60				
	Salary, Clerk to Superintendent, Capitol Building and Grounds		1,659 70				
	Salary, Engineer, Capitol Building and Grounds		1,659 70				
	Salary, Fireman, Capitol Building and Grounds		1,217 10				
	Salary, Electrician, Capitol Building and Grounds		1,800 00				
	Salary, Head Porter, Capitol Building and Grounds		1,217 10				
	Salary, Head Gardener, Capitol Building and Grounds		1,936 30				
	Salary, Assistant Head Gardener, Capitol Building and Grounds		1,217 10				
	Salary, Emergency Electrician, Capitol Building and Grounds		75 00				
	Salary, seven Policemen, Capitol Building and Grounds		9,514 25				
	Salaries, two Elevator Attendants, Capitol Building and Grounds		2,212 90				
	Salaries, three Telephone Operators, Capitol Building and Grounds		2,987 40				
	Salary, one additional Telephone Operator, Capitol Building and Grounds		61 85				
	Salaries, special Policemen, Governor's Mansion and Capitol Building		4,868 20				
	Salary, Typewriter Expert		1,383 05				
	Salary, General Mechanic		1,250 00				
	Salary, Captain of Police		1,440 00				
	Pay, Gardeners, Porters, etc., Capitol Building and Grounds		31,146 20				
	Expenses, Capitol Building and Governor's Mansion		29,364 00				
	Salary, Guardiam, Sutter's Fort		995 80				
	Salary, Gardener, Sutter's Fort		1,217 00				
	Salary, Assistant Gardener, Sutter's Fort		1,106 45				
	Care of grounds, etc., Sutter's Fort		1,500 00				
	Children's Agents (Board of Control)		36,870 11				

Care of State Burial Grounds.	250 00								
By amount returned.	8,982 12								\$37,289 30
Salaries, additional employees during Legislature, transferred from—									
Salary, Engineer, Capitol Building and Grounds	300 00								
Salary, Fireman, Capitol Building and Grounds	220 00								
Salary, Electrician, Capitol Building and Grounds	300 00								
Salaries, ten Porters, Capitol Building and Grounds	2,000 00								
Salaries, Elevator Attendants, Capitol Building and Grounds	400 00								
Salaries, Telephone Operators, Capitol Building and Grounds	360 00								
Salaries, Night Watchmen, Capitol Building and Grounds	1,800 00								5,380 00
									\$275,874 28
<i>Division of Purchases and Custody.</i>									
Uses, Purchasing Department Revolving Fund									261,540 29
<i>Division of Motor Vehicles.</i>									
Uses, Motor Vehicle Fund: Expenses, \$636,672.17; refunds, \$16,404.11									
Uses, Transfer and Operators License Fund.									
Uses, Testing Fee Fund									
									912,114 52
<i>Division of Printing.</i>									
Support State Printing Office (State Printing Fund)									
Salary, State Printer	\$5,000 00								*4,610 25
Salary, Deputy State Printer	3,000 00								*2,706 15
Printing, various offices	2,250 00								1,838 15
Printing, various offices									1,330 90
Purchase, machinery, etc	43,525 00								503 19
									578,286 95
									\$2,456,765 29
REGULATIVE									
<i>Railroad Commission.</i>									
Salaries, Commissioners	\$40,000 00								\$1,089 05
Support, etc.									
By amount returned									1,043 91
Support, etc.	398,300 00								40,720 58
Uses, Railroad Commission Fund									
Control Public Utilities									90,900 36
									70 51
<i>Superintendent of Banks.</i>									
Salaries, etc., State Banking Fund									\$154,029 69
									\$488,505 15

*Transferred to "Support Department of Finance."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
June 3, 1921	<i>Insurance Commissioner.</i>						
June 3, 1921	Salary, Commissioner.....		\$6,000 00	\$6,000 00			
June 3, 1921	Salary, Deputy Commissioner.....		2,700 00	2,700 00			
June 3, 1921	Rent, printing, etc. (Insurance Commissioner's Special Fund).....			53,622 70		\$62,322 70	
June 3, 1921	<i>Board of Health.</i>						
June 3, 1921	Salary, Secretary.....		\$4,500 00	\$4,500 00			
June 3, 1921	Salary, Assistant Secretary.....		2,400 00	2,400 00			
June 3, 1921	Salary, Attorney.....		3,000 00	3,000 00			
June 3, 1921	Salary, Statistician.....		2,400 00	2,400 00			
June 3, 1921	Salary, Deputy Statistician.....		1,600 00	1,600 00			
June 3, 1921	Salary, Clerk.....		1,600 00	1,600 00			
June 3, 1921	By amount returned.....		133 30		\$389 90		
June 3, 1921	Salaries, two Copyists.....		1,800 00	1,739 50	111 31		
June 3, 1921	By amount returned.....		53 84				
June 3, 1921	Salary, Director Pure Food Laboratory.....		3,600 00	3,600 00			
June 3, 1921	Salary, Assistant Director Pure Food Laboratory.....		1,800 00	1,800 00			
June 3, 1921	Salary, Consulting Nutrition Expert.....		1,200 00	1,200 00			
May 27, 1919	Traveling and contingent expenses.....	\$2,986 37					
June 3, 1921	By amount returned.....	1,296 18		2,899 56	1,382 99		
June 3, 1921	Traveling and contingent expenses.....		30,000 00	26,507 00	7,504 98		
June 3, 1921	By amount returned.....		4,011 98				
June 3, 1921	Support, District Health Offices.....	1,301 34		1,301 34			
June 3, 1921	Support, District Health Offices.....	2,310 57	13,750 00	12,206 21	1,543 79		
June 3, 1921	Support, Pure Food and Drug Laboratory.....	12 50		2,240 72	82 35		
June 3, 1921	By amount returned.....		34,677 50				
June 3, 1921	Support, Pure Food and Drug Laboratory.....		4,080 75	35,487 01	3,271 24		
June 3, 1921	By amount returned.....		965 33				
June 3, 1921	Support, Hygienic Laboratory.....		43,495 00	762 75	232 58		
June 3, 1921	Support, Hygienic Laboratory.....		17,700 00	37,740 53	5,754 47		
June 3, 1921	Salaries and expenses, Sanitary Inspectors.....		1 05	14,333 88	3,367 17		
June 3, 1921	By amount returned.....		21,000 00				
June 3, 1921	Vital statistics.....		21,000 00	16,962 42	4,037 58		
June 3, 1921	Prevention contagious diseases.....	3,501 75		2,043 10	1,458 65		
June 3, 1921	Prevention contagious diseases.....		20,325 00	17,230 58	3,369 42		
June 3, 1921	By amount returned.....		275 00				
June 3, 1921	Support, Child Hygiene.....	1,855 34		1,855 34			
June 3, 1921	Support, Child Hygiene.....		19,280 00	12,085 03	7,258 47		
June 3, 1921	By amount returned.....		63 50				

June	3, 1921	Support, Bureau of Social Hygiene. By amount returned.	25,800 00 3 50 917 69	20,964 26	5,756 93
May	14, 1919	Support, Social Hygiene By amount received from Federal Government.	12 11 1,860 61	3,714 56	18 77
May	24, 1919	Support, Department of Sanitary Engineering. By amount returned.	1,860 61 2,318 37 53	1,902 90	416 00
June	3, 1921	Support, Department of Sanitary Engineering. By amount returned.	34,385 00 3 44	26,360 12	8,028 32
May	25, 1921	Dental Hygiene By amount returned.	15,000 00 18 00	4,781 80	10,236 20
May	25, 1921	Malaria control.	20,000 00	741 50	19,258 50
May	25, 1921	Plague Parasitology.	5,000 00	1,792 00	3,208 00
May	24, 1919	Support, etc., Public Health Nurses. County aid, for tubercular patients: Expenses, \$1,495.17; aid, \$75,254.60	10,000 00	2,917 38	7,082 62
May	25, 1921	Bureau of Tuberculosis: Expenses, \$23,277.08; subsidies, \$59,960.93 By amount returned.	76,227 91 521 86	76,749 77	
May	27 1919	Uses, Nurses Registration Fund Printing, etc.	600,000 00 223 08	83,238 01 14,399 16 1,343 88	516,985 07 135 80
		<i>Corporation Commissioner.</i>			
		Uses, Corporation Commission Fund.		\$152,063 50	446,133 71
		<i>Building and Loan Commissioner.</i>			
		Salary, Commissioner (Building and Loan Inspection Fund)		\$3,965 65	152,063 50
		Salary, Chief Deputy (Building and Loan Inspection Fund)		2,491 45	
		Salary, Deputy (Building and Loan Inspection Fund)		2,348 40	
		Office expenses (Building and Loan Inspection Fund)		1,853 17	
		Office rent (Building and Loan Inspection Fund)		1,110 00	
		Traveling expenses (Building and Loan Inspection Fund)		1,264 40	
		Office expenses, 724 fiscal year (Building and Loan Inspection Fund)		12 64	
		Office rent, 724 fiscal year (Building and Loan Inspection Fund)		92 50	
		<i>Board of Medical Examiners.</i>			
		Uses, Board of Medical Examiners' Contingent Fund		\$79,492 18	13,138 21
					79,492 18

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Board of Optometry.</i>						
	Uses, Optometry Fund.....			\$3,930 66		\$3,930 66	
	<i>Board of Dental Examiners.</i>						
	Uses, State Dentistry Fund.....			\$14,335 07		14,335 07	
	<i>Board of Veterinary Medical Examiners.</i>						
	Uses, etc., Contingent Fund.....			\$276 42		\$276 42	
	<i>Board of Bar Examiners.</i>						
	Uses, Bar Examination Fund.....			\$5,661 44		5,661 44	
	<i>Board of Architecture (Northern District).</i>						
	Expenses (General Fund Special Deposit) By special deposits.....	\$1,867 31	\$2,865 40	\$2,917 90	\$1,814 81	[2,917 90	
	<i>Board of Architecture (Southern District).</i>						
	Expenses (General Fund Special Deposit) By special deposits.....	\$835 74	\$3,360 01	\$2,671 15	\$1,524 60	2,671 15	
	<i>Civil Service Commission.</i>						
General Fund	*Salaries, Members.....			\$701 55			
May 27, 1919	Support and salaries.....	\$105 99		632 12	\$33 87		
	By amount returned.....	500 00					
June 3, 1921	Support and salaries.....		\$43,590 00	42,221 57	1,556 37		
	By amount returned.....		187 94				
	<i>Eureka Harbor Commissioners.</i>						
June 3, 1921	Salaries, three Commissioners.....		\$1,200 00	\$1,200 00			
June 3, 1921	Salary, Harbor Master.....		1,200 00	1,200 00			
June 3, 1921	Salary, Secretary.....		1,200 00	1,000 00	\$200 00		
May 27, 1919	Contingent expenses.....			80 10		2,104 27	
June 3, 1921	Contingent expenses.....	\$2,184 37	1,500 00	367 65	1,132 35		
	<i>Legislative Counsel Bureau.</i>						
June 3, 1921	Salary, Legislative Counsel.....		\$4,000 00	\$4,000 00			
June 3, 1921	Salaries, two assistants.....		6,000 00	6,375 00	\$225 00		
May 31, 1917	Support, etc.....	\$146 05		145 48	37		
May 24, 1919	Publication Index to Laws.....	86 94		81 53	5 41		

May June	27, 1919 3, 1921	Support, etc. Support, etc. By amount returned.	879 81	7,112 50 655 00	824 33 5,045 76	55 48 2,721 74	16,472 10
August May	31, 1921 27, 1921	<i>Real Estate Commissioner.</i> Uses, Real Estate Commission Fund, 1921. Uses, Real Estate Commission Fund, 1922. Refunds, Real Estate Commission Fund (for 1917). Refunds (Licenses collected under Ch. 758, Statutes 1917).		\$13,382 34	\$59,871 93 53,601 12 29,495 66 13,382 34		156,351 05
June June May June	3, 1921 3, 1921 27, 1919 3, 1921	<i>Superintendent Weights and Measures.</i> Salary, Superintendent. Salary, Deputy. Support. By amount returned. By amount returned.	\$822 06 521 38	\$4,000 00 1,800 00 8,000 00 37 99	\$311 80 140 30 976 25 656 34	†\$3,688 20 †11,659 70 367 19 17,381 65	2,084 69
June May June	3, 1921 27, 1919 3, 1921	DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS <i>Division of Workmen's Compensation, Insurance and Safety.</i> Salaries, Members Industrial Accident Commission Support, etc., Industrial Accident Commission By amount returned. Support, etc., Industrial Accident Commission. By amount returned. Uses, Compensation Insurance Fund. Uses, Industrial Rehabilitation Fund. Uses, Industrial Accident Fund. Uses, Industrial Prevention Fund.	\$85 63 218 53	\$15,000 00 252,000 00 1,877 18	\$15,000 00 304 21 250,377 12 4,923,955 80 8,779 55 1,955 84 118,512 24	\$3,500 06	5,318,884 76
June June June June June June	3, 1921 3, 1921 3, 1921 3, 1921 3, 1921 3, 1921	<i>Division of Labor.</i> Salary, Commissioner, Labor Bureau. Salary, Deputy, Labor Bureau. Salary, Deputy (Los Angeles) Labor Bureau. Salary, Assistant Deputy, Labor Bureau. Salary, Statistician, Labor Bureau. Salary, Stenographer, Labor Bureau. Salary, Attorney, Labor Bureau. Uses, Labor Bureau Contingent Fund. Support, Free Employment Bureau. Traveling and Contingent, Labor Bureau. By amount returned.	\$74 58	\$4,000 00 2,400 00 2,400 00 2,100 00 2,700 00 1,200 00 2,400 00 41,500 00 1,215 00	\$3,988 90 2,400 00 2,400 00 2,161 30 2,100 00 1,575 00 1,200 00 2,400 00 22,163 93 74 58 41,888 64	\$11 10 238 70 1,125 00	

*Abolished.
†Transferred to "Support Department of Agriculture."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
Jan. 24, 1921 June 3, 1921	<i>Division of Labor—Continued.</i> Support, Labor Bureau (deficiency) — Support, Free Employment Bureau. By amount returned.	\$8 59	\$95,000 00 161 77	\$8 59 80,578 84	\$14,582 93	\$160,539 78	
May 27, 1919 June 3, 1921	<i>Division of Immigration and Housing.</i> Support, Commission of Immigration and Housing Support, Commission of Immigration and Housing By amount returned.	\$3,756 78	\$91,288 00 209 98	\$3,204 04 71,298 45	\$552 74 20,199 53	74,502 49	
May 27, 1919	<i>Division of Industrial Welfare.</i> Support, Industrial Welfare Commission. By amount returned.	\$492 58 1,012 66		\$1,142 44	\$362 80		
June 3, 1921	Support, Industrial Welfare Commission. By amount returned. Cannery Auditing Fund (Special Deposit). By amount returned. By special deposits.	7,208 02 1,400 00	\$65,492 50 2 15	40,898 75 11,938 90	24,595 90 11,506 68		
	DEPARTMENT OF PUBLIC WORKS.					53,980 09	
	<i>Division of Water Works.</i>						
June 21, 1921	Salaries and Support, Water Commission.	\$1,910 48		\$1,718 26	\$192 22		
May 27, 1919	Support, Water Commission. By amount returned.	2,027 90 1,325 53		3,181 37	772 06		
June 3, 1921	Support, Water Commission. By amount returned. San Joaquin Hydrographic Investigation Fund (Special Deposit). By special deposit.	949 68	\$91,850 00 585 96	78,333 29	14,102 67		
General Fund May 24, 1919 May 25, 1921	*Salary, Water Commissioner. Study Santa Ana River. Survey of water resources. By amount returned. Uses, Water Commission Revolving Fund. Investigation water resources San Jacinto River. By contribution. City of San Luis Obispo Cooperative Fund— By contribution.	07	2,000 00 50,000 00 1,000 00	2,915 24 389 75 21,610 56 416 07	34 44 07 29,389 44		
		1,250 00	500 00	962 40	287 60	110,026 94	

398,768 19

DEFENSIVE.		National Guard.		High School Cadets.		CONSTRUCTIVE.		San Francisco Harbor Commission.		San Francisco State Building.		Sacramento State Building.		Sacramento River.		Los Angeles and Long Beach Harbors.	
June 3, 1921	General Fund	Salary, Adjutant General.	\$5,000 00														
June 3, 1921	General Fund	Salary, Assistant Adjutant General.	3,000 00														
June 3, 1921	General Fund	*Salary, Chief Clerk.	2,200 00														
June 3, 1921	General Fund	*Salaries, three Clerks.	2,000 00														
June 3, 1921	General Fund	Salary, Personnel Registrar.	2,000 00														
June 3, 1921	General Fund	Salary, Property Accountant.	2,000 00														
June 3, 1921	General Fund	Salary, Record Keeper.	2,000 00														
June 3, 1921	General Fund	Salary, Stenographer-Clerk.	1,700 00														
June 3, 1921	General Fund	By amount returned.	49 88														
June 3, 1921	General Fund	Salary, Military Storekeeper.	1,400 00														
June 3, 1921	General Fund	Salary, Assistant Military Storekeeper.	1,000 00														
June 7, 1913	General Fund	Los Angeles Army.	991 40														
June 27, 1919	General Fund	Support, National Guard.	\$149 02														
June 3, 1921	General Fund	Support, National Guard.	200,082 85														
June 3, 1921	General Fund	By amount returned.	330,615 00														
June 3, 1921	General Fund	By amount returned.	7,172 30														
May 27, 1919	General Fund	Organization, etc.	\$46,744 38														
May 26, 1921	General Fund	Organization, etc.	\$75,000 00														
May 27, 1921	General Fund	Construction (San Francisco State Building Fund)	\$292,126 66														
May 25, 1921	General Fund	Construction, etc.	138,552 87														
May 24, 1911	General Fund	Construction (San Francisco State Building Fund)	\$350,000 00														
May 22, 1919	General Fund	Construction (Sacramento State Building Fund)	\$30,297 30														
May 26, 1921	General Fund	Rectification and enlargement of channel.	\$500,000 00														
May 25, 1921	General Fund	Controlling floods, etc. (Available July 1, 1922)	500,000 00														
December 24, 1911	General Fund	Sacramento River Flood Control.	29 86														
May 22, 1919	General Fund	Protection, Los Angeles and Long Beach Harbors.	\$580,000 00														
May 22, 1919	General Fund	Protection, Los Angeles and Long Beach Harbors.	\$580,000 00														

*Abolished.

†Contingent on like amount from U. S. Government.

\$389,759 35

9,008 84

\$1,777,554 12

430,719 53

30,297 30

500,000 00

580,000 00

\$3,000 00

189 20

172 05

172 05

177 45

67 03

17 15

8 60

127 72

52,863 24

102,417 41

\$5,000 00

163 40

2,010 80

438 60

1,827 95

1,827 95

1,822 55

1,682 85

1,382 85

991 40

21 30

147,219 61

225,370 09

\$5,000 00

2,200 00

2,000 00

2,000 00

2,000 00

1,700 00

1,400 00

1,000 00

330,615 00

7,172 30

\$46,744 38

\$75,000 00

\$2,125 22

6,883 62

\$1,685,030 94

92,503 18

\$292,126 66

138,552 87

\$30,297 30

\$500,000 00

500,000 00

\$580,000 00

\$580,000 00

\$211,407 13

\$500,000 00

29 86

\$580,000 00

\$580,000 00

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
DEPARTMENT OF PUBLIC WORKS.							
<i>Division of Highways.</i>							
	Construction, etc., State Highways (Second State Highway Fund).....			\$1,537,918 71			
	Construction, etc., State Highways (Third State Highway Fund).....			14,273,040 04			
June 1, 1917	Construction, etc., Joint Highway Districts Vallecito-Seares Point Survey (Special Deposit).....	\$167,604 37	\$1,000 00	45 16	\$107,539 21		
	Maintenance, etc., State Highways (Motor Vehicle Fund).....			3,828,953 33	1,000 00		
General Fund	*Salaries, Advisory Board, Department of Engineering.....			841 80			
General Fund	*Salary, Highway Engineer.....			779 58			
June 3, 1921	Salaries, Members Highway Commission.....		10,800 00	9,958 05	841 95		
June 3, 1921	Salary, Director Department of Public Works.....		10,000 00	9,220 45	779 55		
June 3, 1921	Survey, Road from Modesto to Yosemite.....		30,000 00		30,000 00		
June 3, 1921	Construction, San Bernardino-Yuma Road.....		350,000 00		350,000 00		
June 3, 1921	Survey, Road from Alturas to Nevada-California line.....		70,000 00	25,544 11	44,455 89		
June 3, 1921	Paving road from city limits, San Luis Obispo, to California Polytechnic School.....		7,500 00	2,151 16	5,348 84		
June 1, 1917	Lassen County Highway (contingent on like amount from Lassen County).....	60,000 00			60,000 00	\$19,688,452 39	
<i>Division of Engineering and Irrigation.</i>							
(Division of Architecture.)							
General Fund	*Salary State Engineer.....		\$5,000 00	\$389 75			
June 3, 1921	Salary, Chief of Division of Engineering and Irrigation.....			4,610 25	\$389 75		
General Fund	*Salary, State Architect.....			374 20			
June 3, 1921	Salary, Chief of Division of Architecture.....		4,800 00	4,425 80	374 20		
June 3, 1921	Salary, two Assistant State Engineers.....		6,000 00	233 85	5,766 15		
June 3, 1921	Salary, Architectural Designer.....		2,700 00	210 50	2,489 50		
June 3, 1921	Salary, Mechanical Engineer.....		2,700 00	210 50	2,489 50		
June 3, 1921	Pay, Porter.....		500 00	62 90	437 10		
June 3, 1921	Salaries, two Clerk-Stenographers.....		3,000 00	233 90	2,766 10		
June 3, 1921	Salary, Electrical Engineer.....		2,100 00		2,100 00		
June 3, 1921	Salary, Structural Engineer.....		2,400 00		2,400 00		
June 3, 1921	Salary, Auditor.....		2,400 00	187 10	2,212 90		

June 3, 1921	Salary, General Superintendent.	3,000 00	233 85	13,000 00
June 3, 1921	Salary, Assistant State Architect.	3,000 00		12,766 15
June 3, 1921	Salary, Estimator.	2,100 00		12,100 00
June 3, 1921	*Salary, Specification Writer	2,100 00		12,100 00
General Fund	*Salaries, two Filing Clerks		140 30	
General Fund	*Salary, Blueprint Pressman		116 95	
June 3, 1921	Salaries of employees, Department of Engineering.	50,120 00		
	By amount transferred from various salary appropriations	31,027 40	77,368 87	4,257 56
May 27, 1919	By amount returned	479 03		
	Traveling and contingent expenses, Department of Engineering	3,046 62		101 56
	By amount returned	158 00		
June 3, 1921	Traveling and contingent expenses, Department of Engineering.		3,103 15	
June 3, 1921	By amount returned	25,000 00		3,204 66
May 27, 1919	Printing, etc., Department of Engineering	547 64	22,252 98	
May 14, 1901	Printing, etc., Department of Engineering		1,397 82	1,102 18
May 14, 1917	Uses, Revolving Fund, Division of Architecture		108 30	303 99
May 24, 1919	Restraining debris (cooperative)		52,550 30	
May 24, 1919	Rectifying river channels		11,861 43	8,313 33
	By contribution	30,580 51		6 76
May 25, 1921	By amount returned	13,079 17	29,398 39	21,916 71
	Improving channels, Sacramento, San Joaquin and Feather Rivers	175,000 00		
	By contribution	12,000 00	73,876 95	113,203 21
May 26, 1921	By amount returned	80 16		
June 3, 1921	Restraining, impounding, etc., debris (contingent on like amount from U. S. government)	30,000 00		30,000 00
June 3, 1921	Investigation of water resources	200,000 00		
	By contribution	3,504 00	93,702 58	110,283 28
April 22, 1909	By amount returned	481 86		
June 3, 1921	Joint investigation of water resources (cooperative)	30,000 00	35,510 79	1,683 28
	By amount returned	12 60		
	Survey and investigation of cost of irrigating land in Shasta County (State not to pay more than one-third of cost)	20,000 00		
May 14, 1917	Restoration, etc., Fort Ross	1,053 28	5,036 91	14,963 09
May 14, 1917	John Muir Trail	95	697 00	356 28
May 14, 1917	Restoring, etc., Old Custom House, Monterey	186 85		95
March 15, 1911	Monterey Breakwater (contingent upon appropriation of \$600,000.00 by U. S.)	200,000 00	186 85	186 85
May 14, 1917	Restoring Old Theatre, Monterey			200,000 00
April 27, 1911	Protecting banks of Mad River (cooperative)	1,760 21		48
May 27, 1911	Restoring, etc., Mission S. F. De Solano	28 28	1,731 85	28 36
May 24, 1919	Preservation, etc., Jas. W. Marshall Blacksmith Shop	12 85	7 50	20 78
			10 75	2 10

*Abolished.
†Transferred to "Salaries, Employees."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Division of Engineering and Irrigation—Continued.</i>						
	(Division of Architecture)—Continued.						
June 6, 1913	Restoring, etc., Mission S. F. de Solano.....	\$488 83	\$1,000 00	\$498 27	\$20 56		
June 3, 1921	Restoration, Mission S. F. de Solano.....			27 65	972 35		
June 3, 1921	Restoration, Mission of San Diego (restraining order filed January 9, 1922)		10,000 00		10,000 00		\$23,427,534 58
	<i>EDUCATIONAL.</i>						
	<i>Department of Education.</i>						
May 27, 1919	Per diem, etc., Board of Education.....	\$2,334 11		\$4,520 27	\$155 84		
June 3, 1921	By amount returned.....	2,342 00	\$84,000 00	101,607 92	772 49		
General Fund	By amount returned.....		17,420 41				
May 18, 1917	*Salaries, Commissioners of Education.....	797 47		1,032 15			
July 27, 1917	Filing fees.....	2,430 00		1,120 18	2,008 20		
May 27, 1917	By amount returned.....			309 70			
May 27, 1917	*Salary, Supervisor Physical Education.....			1,239 15	141 46		
	Support, Physical Education.....						
	Promotion of Vocational Education (one-half by Federal Government) Vocational Education Fund.....	1,380 61					
	Uses, Teachers' Permanent Fund.....			206,223 98			
	Uses (one-half by Federal Government) Vocational Rehabilitation Fund.....			6,710 78			
June 3, 1921	Administration.....		12,641 50	38,776 97			
	By 1% and 1½% support and salaries various schools.....			8,907 62	3,733 88		
March 23, 1903	Text books.....	1,960 07		325 00	1,635 07		
	<i>Superintendent of Public Instruction.</i>						
June 3, 1921	Salary, Superintendent.....		\$5,000 00	\$5,000 00			
June 3, 1921	Salary, Deputy.....		3,000 00	3,000 00			
General Fund	Salary, Stationary.....			206 45			
General Fund	Salary, Secretary.....			154 85			
General Fund	Salary, Book-keeper.....			180 65			
June 3, 1921	Salaries, employees.....		6,300 00		\$86,300 00		
June 3, 1921	Salary and expenses, Assistant Superintendent and Americanization Work.....		5,000 00	250 00			
May 27, 1919	Postage, etc.....	\$293 94	10,975 00	180 15	14,750 00		
June 3, 1921	By fees.....		118 00	1,403 85	113 79		
					49,599 15		
						370,782 72	

June	3, 1921	Support—Amount transferred from— Salaries, employees.....	6,300 00					
		Salaries and expenses, Assistant Superintendent.....	4,750 00			22,868 47	1,751 98	
		Postage, etc.....	9,399 15					
		Textbooks for Orphans.....	1,742 71					
		By amount returned.....	7 59					
		By fees.....	2,221 00					
June	3, 1921	Printing, etc.....	30,000 00			16,957 96	13,535 84	
		By amount returned.....	483 80					
June	3, 1921	Educating children of migratory laborers.....	10,000 00			2,801 00	7,199 00	53,093 38
DEPARTMENT OF FINANCE.								
		<i>Division of Libraries.</i>						
June	3, 1921	Salary, State Librarian.....	\$5,000 00			\$5,000 00		
		Uses, State Library Fund.....				139,651 93		144,651 93
<i>Elementary Schools.</i>								
		Support, State School Fund.....				\$13,105,604 57		13,105,604 57
<i>High Schools.</i>								
		Support, State High School Fund.....				\$2,803,092 35		2,803,092 35
<i>State University.</i>								
June	3, 1921	Support, Extension Courses.....	\$170,000 00			\$93,144 51	\$76,855 49	
June	3, 1921	Support, Training Courses (Southern Branch).....	500,000 00			351,630 52	148,369 48	
June	3, 1921	Support, Scripps Institute.....	22,500 00			17,583 00	4,917 00	
June	3, 1921	Hospital service and treatment.....	200,000 00			75,646 40	124,353 60	
June	3, 1921	Support, College of Agriculture and Experimental Stations.....	2,000,000 00			798,781 04	1,201,218 96	
June	3, 1921	Planning, construction, etc., buildings, University Farm School.....	400,500 00			86,486 90	314,013 10	
June	3, 1921	Investigation, deciduous fruits and nuts.....	50,000 00			21,236 44	28,763 56	
June	3, 1921	Grading, paving, etc., Oxford Street, Berkeley.....	32,290 00				32,290 00	
June	3, 1921	Payment of assessment for storm sewers, Los Angeles.....						
June	3, 1921	Construction, etc., buildings for School of Education.....	15,000 00				15,000 00	
June	3, 1921	Construction, etc., Physics Building.....	100,000 00			3,600 00	96,400 00	
June	3, 1921	Purchase of land and water rights, Riverside Farm School.....	500,000 00			50,706 04	449,293 96	
June	3, 1921	Support, College of Agriculture and Experimental Stations.....	129,165 00			128,691 00	474 00	
May	27, 1919	Support, etc., College of Agriculture.....	450,000 00			45,000 00	405,000 00	
May	27, 1919	Support, Scripps Institute.....				58,800 82		
						1,458 48		04

*Abolished.

†Transferred to "Support Superintendent of Public Instruction."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>State University—Continued.</i>							
May 24, 1919	Support, Citrus Experiment Station	\$9,118 07		\$9,118 07			
May 24, 1919	Support, etc., Los Angeles Branch of University	1,708 37		1,708 37	\$0 18		
May 24, 1919	Cooperative Agricultural Extension Work	6,676 25		6,676 07			
May 24, 1919	Salaries	6,227 16	\$4,725 00	6,227 12	12,454 12		
May 24, 1919	Salaries			62,270 88			
May 27, 1919	Support, etc.	16,666 82	200,000 00	16,666 74	38,970 00		
May 27, 1919	Support, etc.	4,166 74		4,166 74			
May 24, 1919	Support, Medical School	4,166 82	50,000 00	41,969 92	8,333 38		
May 24, 1919	Support, Extension Courses			3,166 74	08		
May 24, 1919	Support, Extension Courses		50,000 00	12,681 94	37,318 96		
May 24, 1919	Support, etc., farm in Riverside County		30,000 00	23,076 39	6,923 61		
May 27, 1919	Investigation deciduous fruits and nuts	19,900 01		19,900 02	02		
May 24, 1919	Maintenance, Cooperative System Farm Advisers	30,527 94		29,336 64	1,171 30		
May 27, 1919	Athletic accommodations, University Farm	43 38		43 38			
	Support, State University Fund			1,883,868 28			
	University Fund (interest on bonds)			24,922 50			
May 14, 1917	Sewage and water system, University Farm	133 37		133 37			
May 14, 1917	Construction, etc., Creamery, University Farm	47,975 92		40,371 32	7,604 60		
May 14, 1917	Buildings for live stock, University Farm	7,731 90		7,731 74	16		
June 7, 1913	Dormitory, University Farm	212 38		212 38			
June 7, 1913	Class room, University Farm	230 85		230 12	73		
May 24, 1917	Construction, small building, University Farm	2,314 64		2,314 64			
May 14, 1917	Claims, Board of Regents	328 05			328 05		
May 14, 1917	Claims, Board of Regents	892 30			892 50		
May 14, 1917	Completion of buildings, Riverside Citrus Station	20,014 16			19,364 16		
May 14, 1917	Musical teaching	16 16			16 16		
May 14, 1917	University extension work	08		30 00	08		
May 14, 1917	Improvement of streets adjoining University	13,453 79		2,270 87	13,453 79		
May 27, 1919	Support, Los Angeles Normal (Southern Branch)	2,270 87		2,270 87			
May 24, 1919	Training School, Los Angeles Normal (Southern Branch)	2,416 74		2,416 74			
May 27, 1919	Salaries, Los Angeles Normal (Southern Branch)	13,500 00		13,500 00			
May 27, 1919	Support	\$2 21		2,270 87	\$0 17		
June 3, 1921	By amount returned	200 00	\$26,350 00		2,312 61		
May 27, 1919	Salaries	1 83		1 83			
						\$4,109,542 13	

San Jose Teachers College.

June	3, 1921	Salaries.....				182,550 00	182,987 77	1,407 90	
May	27, 1919	By amount returned	216 37		1,845 67		175 40	40 97	
May	24, 1919	Printing					1,741 10	45 15	
May	24, 1919	Uses, Contingent Fund	45 15					73 83	
May	24, 1919	Repairs, improvements, etc.	73 83					4 98	
May	14, 1917	Improvement, heating plant	4 38					2 97	
June	7, 1913	Construction, Assembly Hall	133 62					204,822 23	
May	24, 1921	Furniture, etc.			205,000 00			10,604 17	
May	24, 1921	Construction of building for Manual Arts, etc.			26,500 00				
May	24, 1921	Repairs, improvements, etc.					15,895 83		
<i>Chico Teachers College.</i>									
May	27, 1919	Support.....	\$500 00				\$494 45	\$5 55	
June	3, 1921	Support.....			\$15,100 00		14,128 20	1,721 80	
June	3, 1921	By donation to Junior College			750 00				
June	3, 1921	Salaries.....			86,250 00				
May	24, 1919	By amount returned	1,259 11		1,143 78		88,786 64	107 14	
May	24, 1919	Maintenance, Training School			1,500 00				
May	27, 1919	Printing	207 68						
May	14, 1917	Addition to Training Buildings	372 38					181 64	
May	27, 1919	Repairs to buildings, etc.	55 08					76 48	
May	27, 1919	Development, etc. water supply	132 37				345 50	81 96	
May	27, 1919	By amount returned	20 37				113 30	39 44	
May	27, 1919	Building Trade School	589 09						
June	7, 1913	By amount returned	75 94					355 98	
June	24, 1921	Street work	75 70				74 74	96	
June	17, 1915	Equipment	20 39		5,000 00		4,416 53	583 47	
May	17, 1915	Water supply	55 73				20 37	02	
March	7, 1911	Repairs, etc.	25 31				55 08	65	
		Covered passageway	25 31				24 81	47	
<i>San Diego Teachers College.</i>									
May	27, 1919	Support.....	\$587 46				\$887 46		
June	3, 1921	By amount returned	300 00				11,224 01	\$1,675 99	
June	3, 1921	Support.....			\$12,900 00				
June	3, 1921	Salaries.....			112,400 00				
May	27, 1919	By amount returned	643 77		1,736 98		124,093 23	2,793 75	
May	14, 1917	Uses, Contingent Fund			12,750 00			216 20	
May	14, 1917	Improvement of grounds	2 43					2 43	
May	14, 1917	Furniture, etc.	11 54					11 54	
May	14, 1917	Paving, etc.	1,469 56					1,469 56	
May	24, 1919	Repairs, etc.	29 29					29 29	
May	24, 1919	Repairs, etc.	18 18					18 18	
May	24, 1921	Improvement of grounds, equipment, etc.	9 48					9 48	
May	24, 1921	Repairs, improvements, etc.			84,500 00		16,127 12	68,372 88	
									225,350 08
									120,942 98
									160,682 97

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
May 27, 1919	<i>San Francisco Teachers College.</i> Support.....	\$187 15	\$11,200 00	\$187 15			
June 3, 1921			142,500 00	11,199 33	\$0 67		
June 3, 1921		Salaries..... By amount returned.....		60 00	119,735 54	22,824 46	
May 24, 1919	Uses, Contingent Fund..... Repairs to buildings, etc..... Purchase of land, buildings, etc.....	2,051 68		1,288 89			
May 24, 1921				1,874 25	177 43		
			309,512 00	173,118 57	136,393 43	\$307,403 73	
May 27, 1919	<i>Santa Barbara Teachers College.</i> Support..... By amount returned.....	\$0 76		\$200 76			
June 3, 1921			\$10,000 00	7,710 57	\$2,289 43		
June 3, 1921		Salaries..... By amount returned..... By donation to Junior College.....	200 00	79,550 00	81,457 53	992 65	
May 27, 1919	Uses, Contingent Fund..... Additional support, Elementary Courses..... Sewer system..... Construction, etc., Gymnasium..... Repairs, improvements, etc.....	5 68		4,080 99			
May 14, 1917			20 03	5 68			
May 14, 1917			20 43	740 18	20 03	20 46	
May 24, 1919	Repairs, improvements, etc..... By amount returned.....	63 85	2,160 00	63 91			
May 24, 1921							
May 27, 1919	Repairs and improvements to buildings and grounds..... By amount returned..... Printing, etc.....		\$20,000 00	9,519 62	10,500 38		
May 27, 1919			264 15	20 00	66 15	198 00	103,041 30
May 27, 1919	<i>Fresno Teachers College.</i> Support..... By amount returned.....	\$799 76	\$13,500 00	\$799 76			
June 3, 1921			110,500 00	12,922 10	\$577 90		
June 3, 1921		Salaries..... By amount returned..... By donation to Junior College.....		285 06	107,659 23	7,813 33	
May 27, 1919	Printing..... Uses, Contingent Fund..... Care and improvement of grounds.....	225 42	4,687 50	41 65	183 77		
May 14, 1917			20 72		10,337 26	72	
May 14, 1917	Completion of plant and equipment..... Claims of contractors..... Repairs, etc.....	25 93		20 00	25 93		
May 14, 1917			9,107 32		9,107 32	9,107 32	
May 24, 1919	Repairs, etc..... Construction of buildings, etc..... Improvements to streets and grounds.....	701 36		1 79	27 32		
May 26, 1921			29 11	20,000 00	19,973 81	26 19	151,755 60

DEVELOPMENTAL.
State Agricultural Society.

May	27, 1919	Aid.....	\$1,079 82		\$1,079 82		
June	3, 1921	Aid.....		\$40,000 00		\$210 71	
		By amount returned		65 98}			
June	3, 1921	Uses, Contingent Fund		3,000 00			
May	27, 1919	Salary, Secretary	219 85				
June	3, 1921	Salaries, employees		7,900 00		119 97	
June	3, 1921	Traveling expenses of Directors.		3,000 00		255 31	
April	25, 1911	Gathering statistics.	363 51				
April	25, 1911	Gathering statistics.		5,000 00		733 41	
May	25, 1921	Repairs and improvements to buildings and grounds		40,000 00			
		By amount returned		31 92}			
May	27, 1919	Purchase of additional land, Agricultural Park	569 49			18,405 65	
May	17, 1915	Womans' Building	11 66				
May	27, 1919	Repairs to buildings, etc.	1 24			9 90	
May	27, 1919	Improvement of grounds	51 20				
May	25, 1921	Premiums at Fairs, 25th Agricultural District.		1,500 00		11 60	
						45 60	
							\$194,600 66
June	3, 1921	Salary, State Mineralogist	\$1,394 90		\$3,600 00		
May	27, 1919	Support, etc.	1,003 50		2,398 40		
June	3, 1921	Support.....		58,300 00		4,567 45	
		By amount returned		2,247 70}			
June	3, 1921	Uses, Mining Bureau Fund		12,500 00		7,721 06	
		Special reports and investigations				11,840 16	
		Uses, Petroleum and Gas Fund				145,522 89	
							227,062 76
May	27, 1919	Support.....	\$1,532 69		\$9,880 01		\$2 10
June	3, 1921	Support.....	8,349 42				
		By amount returned		\$475,100 00			
		By balance transferred from salary, Superintendent Weights and Measures		3,688 20		89,223 83	
		By balance transferred from salary, Deputy Superintendent Weights and Measures		1,659 70			
		By balance transferred from support, Weights and Measures		7,381 65		5,000 00	
June	3, 1921	Salary, Director		65,551 13		23,384 07	
		Uses, Standard Apple Prosecution Fund		5,000 00			
May	27, 1921	Support, potato inspection	435 41			739 96	
		By amount returned	310 00				
		Uses, fertilizer collections	7,012 91			5 45	
		By collections	386 94				
		Uses, Division of Chemistry Fund.				1,608 84	
General Fund						27,451 81	

*Transferred to "Division of Chemistry Fund."

June	30, 1919	Uses, Sacramento and San Joaquin Drainage District Fund No. 6			475,424 43		
		Uses, Sacramento and San Joaquin Drainage District Fund No. 7			219,423 76		
		Uses, Sacramento and San Joaquin Drainage District Fund No. 8			84,786 04		
		Purchase of warrants, Sacramento and San Joaquin Drainage Districts			71,119 22		
		Purchase of Drainage District warrants, State School Fund	\$71,119 22		95,233 82		
May	27, 1919	Cooperative work with Sacramento and San Joaquin Drainage District No. 6	*3,000,000 00			3,000,000 00	1,263,004 99
June	3, 1921	Los Angeles Exposition.					
		Support, etc.					
		By amount returned	\$37,450 00			\$30,136 17	\$7,314 87
		Uses, Contingent Fund	1 04			365 64	
May	17, 1915	Los Angeles Exposition Building, furnishing, etc.	\$215 35			215 25	10
May	24, 1919	Support, etc.	1,135 05			1,135 05	
June	1, 1917	Revolving Fund	11,489 68			11,489 68	31,852 11
Department of Public Works.							
(Division of Land Settlement.)							
June	1, 1917	Uses, Land Settlement Fund	\$234 10			\$816,701 35	
May	24, 1919	Expenses	26,093 15			115 15	\$118 95
		By amount returned	91,624 62			117,511 07	206 70
January	24, 1921	Salaries, expenses, etc	56,199 93			60,194 98	
		By amount returned	3,995 05				
PROTECTIVE.							
Board of Forestry.							
June	3, 1921	Salary, State Forester	\$4,000 00			\$3,858 45	\$141 55
June	3, 1921	Salary, Deputy	3,600 00			3,496 75	103 25
June	3, 1921	Salary, Assistant	3,000 00			2,741 95	258 05
May	27, 1919	Printing, etc.			\$3,558 64	3,558 64	
June	3, 1921	By amount returned	3,000 00			2,823 11	284 39
May	27, 1919	Support, etc.	10 50				
		By amount returned	3,083 34			1,830 77	
June	3, 1921	Support, etc.	1,000 00			2,252 57	
		By amount returned	13,500 00			11,806 85	1,733 67
June	3, 1921	Study of water shed area	40 52				
		By amount returned	5,000 00			5,483 20	706 80
June	3, 1921	By amount returned	1,190 00				
		Fire prevention and fighting	37,500 00			62,608 91	864 36
June	3, 1921	By amount returned	25,973 27				

\$4,059,262 71

994,522 55

*\$10,000.00 available on taking effect of act; balance in annual payments of \$300,000.00, except last payment which will be \$290,000.00.
 †\$50,000.00 to be returned to State Treasury.

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Board of Forestry—Continued.</i>						
June 3, 1921	Maintenance, State Nursery	-----	\$7,500 00	\$6,256 33	\$1,317 92		
May 25, 1921	By amount returned	74 25	20,000 00	18,943 67	1,099 83		
May 15, 1917	Erection of buildings, State Nursery	-----	43 50	-----	-----		
May 15, 1917	By amount returned	83,111 25	-----	-----	-----		
May 24, 1919	State Nursery	948 77	-----	3,883 92	176 10		
May 24, 1919	By amount returned	423 46	-----	-----	-----		
May 24, 1919	Prevention and fighting forest fires	101 80	-----	525 23	03		\$128,239 58
May 24, 1919	By amount returned	-----	-----	-----	-----		
	<i>Sutter's Fort.</i>						
June 3, 1921	Salary, Guardian	-----	\$1,080 00	\$84 20	\$995 80		
June 3, 1921	Salary, Gardener	-----	1,320 00	102 90	*1,217 10		
June 3, 1921	Salary, Assistant Gardener	-----	1,200 00	93 55	*1,106 45		
May 27, 1919	Maintenance of grounds, etc.	417 34	-----	358 78	58 56		
June 3, 1921	Maintenance of grounds, etc.	-----	1,500 00	-----	*1,500 00		
May 14, 1917	Electric lighting	15	-----	-----	15		
	<i>Marshall Monument.</i>						
June 3, 1921	Salary, Guardian	-----	\$1,200 00	\$900 00	\$300 00		
May 27, 1919	Care of grounds	-----	-----	\$59 12	200 63		
June 3, 1921	Care of grounds	\$259 75	500 00	222 93	277 07		
May 14, 1917	Improvement of grounds	3 92	-----	-----	3 92		
May 27, 1919	Furnishing Guardian's cottage	159 17	-----	-----	159 17		
	<i>State Burial Grounds.</i>						
May 27, 1919	Care of	\$161 80	-----	\$43 75	\$118 05		
June 3, 1921	Care of	-----	\$250 00	-----	*250 00		
	<i>Fire Trails.</i>						
May 27, 1919	Fire trails, San Bernardino Mountains (cooperative with U. S. Government)	\$22 29	-----	\$31 16	\$1 13		
May 24, 1919	Forest fires, San Antonio Canyon	275 02	-----	213 54	59 48		
May 27, 1919	Forest fires, San Gabriel Canyon	672 25	-----	671 04	1 21		
May 27, 1919	Forest fires, Innapais Fire District	160 00	-----	160 00	-----		
May 25, 1921	San Bernardino Mountains, fire trails (contingent upon like amount from U. S. Government)	-----	\$5,000 00	1,870 51	3,129 49		
May 25, 1921	Tanapais Forest Fire District (contingent upon like amount from district)	-----	5,000 00	4,185 00	815 00		

May	25, 1921	San Antonio Canyon Fire Trails (contingent upon like amount from San Antonio Fruit Exchange) - By amount from San Antonio Fruit Exchange	5,000 00 1,800 00		2,979 92	3,820 08	
May	25, 1921	San Gabriel Canyon Fire Trails (contingent upon like amount from various parties) - By amount from San Gabriel River Water Company	1,400 00 900 00		1,128 60	1,171 40	
May	25, 1921	San Dimas Canyon Fire Trails (contingent upon like amount from San Dimas Fruit Exchange) - By amount from La Verne Fruit Exchange	3,000 00 400 00		2,254 50	2,245 50	
May	25, 1921	San Dimas Canyon Fire Trails (contingent upon like amount from San Dimas Fruit Exchange) - By amount from San Dimas Fruit Exchange (cooperative with Los Angeles County)	1,100 00 10,000 00		10,000 00		23,494 27
May	14, 1917	<i>California Redwood Park.</i> Improvements, support, etc.		\$5,246 96		\$5,246 96	
May	28, 1917	Purchase of additional land		\$14,340 00		78,300 00	
May	24, 1919	Improvements, support, etc. - By amount returned		4,052 01 528 80		1,555 50	
May	25, 1921	Repairs, improvements, etc.	\$25,000 00		11,354 80	13,645 20	
June	3, 1921	Support and salaries - By amount returned	9,861 00 5,188 64		11,305 87	3,743 77	40,025 98
June	3, 1921	<i>Purchase of Timber Lands in Humboldt and Mendocino Counties.</i> Purchase, etc., timber lands in Humboldt and Mendocino counties - By amount returned - By contribution	\$300,000 00 1,050 00 100 00		\$204,374 91	\$96,775 09	
May	26, 1921	<i>State Building at San Diego.</i> Care, repairs, etc., building at site of Panama-California International Exposition	\$10,000 00		\$2,462 06	\$7,537 94	204,374 91
June	3, 1921	<i>Los Angeles Flood Control.</i> Los Angeles flood control	\$300,000 00		\$2,700,000 00		2,462 06
May	27, 1919	<i>BENEVOLENT.</i> <i>Veterans' Home.</i> Support and maintenance, Veterans' Home Fund			\$291,383 14		
June	3, 1921	Printing, etc.		\$196 76	73 10	\$123 66	
March	21, 1911	Fire escapes	\$1,500 00		1,166 95	333 05	
June	7, 1913	Pipe line		255 63 2 77	155 75 1 32	99 88 1 45	

\$700,462 03

*Transferred to "Support Department of Finance."
 †Available at rate of \$15,000.00 per year.
 ‡\$300,000.00 available upon the taking effect of act. \$300,000.00 available on the first day of July in each year until \$3,000,000.00 has been paid.

Date	Description	Amount	Amount	Amount	Amount	Amount	Amount	Amount
27, 1919	Support of orphans, etc.	\$9,502 87		\$9,592 87				
14, 1917	Support of orphans, etc.	20 38		18 75		\$1 63		
24, 1921	Support of orphans, etc.		\$30,000 00	30,000 00				
May 27, 1919	Support of orphans, etc.	548,604 73		548,611 54		7 55		
General Fund	By amount returned	14 36		749,762 44				1,337,985 60
	Support of orphans, etc. (Sec. 2283 P. C.)							
3, 1921	Support and salaries	25 97	\$39,156 00	\$2,285 89		\$36,870 11		2,285 89
27, 1919	Support and salaries					25 97		
CURATIVE.								
<i>Board of Charities and Corrections.</i>								
May 27, 1919	Support and salaries	\$253 05		\$770 62		\$8 00		
June 3, 1921	Support and salaries	325 57		39,018 13		5,995 37		
	Support and salaries		\$45,000 00					
	By amount returned		13 50					\$39,788 75
<i>Department of Institutions.</i>								
May 27, 1919	Traveling and contingent expenses, Lunacy Commission.	\$143 30		\$185 73		\$357 57		
June 3, 1921	Traveling and contingent expenses, Lunacy Commission.	400 00						
	By amount transferred from—		\$2,500 00					
	Salary, Dental Surgeon.		3,319 35					
	Traveling expenses, Dental Surgeon.		375 00					
	By amount returned.		1,800 00					
May 27, 1919	Printing, etc., Lunacy Commission.	64 61		97 82				
June 3, 1921	Printing, etc., Lunacy Commission.	33 21		5,967 15		32 85		
May 24, 1919	Deportation of insane.	493 66		727 19		39		
June 3, 1921	Salary, State Dental Surgeon.	233 92		280 65		\$3,319 35		
April 16, 1909	Traveling expenses, State Dental Surgeon.		3,600 00			216 72		
June 3, 1921	Support, Department of Institutions—	260 18		43 46		1,375 00		
	By amount received as pro rata allowance from various institutions.		375 00					
	By amount returned.		26,756 21			346 13		
			400 02					41,913 88

* Transferred to "Support Department of Finance."
 † Transferred to "Traveling and contingent expenses, Lunacy Commission."

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>Stockton State Hospital.</i>							
May 27, 1919	Support.....	\$19,219 22		\$7,474 62	\$12,744 60		
June 3, 1921	By amount returned.....	1,000 00	\$335,000 00		8,371 29		
May 27, 1919	By amount returned.....		1,319 47	327,348 18			
June 3, 1921	Salaries.....	24,652 62	350,000 00	24,652 62	32,605 27		
	By amount returned.....		2,388 37	319,783 10			
May 14, 1917	Uses, Contingent Fund.....	1 67		21,256 03	1 67		
May 14, 1917	Repairs to mechanical equipment.....	95 77			95 77		
May 14, 1917	Alterations, etc., kitchen and bakery.....	109 89			109 89		
May 14, 1917	Four baths, etc., on farm.....	2 18			2 18		
May 14, 1917	Grading, etc., on farm.....	5 16			5 16		
May 14, 1917	Construction of tubercular hospital.....	1,206 16			1,206 16		
May 14, 1917	Additional dairy herd.....	6 36			6 36		
May 14, 1917	Costs for disturbed patients.....	67 63			67 63		
May 14, 1917	Purchase of X-ray apparatus.....	2,017 79			2,017 79		
June 1, 1917	Removal of bodies from cemetery.....	88 53			88 53		
May 24, 1919	Completion, etc., tubercular hospital.....	14,254 48			14,254 48		
May 24, 1919	Construction of sewer system.....	258 21			258 21		
May 27, 1919	Improvement of heating plant.....	4 94			4 94		
May 7, 1913	Construction of cottage.....	154 47		3 46	1 48		
May 24, 1921	Ward No. 25.....			153 12	1 35		
	Furnishing and equipment.....						
	By amount returned.....		25,000 00				
May 26, 1921	Repairs, improvements, etc.....		1,237 50	14,660 78	11,576 72		
June 3, 1921	Erection and equipment, receiving building.....		87,200 00	44,794 02	42,405 98		
			150,000 00		150,000 00		
						\$760,125 93	
May 27, 1919	Support.....	\$5,965 69		\$6,925 08	\$47 81		
June 3, 1921	By amount returned.....	1,007 20	\$321,600 00		30 87		
May 27, 1919	By amount returned.....		72 99	321,642 12			
June 3, 1921	Salaries.....	268 50		87 50	232 99		
	By amount returned.....	51 99	350,000 00		3 85		
June 6, 1913	Salaries.....		688 50	330,684 65			
June 6, 1913	By amount returned.....			62,258 39			
June 6, 1913	Uses, Contingent Fund.....	1,134 87		1,046 89	87 98		
June 6, 1913	Dormitories, etc.....	441 51		440 85	66		
	Dairy buildings.....						

Date	Description	93	93	93	93	93	93
May 14, 1917	Cottage for females	2,322 86	1,670 47	652 39	93		
May 14, 1917	Purchase of laundry machinery	1 18		1 18			
May 14, 1917	Construction, etc., power house	7 66		35 70			
May 14, 1917	Elevator	6 19		7 66			
May 14, 1917	Construction of sewer line	1,352 85	6 05	6 19			
May 14, 1917	Reclamation	339 68	50 00	1,346 80			
May 15, 1917	Construction, etc., two cottages	280 35	277 73	289 68			
May 24, 1919	Improvement of heating plant	7,409 47	5,779 50	2 62			
May 17, 1915	Home	83 00		1,712 97			
May 11, 1917	Additional water supply			7,500 00			
May 27, 1919	Construction, etc., employees' quarters			95,000 00			
May 26, 1921	By amount returned			30 49			
May 24, 1921	Removal of bottles			34,000 00			
May 24, 1921	Repairs, improvements, etc.			100,000 00			
May 24, 1921	By amount returned			19,095 79			
May 24, 1921	Power house, etc.			30,762 12			
June 3, 1921	Cottage and equipment			2,047 99			
June 3, 1921	Remodeling, etc., buildings			2,406 84			
May 27, 1918	Support	\$32,247 63	\$22,559 52	\$10,688 11			
June 3, 1921	By amount returned	1,000 00		18,097 04			
May 27, 1919	Support			6,181 39			
June 3, 1921	By amount returned			125,778 51			
May 27, 1919	Salaries	6,181 39		9,943 12			
June 3, 1921	Salaries			8,675 72			
May 14, 1917	By amount returned			14 68			
May 14, 1917	Uses, Contingent Fund			14 68			
May 14, 1917	Baking equipment	14 68		5 53			
May 14, 1917	Construction of Superintendent's cottage	29 62		138 13			
May 14, 1917	Construction of farm buildings	138 84		30 33			
May 14, 1917	By amount returned			30,346 00			
May 24, 1919	Construction of Administration Building	32,278 19		2,764 99			
May 24, 1919	By amount returned			30 14			
May 27, 1919	Purchase of equipment	832 80		3,617 46			
May 27, 1919	Purchase of water tower, etc.	163 94		5 02			
May 27, 1919	Improvements on farm	3,920 01		9,995 22			
May 27, 1919	Construction, etc., two cottages	53 27		48 25			
May 27, 1919	Construction, etc., two cottages	54,593 03		48,707 85			
May 27, 1919	By amount returned			373 26			
May 27, 1919	Construction, etc., officers' quarters	4,110 04		28,000 00			
May 27, 1919	By amount returned			360 82			
May 24, 1921	Completion of buildings, improvements, etc.	357 50		22,129 85			
May 24, 1921	By amount returned			25,750 00			
May 24, 1921	Additional buildings, purchase of live stock, etc.			74 00			
May 26, 1921	By amount returned			434,000 00			
May 26, 1921	Additional buildings			351 20			
May 26, 1921	By amount returned			19,547 14			

766,086 18

408,407 67

Norwalk State Hospital.

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	<i>Agueves State Hospital.</i>						
May 27, 1919	Support.....	\$14,635 94					
June 3, 1921	By amount returned.....	23	\$251,000 00	\$9,406 09	\$5,230 08		
May 27, 1919	Support.....	12,254 02	667 51	251,206 60	460 91		
June 3, 1921	Salaries.....		215,000 00	12,252 43	1 59		
	Salaries.....		290 25	209,420 75	5,869 50		
April 21, 1911	By amount returned.....			31,944 23			
June 14, 1913	Uses, Contingent Fund.....	593 20		581 57	11 63		
June 7, 1913	Furnishings, etc.....	1,212 95		1,008 77	204 18		
May 14, 1917	Nurses' Home.....	5,139 06		2,616 86	2,522 20		
May 14, 1917	Cottage.....	3,046 72		1,797 74	1,248 98		
May 14, 1917	Furnishing workers' cottage.....	2,445 90		675 94	1,769 96		
May 14, 1917	Construction, etc., females' cottage.....	2,15 78			15 78		
May 24, 1919	Construction, workers' cottage.....	548 24		519 75	28 49		
June 12, 1915	Improvement to heating plant.....	124 42			3 00		
	Cottage, etc.....	52 33		173 75			
May 27, 1919	By amount returned.....	4,573 25		3,010 98	1,742 77		
June 3, 1921	Construction, etc., quarters for employees.....	180 50			100,000 00		
May 24, 1921	By amount returned.....		100,000 00	513 52	24,486 48		
May 24, 1921	Construction, etc., quarters for employees.....		25,000 00	12,197 04	41,302 96		
	Additional buildings and improvements to farm.....		53,500 00				
	Improvements and equipment.....						\$537,326 02
	<i>Mendocino State Hospital.</i>						
May 27, 1919	Support.....	\$16,310 41					
June 3, 1921	Support.....		\$170,500 00	\$14,666 57	\$1,643 84		
May 27, 1919	By amount returned.....	11,149 72	512 51	166,477 19	4,535 32		
June 3, 1921	Salaries.....	42 33		10,896 39	295 66		
	Salaries.....		150,000 00	150,342 77	3 78		
May 8, 1913	By amount returned.....	3,014 68	346 55	26,619 81	2,964 68		
May 14, 1917	Uses, Contingent Fund.....	2 11		50 00			
May 14, 1917	Dam, etc.....	1 57			2 11		
May 14, 1917	Water softening plant.....	570 35			1 57		
May 14, 1917	Reconstruction, Ward No. 7.....	7 14			570 35		
May 14, 1917	New laundry and bakery.....	33 37			7 14		
May 14, 1917	Plumbing repairs.....	3 42			33 37		
May 14, 1917	Enlarging operating room.....	13			3 42		
May 14, 1917	Reconstruction, Ward No. 5.....	13			3 42		
May 14, 1917	Purchase, etc., new boilers.....				13		

May	14, 1917	Repairs, etc., to Administration Building.	13 45						13 45
May	24, 1919	Reconstruction, Ward No. 7	1 51						1 51
May	24, 1919	Sundry improvements.	25 74						24 62
May	24, 1919	Improvements, etc., to steam system	7 97				1 12		7 97
May	24, 1919	Shelters for women patients.	25 46						25 46
May	24, 1921	Erection, etc., Receiving Building.		150,000 00			50 39		149,949 41
May	24, 1921	Purchase and improvement of additional land		20,000 00				15,300 00	4,500 00
May	24, 1921	Repairs, improvements, etc.		62,660 00				19,128 79	43,559 64
May	24, 1921	By amount returned.		28 43}					
May	24, 1921	Improvement of water supply		25,000 00			1 50		24,998 50
<i>Southern California State Hospital.</i>									
May	27, 1919	Support	\$25,380 88}				\$4,981 67		\$20,599 21
June	3, 1921	By amount returned	200 00}					269,398 88	36 06
May	27, 1919	Support	8,133 74}		184 94}		7,193 33		1,005 41
June	3, 1921	By amount returned	65 00}		437 50}		275,100 60		17,836 90
March	24, 1911	Uses, Contingent Fund	107 70				92 00		15 70
May	14, 1917	Power plant.	9 39						9 39
May	14, 1917	Purchase, etc., boilers	81						81
May	14, 1917	Wiring old buildings	100 93				92 25		8 68
May	14, 1917	Construction of cottages	8 85						8 85
May	14, 1917	Pump, motor, etc.	9 54						9 54
May	24, 1919	Nurses' Home, etc.	1,244 63				342 38		902 25
June	6, 1913	Improvement to heating plant.	342 61				225 00		117 61
March	25, 1909	Cottages	274 71				123 93		150 78
May	24, 1921	Storm drains, etc.		45,540 00}			11,347 68		34,228 32
May	24, 1921	Repairs, improvements, etc.		36 00}					
May	24, 1921	By amount returned		30,000 00}			30,000 00		
May	26, 1921	Purchase of additional land		90,000 00}			66,210 90		23,928 30
May	26, 1921	Housing and training of patients.		139 20}					
<i>Sonoma State Home.</i>									
May	27, 1919	Support	\$15,954 20}				\$8,721 73		\$7,832 47
June	3, 1921	By amount returned	600 00}					259,135 26	12,364 74
May	27, 1919	Support	5,916 11				5,811 66		104 45
June	3, 1921	By amount returned		212,250 00}			199,559 53		13,187 52
June	6, 1913	Salaries		497 05}					
June	6, 1913	By amount returned					11,572 07		7 04
March	25, 1909	Uses, Contingent Fund	14 79						14 79
June	7, 1913	Cottages.	4 98						4 97
June	21, 1911	Manor House	10 04				10 00		04
April	6, 1913	Reflooring	5 35				5 32		03
June	6, 1913	Farm buildings	8 19				8 19		8 19
June	7, 1913	Nursery	114 25				82 56		31 69

403,734 73

720,450 62

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>Sonoma State Home—Continued.</i>							
May 14, 1917	Kitchen equipment.....	\$39 66					
May 14, 1917	Cottage for adult females.....	4 19		\$4 13		\$39 66	
May 14, 1917	Construction, etc.....	78		91 89		96	78
May 14, 1917	Construction, etc., laundry.....	91 89					
May 14, 1917	Steam pipe extension.....	13 06		29 51		13 06	05
May 14, 1917	Redflooting.....	20 36		77 52		56 14	
May 14, 1917	Reconstruction, etc.....	133 66		3 70		1 18	
June 7, 1913	Water supply.....	9 08		3 71		5 31	
May 7, 1915	Water and steam piping.....	4 38		2,036 00		213 39	
May 24, 1919	Repairs to sewers, etc.....	2,061 31		908 66		37,863 40	
May 24, 1919	Equipment.....	1,122 03		10,236 94		50 96	
May 24, 1919	Water supply.....	48,120 34				67,479 95	
May 27, 1919	Cottage for inmates.....	50 96		20 05		70,168 00	
May 26, 1921	Quarters for officers and employees.....		\$67,500 00			99,905 69	
May 26, 1921	Erection and equipment of cottages.....		71,000 00			104,176 38	
May 24, 1921	Erection of school and Assembly Building.....		100,000 00				
May 24, 1921	Repairs, improvements and equipment.....		127,000 00				
	By amount returned.....		21 29	22,844 91			
						\$522,137 57	
June 3, 1921	Support.....		\$22,500 00	\$15,486 91		\$7,096 19	
June 3, 1921	By amount returned.....		83 10				
June 3, 1921	Salaries.....		20,000 00	13,674 13		6,464 79	
May 24, 1921	By amount returned.....		138 92			23,547 17	
May 5, 1919	Alterations, improvements, etc.....		24,000 00	402 83		25,168 17	
	Expenses.....	\$65,133 83					
	By amount returned.....	7,907 94		47,873 60			
						77,487 47	
<i>Pacific Colony.</i>							
June 3, 1921	Salaries, officers and employees.....		\$27,500 00	\$13,018 04		\$14,481 96	
June 3, 1921	Support.....		30,000 00	14,840 08		15,159 92	
June 3, 1921	Uses, Contingent Fund.....			437 10			
May 24, 1921	Buildings, improvements, etc.....		120,000 00	3 42		119,996 58	
June 3, 1921	Furnishing and equipment.....		24,000 00			24,000 00	
June 1, 1917	Expenses.....	\$7,139 97				595 45	
May 27, 1919	Buildings, equipment, etc.....	1,348 67		6,544 52			
	By amount returned.....	369 50		11 95		1,706 22	
						34,855 11	

\$4,464,417 52

Month	Date	Description	\$0 28	\$220,000 00	\$152,103 59	\$0 28
<i>Transportation of Prisoners and Insane.</i>						
May	27, 1919	Transportation of prisoners and insane.		\$220,000 00		\$0 28
June	3, 1921	By amount returned.		15 00	\$152,103 59	67,911 41
<i>CORRECTIVE.</i>						
<i>Whittier State School.</i>						
May	27, 1919	Support.	\$20,454 75		\$20,904 36	\$681 44
June	3, 1921	By amount returned.	1,131 05			
May	27, 1919	Support.		\$115,000 00	98,289 52	16,886 70
May	27, 1919	Salaries.	603 27	176 22		
June	3, 1921	By amount returned.	36 83		83 48	556 62
June	3, 1921	By amount returned.		122,500 00	114,969 59	10,756 45
June	3, 1921	Uses, Contingent Fund.		3,226 04	4,048 37	
June	3, 1921	Research Department.		20,000 00	14,525 15	5,981 31
May	14, 1917	By amount returned.	4 47	506 46		
May	14, 1917	Power house.	377 24			4 47
May	14, 1917	Construction, etc., buildings.	78 10		104 18	273 06
May	27, 1919	General repairs, etc.	741 27			78 10
May	27, 1919	Buildings.	61 85		354 00	449 12
May	27, 1919	By amount returned.	1,294 10			
May	24, 1921	Buildings.	40 00		753 57	580 53
May	24, 1921	By amount returned.		198,000 00	38,847 48	159,424 87
May	24, 1921	Buildings, repairs, etc.		272 35		
May	3, 1921	Development and improvement of water system.		33,000 00	8,738 91	24,261 09
June	3, 1921	Support and salaries.		*5,308 20		5,308 20
<i>Preston School of Industry.</i>						
May	27, 1919	Support.	\$13,081 50		\$14,409 68	
June	3, 1921	By amount returned.	1,828 18			
May	27, 1919	Support.		\$138,000 00	126,435 78	\$13,580 89
June	3, 1921	By amount returned.		2,016 67		06
May	27, 1919	Salaries.	06			
June	3, 1921	By amount returned.		137,500 00	123,060 82	15,618 26
May	24, 1917	Uses, Contingent Fund.		1,179 08		
March	15, 1911	Repairs, etc., to buildings.	26		1,638 08	20
May	24, 1919	Water system.	15 16		12 96	2 20
May	24, 1919	Repairs, improvements and equipment.	26,179 80		17,508 18	8,702 74
May	26, 1921	By amount returned.	31 12			
May	26, 1921	Purchase of live stock.		3,000 00	2,795 00	205 00
May	26, 1921	Purchase of additional land.		25,000 00	16,377 00	8,623 00
June	3, 1921	Repairs, improvements, etc.		184,900 00	43,636 80	141,400 70
June	3, 1921	By amount returned.		137 50		
June	3, 1921	Support and salaries.		*5,308 20	2,123 61	3,184 59

\$301,618 61

* Reappropriated from Chapter 531, Statutes 1913.

		<i>Advisory Pardon Board.</i>				<i>San Quentin Prison.</i>				<i>Folsom Prison.</i>			
May	27, 1919	Support	\$361 13	\$24 36	\$336 77								
June	3, 1921	Support	1,000 00	2,309 90	190 10								
May	27, 1919	Support	\$11,083 58	\$7,382 53	\$4,701 05								
June	3, 1921	By amount returned	1,000 00	278,923 28	56 00								
May	27, 1919	By amount returned	5 25	161,686 71	5 25								
June	3, 1921	Salaries	252 16	112,017 55	813 29								
May	14, 1917	Purchase of jute, Jute Revolving Fund	35 42	145,132 56	66,267 89								
May	14, 1917	Uses, Manufacturing Revolving Fund	870 00	66,267 89	1 50								
May	14, 1917	Uses, San Quentin Prison Fund	5,000 00	247 00	40 58								
May	14, 1917	Electricification, etc.	170 21	458 52	411 48								
May	14, 1917	By amount returned	132 99	11 97	5,000 00								
May	14, 1917	Purchase of live stock	20 99	159 01	11 20								
May	14, 1917	Construction, etc., small buildings	1,091 86	731 30	493 55								
May	14, 1917	Addition to farm buildings	977 88	4 10	16 89								
May	14, 1917	Repairs to buildings	20 99	1,096 79	4 90								
May	14, 1917	Purchase of machinery	123 81	71,841 35	8,158 65								
May	24, 1919	Completion of electrical equipment	1,091 86	1 50	4,998 50								
May	24, 1919	By amount returned	977 88	15,000 00	15,000 00								
May	24, 1919	Purchase, etc., machinery and equipment	123 81										
May	24, 1919	Repairs and improvements											
June	3, 1921	By amount returned											
June	3, 1921	Repairs, improvements, machinery and equipment											
June	3, 1921	Children's Recreation and Training Hall											
June	3, 1921	Erection of cottages											
May	27, 1919	Support	\$6,267 12	\$7,267 12									
June	3, 1921	Support	1,000 00	190,897 86	\$7,136 29								
May	27, 1919	By amount returned	253 04	233 04	810 88								
June	3, 1921	Salaries		135,361 40	149 93								
May	17, 1915	Uses, Folsom Prison Fund	464 63	19,350 82	1 84								
May	14, 1917	Cells, etc.	529 76	462 79	382 33								
May	14, 1917	School building	2 50	377 82	6 29								
May	14, 1917	By amount returned	6 29	377 82	9 00								
May	15, 1917	Repairs to buildings	9 00	913 49	195 69								
May	15, 1917	Purchase of dairy cows	1,109 18	1,845 79	1,845 79								
May	24, 1919	Purchase of boilers	244 27	244 04	224 96								
May	24, 1919	Electrical construction, etc.											
May	24, 1919	Construction, etc., machine and blacksmith shop											
May	24, 1919	Repairs, improvements and equipment											
May	24, 1919	By amount returned											

845,951 59

2,334 26

June 2, 1921	Redemption of bonds (San Francisco Seawall Sinking Fund)				120,000 00			
June 2, 1921	Redemption of bonds (State Highway Interest and Sinking Fund)				400,000 00			\$580,000 00
	<i>Interest on Bonds.</i>							
	Interest on bonds (San Francisco State Building Bond Interest and Sinking Fund)				\$35,200 00			
	Interest on bonds (State of California University Building Bond Interest and Sinking Fund)				78,300 00			
	Interest on bonds (Sacramento State Building Interest and Sinking Fund)				120,000 00			
	Interest on bonds (India Basin Sinking Fund)				34,120 00			
	Interest on bonds (San Francisco Seawall Sinking Fund)				11,600 00			
	Interest on bonds (Second San Francisco Seawall Sinking Fund)				360,000 00			
	Interest on bonds (Third State Highway Interest and Sinking Fund)				1,136,785 00			
	Interest on bonds (Third San Francisco Seawall Sinking Fund)				120,000 00			
	Interest on bonds (State Highway Interest and Sinking Fund)				640,000 00			
	Interest on bonds (Second State Highway Interest and Sinking Fund)				675,000 00			
	Interest on bonds (Interest and Sinking Fund)				141,435 00			\$3,352,440 00
	<i>Commission on Bonds.</i>							
June 2, 1921	Commission on Sacramento State Building Bonds.				\$293,840 00			\$6,160 00
June 2, 1921	Commission on Sacramento State Building Bonds.				100,000 00			\$393,840 00
	<i>EMERGENCY FUND.*</i>							
May 14, 1917	(Expended under direction of Department of Finance (Board of Control) and Controller.			\$28 99				
	By amount returned			50	\$24 29			\$5 20
May 27, 1919				49,575 66	48,716 93			7,718 63
	By amount returned			6,859 90				
June 3, 1921					266,904 91			263,392 78
	By amount returned							
	<i>MISCELLANEOUS.</i>							
May 27, 1919	Payment of premiums on surety bonds, state officers			\$1,161 76	\$236 16			\$1,157 70
	By amount returned			232 10				
June 3, 1921	Payment of premium on surety bonds, state officers				2,633 48			901 23
	By amount returned							
								\$315,646 13

* For detailed expenditures see end of statement.

STATEMENT No. 4—Continued.

Date of act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	MISCELLANEOUS—Continued.						
April 1, 1911	Reimbursement to counties, etc., account bonded debt.						
	By amount returned		\$1,276 51	\$853,302 64			
	Apportionment to counties (Motor Vehicle Fund)			3,027,320 84			
	Refund to counties (U. S. Forest Reserve Fund)			166,450 18			
May 24, 1917	Refund (State Forestry Fund)			169 88			
January 24, 1921	Support, Historical Survey Commission	\$1,586 83		1,193 67	\$393 16		
May 24, 1921	Preparation of war record, Historical Survey Commission (deficiency)		461 81	428 85	32 96		
March 25, 1921	Support, Historical Survey Commission		15,000 00	5,143 93	9,856 07		
June 3, 1921	Compensation benefits (deficiency)		25,000 00	19,905 92	5,094 08		
May 27, 1919	Compensation benefits		20,000 00	14,743 47	5,256 53		
June 3, 1921	Official advertising	5,138 05			5,138 05		
May 25, 1921	Rental of state offices in Los Angeles and Sacramento.		3,000 00	428 72	2,571 28		
	By amount returned		253,560 00	156,872 29	135,736 15		
May 24, 1919	Rental of state offices in Los Angeles and Sacramento.	347 20	39,048 44				
	By amount returned	3,870 68		587 01	3,620 87		
January 24, 1921	Rental of state offices in Los Angeles and Sacramento (deficiency)	500 00	543 47	131 38	412 09		
May 27, 1919	Purchase of topographic sheets				500 00		
June 3, 1921	Traveling expenses, County Treasurers	1,917 35	250 00	233 96	1,683 39		
May 24, 1917	Traveling expenses, County Treasurers	12,690 34		1 41	12,688 93		
May 14, 1917	Traveling expenses, County Treasurers		2,500 00	1,642 76	857 24		
June 3, 1921	Printing and advertising, sale of state bonds	3,488 68		1,920 65	1,568 03		
May 27, 1919	Printing and advertising, sale of state bonds		10,000 00	9,139 39	860 61		
June 3, 1921	Maintenance fire boats, "David Scannel" and "Dennis Sullivan," in San Francisco Harbor (not to exceed one-half of cost of maintenance)		120,000 00	35,259 01	84,740 99		
June 3, 1921	Repayment of bank deposits (Dissolved Savings Bank Fund)			12 40			
	Repayment of bank deposits (School Land Fund)			2,083 16			
	Repayment of estates of deceased person (Estates Deceased Persons Fund)			46,523 65			
	Los Angeles Rindge Condemnation Fund (special deposit)			2,000 00			

Date	Description	2,500 00	7,500 00	2,500 00	2,500 00
June 3, 1921	Conservation and reforestation, Mt. Diablo Park, Malibu Ranch Land Condemnation Fund (special deposit)		7,500 00	2,500 00	2,500 00
May 15, 1917	Portrait of Hiram W. Johnson Uses, Panama-California International Exposition Commission Fund		15 45		500 00
May 27, 1919	Repairs, improvements, etc., Executive Mansion.	2,500 00			2 20
June 3, 1921	Repairs, improvements, etc., Executive Mansion. By amount returned	2,453 44			53 24
May 25, 1921	Improvements to Capitol Building and Grounds	8,500 00	12 57		8,487 43
May 25, 1921	Reinstallation of lighting system, Capitol Grounds	9,200 00	7,098 36		2,101 54
May 25, 1921	Paving alley adjacent to Governor's Mansion	1,000 00	661 00		339 00
June 3, 1921	Uses, Napa State Farm Contingent Fund Improvements, Napa State Farm. By amount returned	25,000 00	36,690 79		2,836 25
June 1, 1917	Construction and equipment, State Printing Office	90 50	22,254 25		100,000 00
June 2, 1921	Purchase of site and erection of State Printing Office	100,000 00			
January 20, 1921	By amount returned Expenses, Presidential and Vice-Presidential Electors	75,000 00	33,521 96		42,939 14
June 1, 1921	Support, Veterans' Welfare Board	1,461 10	28 00		65 40
May 30, 1921	Veterans' Farm and Home purchase	50,000 00	42,908 70		7,116 30
May 24, 1919	Veterans' Educational Institute	25 00			
May 27, 1919	Claim of City and County of San Francisco	50,000 00	6,876 85		43,123 15
May 25, 1921	Claim of Los Angeles County	*50,000 00			500,000 00
May 25, 1921	Claim of Bank of California N. A.				171 21
May 25, 1921	Claim of Sacramento County				149 00
May 25, 1921	Claim of Miller and Lux	65,860 45	65,860 45		
May 25, 1921	Claim of John Breuner Company	3,932 38	3,932 38		
May 26, 1921	Claim of Stockton Livestock Company	14,090 79	14,090 79		
May 26, 1921	Claim of Annie De Vere Shields	372 91	372 91		
May 26, 1921	Claim of Plumas County	333 88	333 88		
June 1, 1921	Claim of Timothy Hopkins and Kate F. Neilson	636 00	656 00		
May 25, 1921	Claim of George Millas, John Raden and Luis Cupick	188 09	188 09		
May 25, 1921	Claim of Charles R. Perkins	241 60	241 60		
May 25, 1921	Claim of Raymond Benjamin	287 58	287 58		
May 26, 1921	Claim of L. J. Maddock	1,731 25	1,731 25		
May 26, 1921	Claim of John F. Tyler, Trustee	4,500 00	4,500 00		
May 9, 1919	Spanish-American War account Roussie of canceled warrants (General Fund) Roussie of canceled warrants (Various Funds)	600 00	600 00		
		5,731 60	5,731 60		
		5,926 50	417 67		
			54 46		
	Total expenditures			\$4,605,673 69	\$4,605,673 69

* \$300,000.00 available upon taking effect of act, balance of \$200,000.00 available July 1, 1923.

\$4,605,673 69

\$84,066,708 05

STATEMENT No. 4—Continued.

Date_of_act	Appropriation	Unexpended balance at beginning of 73d fiscal year	Appropriation 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended at end of 73d fiscal year	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
	Transferred from:						
	TRANSFERS.						
	San Francisco Harbor Improvement Fund to San Francisco Seawall Sinking Fund.			\$127,972 21			
	San Francisco Harbor Improvement Fund to Second San Francisco Seawall Sinking Fund.			360,000 00			
	San Francisco Harbor Improvement Fund to San Francisco Seawall Sinking Fund.			99,444 44			
	San Francisco Harbor Improvement Fund to India Basin Sinking Fund.			34,120 00			
	Second San Francisco Seawall Sinking Fund to General Fund.			60,000 00			
	Third San Francisco Seawall Sinking Fund to General Fund.			16,111 10			
	India Basin Sinking Fund to General Fund.			5,686 66			
	General Fund to School Book Fund.			527,000 00			
	General Fund to Veterans' Home Fund.			220,000 00			
	General Fund to State Library Fund.			147,950 00			
	General Fund to Market Commission Fund.			18,620 00			
	General Fund to Teachers' Permanent Fund.			340,236 60			
	General Fund to Vocational Education Fund.			118,440 67			
	General Fund to Insurance Fund to General Fund.			100,000 00			
	General Fund to Water Commission Revolving Fund.			50,000 00			
	General Fund to Land Settlement Fund.			750,000 00			
	General Fund to Division of Chemistry Fund.			5,791 01			
	General Fund to State University Fund.			1,882,849 83			
	School Land Fund to Estates Deceased Persons Fund.			5,000 00			
	General Fund to Vocational Rehabilitation Fund.			24,414 09			
	General Fund to State School Fund.			12,658,092 05			
	General Fund to State High School Fund.			2,802,429 90			
	Teachers' Permanent Fund to Teachers' Retirement Salary Fund.			262,340 00			
	Standardization Fund to Warehouse Standardization Fund.			312 00			
	General Fund to Second San Francisco Seawall Sinking Fund.			60,000 00			
	General Fund to Third San Francisco Seawall Sinking Fund.			19,444 44			

General Fund to India Basin Sinking Fund.....	5,686 66			
General Fund to First Highway Interest and Sinking Fund, account interest.....	640,000 00			
General Fund to First Highway Interest and Sinking Fund, account redemption.....	400,000 00			
General Fund to Second Highway Interest and Sinking Fund.....	655,750 00			
General Fund to Third Highway Interest and Sinking Fund.....	982,077 30			
General Fund to Sacramento State Building Interest and Sinking Fund.....	74,240 00			
General Fund to University State Building Interest and Sinking Fund, account interest.....	78,300 00			
General Fund to San Francisco State Building Interest and Sinking Fund, account interest.....	35,200 00			
General Fund to San Francisco State Building Interest and Sinking Fund, account redemption.....	20,000 00			
General Fund to University State Building Interest and Sinking Fund, account redemption.....	40,000 00			
General Fund to Interest and Sinking Fund.....	141,435 00			
Bond Investment Fund to School Land Fund.....	108,573 12			
Bond Investment Fund to General Fund.....	108,573 13			
Industrial Rehabilitation Fund to Accident Prevention Fund.....	5,000 00			
Real Estate Commission Fund to General Fund.....	35,763 13			
University Fund to State University Fund, account error.....	24,922 50			
General Fund to Veterans' Welfare Fund.....	450,000 00			
General Fund to Veterans' Farm and Home Building Fund.....	950,000 00			
Tax Land Fund to Veterans' Dependents' Education Fund.....	755 01			
Total transfers.....	\$25,452,530 85			
Total expenditures, including transfers.....	\$109,519,238 93			

DETAIL OF EXPENDITURES FROM EMERGENCY FUND ON RESOLUTIONS, SEVENTY-THIRD FISCAL YEAR.

(Expended under supervision of Department of Finance (Board of Control) and Controller).

Purpose of allowance	Unexpended balance of resolution	Resolutions and returns, 73d fiscal year	Amount expended during 73d fiscal year	Amount unexpended on resolutions during 73d fiscal year	Total amount expended during 73d fiscal year
JUDICIAL.					
Postage, etc., Clerk District Court of Appeal No. 3	\$16 77		\$16 56	\$0 21	
Furnishing, etc., District Court of Appeal No. 2	*259 42		259 42		
Rent, District Court of Appeal No. 1		\$260 18	260 18		
Postage, etc., Clerk District Court of Appeal No. 1	120 40		120 06	34	
EXECUTIVE.					
Repairs, etc., Governor's Mansion	\$605 19		\$15 03	\$51 16	\$656 22
ADMINISTRATIVE.					
Tax investigation, State Board of Equalization		\$15,000 00	\$14,928 16	\$71 84	
Traveling, etc., State Board of Equalization	\$577 75		417 75	160 00	
Clerical and expert assistance, etc., State Board of Equalization	1,114 95		1,114 95		
Rent of office, Attorney General	368 50		368 50		
Salary of Electrician, Superintendent of Capitol Building and Grounds		196 12	177 75	18 37	17,007 11
REGULATIVE.					
Support, Industrial Welfare Commission	\$557 70		\$557 70		557 70
CONSTRUCTIVE.					
Revolving Fund, Department of Public Works, Division of Architecture		*\$10,000 00	\$10,000 00		10,000 00
EDUCATIONAL.					
Salaries, California Polytechnic School	\$689 79		\$689 79		
Salaries and support, California Polytechnic School	2,500 00		2,400 00	100 00	
Revolving Fund, California Polytechnic School		\$10,000 00	*10,000 00		
Support, San Francisco Normal School (Teachers' College)		4,000 00	3,628 90	371 10	
Deficiency, San Francisco Normal School (Teachers' College)				730 00	
Support, San Francisco Normal School	730 00		980 27		
Salaries and support, San Francisco Normal School	980 27		669 64		
Salaries and support, California School for Deaf and Blind	3,000 00		2,999 73		
Support, California School for Deaf and Blind	169 71		85 75		
Repairs, California School for Deaf and Blind		23 96	23 96		
Commission of Agricultural Education (Revolving Fund)		2,500 00	*2,500 00		
Deficiency, Chico Normal School	2,510 31		2,510 31		

Support, Fresno State Normal School.....	1,717 52			1,717 52	
Support, San Jose State Normal School.....	807 65			807 65	
DEVELOPMENTAL.					
Revolving Fund, Department of Public Works, Division of Land Settlement.....			\$5,000 00		\$5,000 00
Support, Mining Bureau.....	\$1,214 75			1,214 75	
PROTECTIVE.					
Fighting fires, Board of Forestry.....	\$3,000 00			\$184 85	\$2,815 15
By amount returned.....	77 90			236 87	113 13
Expenses of Rangers, Board of Forestry.....	250 00		\$1,000 00	*1,000 00	
Revolving Fund, Board of Forestry.....					1,421 72
BENEVOLENT.					
Repairs, Women's Relief Corps Home.....			\$1,085 00	\$1,085 00	
Repairs, Veterans' Home.....			2,000 00	2,212 01	\$16 06
By amount returned.....			228 07		2 33
Support, Women's Relief Corps Home.....	\$2,661 83			2,659 50	1,517 76
Repairs, Veterans' Home.....	2,000 00			482 24	
Heating system, Adult Blind Home.....	1,050 00			1,058 55	
By amount returned.....	8 55			24 20	
Support of orphans.....	24 29			60 12	
Support of orphans.....	60 12				7,581 71
CURATIVE.					
Support, Stockton State Hospital.....	\$3,679 04			\$3,679 04	\$9 90
By amount returned.....	9 90				1209 37
Support and salaries, Agnews State Hospital.....	3,916 57			3,707 20	105 66
Repairs, Mendocino State Hospital.....			\$20,000 00	20,015 20	
By amount returned.....			120 86		800 00
Deportation of inmates, Sonoma State Home.....			800 00		2,663 80
Support and salaries, Board of Charities and Corrections.....	2,666 80			*1,000 00	3 00
Revolving Fund, Lunacy Commission, Deportation Department.....			1,000 00		43 30
Transportation of prisoners and insane.....	11,600 00			11,556 70	
PENAL.					
Arrest of criminals without the state (deficiency).....			\$6,500 00	\$5,482 68	\$1,017 32
MISCELLANEOUS.					
Revolving Fund, Napa State Farm.....			\$75,000 00	\$192,923 75	\$6,025 01
By amount returned.....			125,948 76		150 00
Expenses, Pio Pico Mansion.....			750 00	600 00	
Expenses, State Representatives to Washington, D. C.....			750 00	750 00	
Total.....					194,273 75
					\$315,646 13

* To be returned.

† Canceled.

STATEMENT No. 4—Continued.

Recapitulation of Expenditures for Seventy-third Fiscal Year, Ending June 30, 1922.

	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>Legislative—</i>		
Senate.....	\$410 00	
Assembly.....	75 00	
Legislative printing.....	25,786 06	\$26,271 06
<i>Judicial—</i>		
Supreme Court and Clerk.....	144,982 43	
District Courts of Appeal.....	184,483 85	
Superior Courts.....	336,964 25	666,430 53
<i>Executive.</i>		
Governor.....	47,540 02	
Lieutenant Governor.....	4,000 00	51,540 02
<i>Administrative—</i>		
*Board of Control.....	25,996 99	
Secretary of State.....	71,545 56	
Controller.....	126,821 91	
Treasurer.....	29,936 76	
Attorney General.....	77,482 44	
Surveyor General.....	33,499 12	
Board of Equalization.....	50,229 11	
*Superintendent Capitol Building and Grounds.....	8,063 39	
*Purchasing Department.....	5,373 97	
Department of Finance (support).....	275,874 28	
Division Purchases and Custody (Purchasing Department Revolving Fund).....	261,540 29	
Division of Motor Vehicles.....	895,710 01	
Division of Motor Vehicles (refunds).....	16,404 51	
Division of Printing.....	578,286 95	2,456,765 29
<i>Regulative—</i>		
Railroad Commission.....	488,595 15	
Superintendent of Banks.....	154,029 69	
Insurance Commissioner.....	62,322 70	
Board of Health.....	446,133 71	
Corporation Commissioner.....	152,063 50	
Building and Loan Commissioner.....	13,138 21	
Board of Medical Examiners.....	79,492 18	
Board of Optometry.....	3,930 66	
Board of Dental Examiners.....	14,335 07	
Board of Veterinary Medical Examiners.....	276 42	
Board of Bar Examiners.....	5,661 44	
Board of Architecture (Northern District).....	2,917 90	
Board of Architecture (Southern District).....	2,671 15	
Civil Service Commission.....	43,555 24	
Eureka Harbor Commissioners.....	3,847 75	
Legislative Counsel Bureau.....	16,472 10	
Real Estate Commissioner.....	113,473 05	
Real Estate Commissioner (refunds).....	42,878 00	
† Superintendent Weights and Measures.....	2,084 69	
Department of Labor and Industrial Relations:		
Division of Workmen's Compensation, Insurance and Safety.....	5,318,884 76	
Division of Labor.....	160,539 78	
Division of Immigration and Housing.....	74,502 49	
Division of Industrial Welfare.....	53,980 09	
Department of Public Works (Division of Water Rights).....	110,026 94	7,365,812 67
<i>Defensive—</i>		
National Guard.....	389,759 35	
High School Cadets.....	9,008 84	398,768 19
<i>Constructive—</i>		
San Francisco Harbor Commission.....	1,777,554 12	
San Francisco State Building.....	430,719 53	
Sacramento State Building.....	30,297 30	
Improvement, etc., Sacramento River.....	500,000 00	
Los Angeles and Long Beach Harbors.....	580,000 00	
Department of Public Works (Division of Highways).....	19,688,452 39	
Department of Public Works:		
Division of Engineering and Irrigation and Division of Architecture.....	420,511 24	23,427,534 58

*Balances of appropriations transferred to "Support Department of Finance."

† Balances of appropriations transferred to "Support Department of Agriculture."

STATEMENT No. 4—Continued.

Recapitulation of Expenditures for Seventy-third Fiscal Year, Ending June 30, 1922.

	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>Educational—</i>		
Department of Education.....	\$370,782 72	
Superintendent of Public Instruction.....	53,093 38	
Department of Finance (Division of Libraries).....	144,651 93	
Support of Elementary Schools.....	13,105,604 57	
Support of High Schools.....	2,803,092 35	
Support of State University.....	4,109,542 13	
San Jose Teachers College.....	225,350 08	
Chico Teachers College.....	129,942 98	
San Diego Teachers College.....	160,682 97	
San Francisco Teachers College.....	307,403 73	
Santa Barbara Teachers College.....	103,041 30	
Fresno Teachers College.....	151,755 60	
Humboldt Teachers College.....	107,765 65	
Deficiency for teachers colleges.....	2,387 42	
California Polytechnic School.....	181,169 04	
California School for Deaf and Blind.....	184,509 09	
Hastings College of Law.....	5,900 00	
Textbooks for orphans.....	157 29	
Manufacture school textbooks.....	295,076 33	
Investigation of agricultural instruction.....	3,439 67	
Teachers' pensions.....	264,427 59	\$22,709,775 82
<i>Developmental—</i>		
State Agricultural Society.....	194,600 66	
Mining Bureau.....	227,062 76	
Department of Agriculture.....	732,634 95	
Fish and Game Commission.....	590,584 69	
Premiums for agricultural and horticultural exhibits.....	25,000 00	
State Reclamation Board.....	1,263,004 99	
Los Angeles Exposition.....	31,852 11	
Department of Public Works (Division of Land Settlement).....	994,522 55	4,059,262 71
<i>Protective—</i>		
Board of Forestry.....	128,239 58	
*Sutter's Fort.....	639 43	
Marshall Monument.....	1,182 05	
*State Burial Grounds.....	43 75	
Fire trails.....	23,494 27	
California Redwood Park.....	40,025 98	
Purchase of timber lands in Humboldt and Mendocino counties.....	204,374 91	
Care, maintenance, etc., State Building at San Diego.....	2,462 06	
Los Angeles flood control.....	300,000 00	700,462 03
<i>Benevolent—</i>		
Veterans' Home.....	336,169 02	
Woman's Relief Corps Home.....	47,091 51	
Home for Adult Blind.....	99,429 13	
Support of orphans, half-orphans, etc.....	1,337,985 60	
*Children's Agents.....	2,285 89	1,822,961 15
<i>Curative—</i>		
Board of Charities and Corrections.....	39,788 75	
Department of Institutions.....	41,913 88	
Stockton Hospital.....	760,125 93	
Napa Hospital.....	766,086 18	
Norwalk Hospital.....	408,407 67	
Agnews Hospital.....	537,326 02	
Mendocino Hospital.....	403,734 73	
Southern California Hospital.....	720,450 62	
Sonoma State Home.....	522,137 57	
Industrial Farm for Women.....	77,487 47	
Pacific Colony.....	34,855 11	
Transportation of prisoners and insane.....	152,103 59	4,464,417 52
<i>Corrective—</i>		
Whittier State School.....	301,618 61	
Preston School of Industry.....	347,997 91	
California Training School for Girls.....	145,810 41	795,426 93
<i>Penal—</i>		
Bureau of Criminal Identification.....	23,371 16	
Prison Directors.....	18,880 30	
Advisory Pardon Board.....	2,334 26	
San Quentin Prison.....	845,951 59	
Folsom Prison.....	429,561 96	
Arrest of criminals without the state.....	29,110 92	1,349,210 19

*Balances of appropriations transferred to "Support Department of Finance."

STATEMENT No. 4—Concluded.

Recapitulation of Expenditures for Seventy-third Fiscal Year, Ending June 30, 1922.

	Total amount expended during 73d fiscal year	Grand total amount expended during 73d fiscal year
<i>State Lands—</i>		
Restitution of principal.....	\$10,380 52	
Restitution of interest.....	273 77	
Costs of foreclosure suits, interest.....	81 00	
Refund of scrip.....	19,438 93	
Refund of rental.....	8 75	
Surrender of certificates of deposit.....	260 00	\$30,442 97
<i>Purchase of Bonds—</i>		
General Fund (surplus).....	2,036,472 22	
School Land Fund.....	432,906 37	
Teachers' Permanent Fund.....	359,641 56	
Sacramento State Building, Interest and Sinking Fund.....	56,748 88	
Compensation Insurance Fund.....	1,556,084 35	
Estates Deceased Persons Fund.....	52,173 22	4,494,026 60
<i>Redemption of Bonds—</i>		
San Francisco State Building Bond Interest and Sinking Fund.....	20,000 00	
State University Building Bond Interest and Sinking Fund.....	40,000 00	
San Francisco Seawall Sinking Fund.....	120,000 00	
State Highway Interest and Sinking Fund.....	400,000 00	580,000 00
<i>Interest on Bonds—</i>		
San Francisco State Building Bond Interest and Sinking Fund.....	35,200 00	
State University Building Bond Interest and Sinking Fund.....	78,300 00	
Sacramento State Building Interest and Sinking Fund.....	120,000 00	
India Basin Sinking Fund.....	34,120 00	
San Francisco Seawall Sinking Fund.....	11,600 00	
Second San Francisco Seawall Sinking Fund.....	360,000 00	
Third State Highway Interest and Sinking Fund.....	1,136,785 00	
Third San Francisco Seawall Sinking Fund.....	120,000 00	
State Highway Interest and Sinking Fund.....	640,000 00	
Second State Highway Interest and Sinking Fund.....	675,000 00	
Interest and Sinking Fund.....	141,435 00	3,352,440 00
<i>Commission on Bonds—</i>		
Commission on Sacramento State Building Bonds.....	393,840 00	393,840 00
<i>Emergency Fund—</i>		
Expended under direction of Board of Control and Controller.....	315,646 13	315,646 13
<i>Miscellaneous—</i>		
Payment of premiums on bonds of state officers.....	2,869 64	
Reimbursement to counties, etc., account bonded debt.....	853,302 64	
Apportionment to counties (Motor Vehicle Fund).....	3,027,320 84	
Refund to counties (Forest Reserve Fund).....	166,450 18	
Refund (State Forestry Fund).....	169 88	
Historical Survey Commission.....	6,766 45	
Compensation benefits (state officers and employees).....	34,649 39	
Official advertising.....	428 72	
Rent of offices in Los Angeles and Sacramento.....	157,600 68	
Traveling expenses, County Treasurers.....	1,878 13	
Printing and advertising sale of State bonds.....	11,060 04	
Maintenance fire boats, San Francisco Harbor.....	35,259 01	
Repayment of bank deposits.....	2,105 56	
Repayment estates deceased persons.....	46,523 65	
Los Angeles Rindge Condemnation Fund (special deposit).....	2,000 00	
Malibu Ranch Land Condemnation Fund (special deposit).....	7,500 00	
Panama-California Exposition Commission Fund.....	15 45	
Repairs, etc., Executive Mansion.....	2,453 44	
Improvements to Capitol Building and Grounds.....	12 57	
Reinstallation lighting system, Capitol Grounds.....	7,098 46	
Paving alley back of Executive Mansion.....	661 00	
Napa State Farm.....	58,945 04	
Purchase, etc., State Printing Office site.....	33,521 96	
Expenses, Presidential and Vice Presidential Electors.....	28 00	
Veterans' Welfare Board.....	49,785 55	
Sundry claims.....	96,795 28	
Reissue canceled warrants.....	472 13	4,605,673 69
Total.....		\$84,066,708 08
Transfers.....		25,452,530 85
Total expenditures and transfers.....		\$109,519,238 93

STATEMENT No. 5.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

GENERAL FUND.

June 30, 1921—To warrants.....	\$18,603,315 89	July 1, 1920—By balance.....	\$4,009,962 44
June 30, 1921—To reissue canceled warrants.....	353 87	June 30, 1921—By receipts.....	36,693,752 45
June 30, 1921—To transfers.....	13,289,017 15	June 30, 1921—By transfers.....	230,439 65
June 30, 1921—To balance.....	9,044,161 75	June 30, 1921—By canceled warrants.....	2,694 12
	<u>\$40,938,848 66</u>		<u>\$40,938,848 66</u>
June 30, 1922—To warrants.....	\$22,194,875 24	July 1, 1921—By balance.....	\$9,044,161 75
June 30, 1922—To reissue canceled warrants.....	417 67	June 30, 1922—By receipts.....	43,747,171 23
June 30, 1922—To transfers.....	24,097,957 55	June 30, 1922—By transfers.....	326,134 03
June 30, 1922—To balance.....	6,826,479 69	June 30, 1922—By canceled warrants.....	2,263 15
	<u>\$53,119,730 15</u>		<u>\$53,119,730 15</u>
		July 1, 1922—By balance.....	\$6,826,479 69

SCHOOL FUND.

June 30, 1921—To warrants.....	\$7,471,525 49	July 1, 1920—By balance.....	\$230,792 44
June 30, 1921—To transfers.....	151 20	June 30, 1921—By receipts.....	433,695 56
June 30, 1921—To balance.....	231,043 81	June 30, 1921—By transfers.....	7,038,232 50
	<u>\$7,702,720 50</u>		<u>\$7,702,720 50</u>
June 30, 1922—To warrants.....	\$13,105,959 34	July 1, 1921—By balance.....	\$231,043 81
June 30, 1922—To balance.....	243,027 24	June 30, 1922—By receipts.....	459,850 72
	<u>\$13,348,986 58</u>	June 30, 1922—By transfers.....	12,658,092 05
			<u>\$13,348,986 58</u>
		July 1, 1922—By balance.....	\$243,027 24

SCHOOL LAND FUND.

June 30, 1921—To warrants.....	\$935,913 32	July 1, 1920—By balance.....	\$493,701 99
June 30, 1921—To balance.....	189,100 49	June 30, 1921—By receipts.....	517,526 39
	<u>\$1,125,013 81</u>	June 30, 1921—By transfers.....	113,785 43
			<u>\$1,125,013 81</u>
June 30, 1922—To warrants.....	\$560,061 55	July 1, 1921—By balance.....	189,100 49
June 30, 1922—To transfers.....	5,000 00	June 30, 1922—By receipts.....	430,871 30
June 30, 1922—To reissue canceled warrant.....	50 00	June 30, 1922—By transfers.....	108,573 12
June 30, 1922—To balance.....	163,445 75	June 30, 1922—By canceled warrants.....	12 39
	<u>\$728,557 30</u>		<u>\$728,557 30</u>
		July 1, 1922—By balance.....	\$163,445 75

HIGH SCHOOL FUND.

June 30, 1921—To warrants.....	\$1,162,403 16	July 1, 1920—By balance.....	\$2,089 34
June 30, 1921—To balance.....	860 10	June 30, 1921—By transfer.....	1,161,173 92
	<u>\$1,163,263 26</u>		<u>\$1,163,263 26</u>
June 30, 1922—To warrants.....	\$2,803,092 35	July 1, 1921—By balance.....	\$860 10
June 30, 1922—To balance.....	197 65	June 30, 1922—By transfers.....	2,802,429 90
	<u>\$2,803,290 00</u>		<u>\$2,803,290 00</u>
		July 1, 1922—By balance.....	\$197 65

STATE HIGHWAY FUND.

No transactions.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SCHOOL BOOK FUND.

June 30, 1921—To warrants.....	\$413,521 09	July 1, 1920—By balance.....	\$152,947 65
June 30, 1921—To balance.....	23,967 92	June 30, 1921—By receipts.....	29,541 27
		June 30, 1921—By transfers.....	255,000 00
	<u>\$437,488 92</u>		<u>\$437,488 92</u>
June 30, 1922—To warrants.....	\$295,076 33	July 1, 1921—By balance.....	\$23,967 92
June 30, 1922—To balance.....	268,712 07	June 30, 1922—By receipts.....	12,820 48
		June 30, 1922—By transfers.....	527,000 00
	<u>\$563,788 40</u>		<u>\$563,788 40</u>
		July 1, 1922—By balance.....	\$268,712 07

FISH AND GAME PRESERVATION FUND.

June 30, 1921—To warrants.....	\$611,751 95	July 1, 1920—By balance.....	\$164,976 58
June 30, 1921—To balance.....	66,255 87	June 30, 1921—By receipts.....	513,031 24
	<u>\$678,007 82</u>		<u>\$678,007 82</u>
June 30, 1922—To warrants.....	\$590,584 69	July 1, 1921—By balance.....	\$66,255 87
June 30, 1922—To balance.....	34,627 53	June 30, 1922—By receipts.....	558,956 35
	<u>\$625,212 22</u>		<u>\$625,212 22</u>
		July 1, 1922—By balance.....	\$34,627 53

INSURANCE COMMISSIONER SPECIAL FUND.

June 30, 1921—To warrants.....	\$58,712 58	July 1, 1920—By balance.....	\$75,627 85
June 30, 1921—To balance.....	77,092 20	June 30, 1921—By receipts.....	176 93
	<u>\$135,804 78</u>	June 30, 1921—By transfer.....	60,000 00
			<u>\$135,804 78</u>
June 30, 1922—To warrants.....	\$53,622 70	July 1, 1921—By balance.....	\$77,092 20
June 30, 1922—To balance.....	83,477 50	June 30, 1922—By receipts.....	60,008 00
	<u>\$137,100 20</u>		<u>\$137,100 20</u>
		July 1, 1922—By balance.....	\$83,477 50

STATE BANKING FUND.

June 30, 1921—To warrants.....	\$137,987 52	July 1, 1920—By balance.....	\$22,656 27
June 30, 1921—To balance.....	28,216 83	June 30, 1921—By receipts.....	143 548 08
	<u>\$166,204 35</u>		<u>\$166,204 35</u>
June 30, 1922—To warrants.....	\$154,029 69	July 1, 1921—By balance.....	\$28,216 83
June 30, 1922—To balance.....	61,226 44	June 30, 1922—By receipts.....	187,039 30
	<u>\$215,256 13</u>		<u>\$215,256 13</u>
		July 1, 1922—By balance.....	\$61,226 44

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

BUILDING AND LOAN INSPECTION FUND.

June 30, 1921—To warrants.....	\$11,614 30	July 1, 1920—By balance.....	\$12,284 54
June 30, 1921—To balance.....	13,660 88	June 30, 1921—By receipts.....	12,990 64
	<u>\$25,275 18</u>		<u>\$25,275 18</u>
June 30, 1922—To warrants.....	\$13,138 21	July 1, 1921—By balance.....	\$13,660 88
June 30, 1922—To balance.....	14,395 76	June 30, 1922—By receipts.....	13,873 09
	<u>\$27,533 97</u>		<u>\$27,533 97</u>
		July 1, 1922—By balance.....	\$14,395 76

STATE LIBRARY FUND.

June 30, 1921—To warrants.....	\$139,789 01	July 1, 1920—By balance.....	\$15,488 26
June 30, 1921—To balance.....	1,226 47	June 30, 1921—By receipts.....	527 22
	<u>\$141,015 48</u>	June 30, 1921—By transfers.....	125,000 00
			<u>\$141,015 48</u>
June 30, 1922—To warrants.....	\$139,651 93	July 1, 1921—By balance.....	\$1,226 47
June 30, 1922—To balance.....	10,909 02	June 30, 1922—By receipts.....	1,384 48
	<u>\$150,560 95</u>	June 30, 1922—By transfer.....	147,950 00
			<u>\$150,560 95</u>
		July 1, 1922—By balance.....	\$10,909 02

LIBRARY FUND, DISTRICT COURT OF APPEAL No. 1.

June 30, 1921—To warrants.....	\$2,552 33	July 1, 1920—By balance.....	\$4,414 85
June 30, 1921—To balance.....	3,233 12	June 30, 1921—By receipts.....	1,370 60
	<u>\$5,785 45</u>		<u>\$5,785 45</u>
June 30, 1922—To warrants.....	\$1,997 03	July 1, 1921—By balance.....	\$3,233 12
June 30, 1922—To balance.....	2,845 41	June 30, 1922—By receipts.....	1,609 32
	<u>\$4,842 44</u>		<u>\$4,842 44</u>

LIBRARY FUND, DISTRICT COURT OF APPEAL No. 2.

June 30, 1921—To warrants.....	\$8,171 99	July 1, 1920—By balance.....	\$6,483 37
June 31, 1921—To balance.....	30 40	June 30, 1921—By receipts.....	1,719 02
	<u>\$8,202 39</u>		<u>\$8,202 39</u>
June 30, 1922—To warrants.....	\$2,125 89	July 1, 1921—By balance.....	\$30 40
June 30, 1922—To balance.....	13 63	June 30, 1922—By receipts.....	2,109 12
	<u>\$2,139 52</u>		<u>\$2,139 52</u>
		July 1, 1922—By balance.....	\$13 63

REPORT OF THE STATE CONTROLLER.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

LIBRARY FUND, DISTRICT COURT OF APPEAL No. 3.

June 30, 1921—To warrants.....	\$507 26	July 1, 1920—By balance.....	\$2,017 50
June 30, 1921—To balance.....	1,931 03	June 30, 1921—By receipts.....	420 75
	<u>\$2,438 29</u>		<u>\$2,438 29</u>
June 30, 1922—To warrants.....	\$1,532 45	July 1, 1921—By balance.....	\$1,931 03
June 30, 1922—To balance.....	798 58	June 30, 1922—By receipts.....	400 00
	<u>\$2,331 03</u>		<u>\$2,331 03</u>
		July 1, 1922—By balance.....	\$798 58

SUPREME COURT LIBRARY FUND.

June 30, 1921—To warrants.....	\$1,979 70	July 1, 1920—By balance.....	\$7,187 21
June 30, 1921—To balance.....	6,936 66	June 30, 1921—By receipts.....	1,729 15
	<u>\$8,916 36</u>		<u>\$8,916 36</u>
June 30, 1922—To warrants.....	\$2,202 13	July 1, 1921—By balance.....	\$6,936 66
June 30, 1922—To balance.....	6,472 23	June 30, 1922—By receipts.....	1,737 70
	<u>\$8,674 36</u>		<u>\$8,674 36</u>
		July 1, 1922—By balance.....	\$6,472 23

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 1.

July 1, 1920—To balance.....	\$252 37	June 30, 1921—By receipts.....	\$31,378 72
June 30, 1921—To warrants.....	15,530 46		
June 30, 1921—To balance.....	15,595 89		
	<u>\$31,378 72</u>		<u>\$31,378 72</u>
June 30, 1922—To warrants.....	\$31,941 00	July 1, 1921—By balance.....	\$15,595 89
June 30, 1922—To balance.....	15,866 47	June 30, 1922—By receipts.....	32,211 58
	<u>\$47,807 47</u>		<u>\$47,807 47</u>
		July 1, 1922—By balance.....	\$15,866 47

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 2.

July 1, 1920—To balance.....	\$419,220 90	June 30, 1921—By balance.....	\$580,306 90
June 30, 1921—To warrants.....	161,086 00		
	<u>\$580,306 90</u>		<u>\$580,306 90</u>
July 1, 1921—To balance.....	\$580,306 90	June 30, 1922—By balance.....	\$739,945 62
June 30, 1922—To warrants.....	159,638 72		
	<u>\$739,945 62</u>		<u>\$739,945 62</u>
July 1, 1922—To balance.....	\$739,945 62		

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 3.

June 30, 1921—To warrants.....	\$12,725 94	July 1, 1920—By balance.....	\$36,116 11
June 30, 1921—To balance.....	29,389 48	June 30, 1921—By receipts.....	5,999 31
	<u>\$42,115 42</u>		<u>\$42,115 42</u>
June 30, 1922—To warrants.....	\$24,754 74	July 1, 1921—By balance.....	\$29,389 48
June 30, 1922—To balance.....	9,254 32	June 30, 1922—By receipts.....	4,619 58
	<u>\$34,009 06</u>		<u>\$34,009 06</u>
		July 1, 1922—By balance.....	\$9,254 32

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 4.

June 30, 1921—To warrants.....	\$192 14	July 1, 1920—By balance.....	\$20,073 95
June 30, 1921—To balance.....	19,934 62	June 30, 1921—By receipts.....	52 81
	<u>\$20,126 76</u>		<u>\$20,126 76</u>
June 30, 1922—To warrants.....	\$38 71	July 1, 1921—By balance.....	\$19,934 62
June 30, 1922—To balance.....	19,895 91		<u>\$19,934 62</u>
	<u>\$19,934 62</u>	July 1, 1922—By balance.....	\$19,895 91

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 5.

June 30, 1921—To warrants.....	\$291 94	July 1, 1920—By balance.....	\$291 94
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	
	<u>\$291 94</u>		<u>\$291 94</u>
		July 1, 1921—By balance.....	
		No transactions during 73rd Fiscal Year.	

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 6.

July 1, 1920—To balance.....	\$3,261,232 89	June 30, 1921—By receipts.....	\$51 37
June 30, 1921—To warrants.....	1,860,893 38	June 30, 1921—By balance.....	5,122,074 90
	<u>\$5,122,126 27</u>		<u>\$5,122,126 27</u>
July 1, 1921—To balance.....	\$5,122,074 90	June 30, 1922—By receipts.....	\$48,523 93
June 30, 1922—To warrants.....	475,424 43	June 30, 1922—By balance.....	5,548,975 40
	<u>\$5,597,499 33</u>		<u>\$5,597,499 33</u>
July 1, 1922—To balance.....	\$5,548,975 40		

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT FUND No. 7.

June 30, 1920—To balance.....	\$51,337 23	June 30, 1921—By balance.....	\$143,518 31
June 30, 1921—To warrants.....	92,181 08		<u>\$143,518 31</u>
	<u>\$143,518 31</u>		
July 1, 1921—To balance.....	\$143,518 31	June 30, 1922—By balance.....	\$362,942 07
June 30, 1922—To warrants.....	219,423 76		<u>\$362,942 07</u>
	<u>\$362,942 07</u>		
July 1, 1922—To balance.....	\$362,942 07		

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

MARKET COMMISSION FUND.

June 30, 1921—To warrants.....	\$23,903 60	July 1, 1920—By balance.....	\$21,785 06
June 30, 1921—To balance.....	18,944 20	June 30, 1921—By receipts.....	1,062 74
		June 30, 1921—By transfer.....	20,000 00
	<u>\$42,847 80</u>		<u>\$42,847 80</u>
June 30, 1922—To warrants.....	\$27,992 54	July 1, 1921—By balance.....	\$18,944 20
June 30, 1922—To balance.....	10,715 48	June 30, 1922—By receipts.....	1,143 82
		June 30, 1922—By transfer.....	18,620 00
	<u>\$38,708 02</u>		<u>\$38,708 02</u>
		July 1, 1922—To balance.....	\$10,715 48

CORPORATION COMMISSION FUND.

June 30, 1921—To warrants.....	\$121,217 17	July 1, 1920—By balance.....	\$119,710 74
June 30, 1921—To balance.....	213,429 43	June 30, 1921—By receipts.....	214,935 86
	<u>\$334,646 60</u>		<u>\$334,646 60</u>
June 30, 1922—To warrants.....	\$152,063 50	July 1, 1921—By balance.....	\$213,429 43
June 30, 1922—To balance.....	294,355 04	June 30, 1922—By receipts.....	232,989 11
	<u>\$446,418 54</u>		<u>\$446,418 54</u>
		July 1, 1922—By balance.....	\$294,355 04

BAR EXAMINATION FUND.

June 30, 1921—To warrants.....	\$4,214 00	June 30, 1920—By balance.....	\$124 39
June 30, 1921—To balance.....	1,355 39	June 30, 1921—By receipts.....	5,445 00
	<u>\$5,569 39</u>		<u>\$5,569 39</u>
June 30, 1922—To warrants.....	\$5,661 44	July 1, 1921—By balance.....	\$1,355 39
June 30, 1922—To balance.....	4,678 95	June 30, 1922—By receipts.....	8,985 00
	<u>\$10,340 39</u>		<u>\$10,340 39</u>
		July 1, 1922—By balance.....	\$4,678 95

INDUSTRIAL REHABILITATION FUND.

June 30, 1921—To warrants.....	\$19,323 69	June 30, 1920—By balance.....	\$4,641 36
June 30, 1921—To transfers.....	7,623 58	June 30, 1921—By receipts.....	22,911 25
June 30, 1921—To balance.....	605 34		
	<u>\$27,552 61</u>		<u>\$27,552 61</u>
June 30, 1922—To warrants.....	\$8,779 55	July 1, 1921—By balance.....	\$605 34
June 30, 1922—To transfer.....	5,000 00	June 30, 1922—By receipts.....	16,497 50
June 30, 1922—To balance.....	3,323 29		
	<u>\$17,102 84</u>		<u>\$17,102 84</u>
		July 1, 1922—By balance.....	\$3,323 29

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

RECLAMATION BOARD REVOLVING FUND.

June 30, 1921—To warrants.....	\$111,712 85	July 1, 1920—By balance.....	\$1,843 15
June 30, 1921—To balance.....	6,549 73	June 30, 1921—By receipts.....	116,419 43
	<u>\$118,262 58</u>		<u>\$118,262 58</u>
June 30, 1922—To warrants.....	\$100,644 55	July 1, 1921—By balance.....	\$6,549 73
June 30, 1922—To balance.....	6,471 64	June 30, 1922—By receipts.....	100,566 46
	<u>\$107,116 19</u>		<u>\$107,116 19</u>
		July 1, 1922—By balance.....	\$6,471 64

SCHOOL TEACHERS' RETIREMENT SALARY FUND.

June 30, 1921—To warrants.....	\$414,999 13	July 1, 1920—By balance.....	\$529 44
June 30, 1921—To balance.....	499 39	June 30, 1921—By receipts.....	2,469 08
	<u>\$415,498 52</u>	June 30, 1921—By transfers.....	412,500 00
			<u>\$415,498 52</u>
June 30, 1922—To warrants.....	\$264,427 59	July 1, 1921—By balance.....	\$499 39
June 30, 1922—To balance.....	586 84	June 30, 1922—By receipts.....	2,175 04
	<u>\$265,014 43</u>	June 30, 1922—By transfers.....	262,340 00
			<u>\$265,014 43</u>
		July 1, 1922—By balance.....	\$586 84

SECOND HIGHWAY FUND.

June 30, 1921—To warrants.....	\$1,383,104 59	July 1, 1920—By balance.....	\$1,184 58
June 30, 1921—To balance.....	20,316 38	June 30, 1921—By receipts.....	1,402,236 39
	<u>\$1,403,420 97</u>		<u>\$1,403,420 97</u>
June 30, 1922—To warrants.....	\$1,537,918 71	July 1, 1921—By balance.....	\$20,316 38
June 30, 1922—To balance.....	40,400 90	June 30, 1922—By receipts.....	1,558,003 23
	<u>\$1,578,319 61</u>		<u>\$1,578,319 61</u>
		July 1, 1922—By balance.....	\$40,400 90

MOTOR VEHICLE FUND.

June 30, 1921—To warrants.....	\$6,601,750 78	July 1, 1920—By balance.....	\$4,904,106 72
June 30, 1921—To balance.....	5,643,107 89	June 30, 1921—By receipts.....	7,339,828 65
	<u>\$12,244,858 67</u>	June 30, 1921—By transfers.....	923 30
			<u>\$12,244,858 67</u>
June 30, 1922—To warrants.....	\$7,509,350 85	July 1, 1921—By balance.....	\$5,643,107 89
June 30, 1922—To balance.....	7,150,739 33	June 30, 1922—By receipts.....	9,016,982 29
	<u>\$14,660,090 18</u>		<u>\$14,660,090 18</u>
		July 1, 1922—By balance.....	\$7,150,739 33

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

VOCATIONAL EDUCATION FUND.

June 30, 1921—To warrants.....	\$154,402 90	July 1, 1920—By balance.....	\$79,320 87
June 30, 1921—To balance.....	99,693 61	June 30, 1921—By receipts.....	92,387 82
		June 30, 1921—By transfers.....	82,387 82
	<u>\$254,096 51</u>		<u>\$254,096 51</u>
June 30, 1922—To warrants.....	\$206,223 98	July 1, 1921—By balance.....	\$99,693 61
June 30, 1922—To balance.....	153,275 41	June 30, 1922—By receipts.....	141,365 11
		June 30, 1922—By transfers.....	118,440 67
	<u>\$359,499 39</u>		<u>\$359,499 39</u>
		July 1, 1922—By balance.....	\$153,275 41

LAND SETTLEMENT FUND.

June 30, 1921—To warrants.....	\$84,278 60	July 1, 1920—By balance.....	\$12,143 81
June 30, 1921—To balance.....	687 18	June 30, 1921—By receipts.....	72,821 97
	<u>\$84,965 78</u>		<u>\$84,965 78</u>
June 30, 1922—To warrants.....	\$816,701 35	July 1, 1921—By balance.....	\$687 18
June 30, 1922—To balance.....	5,942 25	June 30, 1922—By receipts.....	71,956 42
		June 30, 1922—By transfer.....	750,000 00
	<u>\$822,643 60</u>		<u>\$822,643 60</u>
		July 1, 1922—By balance.....	\$5,942 25

ADULT BLIND FUND.

June 30, 1921—To warrants.....	\$59,938 97	July 1, 1920—By balance.....	\$7,144 58
June 30, 1921—To balance.....	12,849 90	June 30, 1921—By receipts.....	65,644 29
	<u>\$72,788 87</u>		<u>\$72,788 87</u>
June 30, 1922—To warrants.....	\$48,966 56	July 1, 1921—By balance.....	\$12,849 90
June 30, 1922—To balance.....	16,809 43	June 30, 1922—By receipts.....	52,926 09
	<u>\$65,775 99</u>		<u>\$65,775 99</u>
		July 1, 1922—By balance.....	\$16,809 43

DEPARTMENT OF ENGINEERING REVOLVING FUND.

June 30, 1921—To warrants.....	\$68,545 30	July 1, 1920—By balance.....	\$5,269 57
June 30, 1921—To balance.....	4,607 67	June 30, 1921—By receipts.....	67,883 40
	<u>\$73,152 97</u>		<u>\$73,152 97</u>
June 30, 1922—To warrants.....	\$52,550 30	July 1, 1921—By balance.....	\$4,607 67
June 30, 1922—To balance.....	765 15	June 30, 1922—By receipts.....	48,707 78
	<u>\$53,315 45</u>		<u>\$53,315 45</u>
		July 1, 1922—By balance.....	\$765 15

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SAN QUENTIN PRISON FUND.

June 30, 1921—To warrants.....	\$313,476 53	July 1, 1920—By balance.....	\$216,892 21
June 30, 1921—To balance.....	23,336 99	June 30, 1921—By receipts.....	119,921 31
	<u>\$336,813 52</u>		<u>\$336,813 52</u>
June 30, 1922—To warrants.....	\$66,267 89	July 1, 1921—By balance.....	\$23,336 99
June 30, 1922—To balance.....	1,159 22	June 30, 1922—By receipts.....	44,090 12
	<u>\$67,427 11</u>		<u>\$67,427 11</u>
		July 1, 1922—By balance.....	\$1,159 22

JUTE REVOLVING FUND.

June 30, 1921—To warrants.....	\$248,092 88	July 1, 1920—By balance.....	\$98,241 30
June 30, 1921—To balance.....	24,539 57	June 30, 1921—By receipts.....	174,391 15
	<u>\$272,632 45</u>		<u>\$272,632 45</u>
June 30, 1922—To warrants.....	\$112,017 55	July 1, 1921—By balance.....	\$24,539 57
June 30, 1922—To balance.....	141,161 48	June 30, 1922—By receipts.....	228,639 46
	<u>\$253,179 03</u>		<u>\$253,179 03</u>
		July 1, 1922—By balance.....	\$141,161 48

SAN QUENTIN PRISON MANUFACTURING REVOLVING FUND.

June 30, 1921—To warrants.....	\$120,932 77	July 1, 1920—By balance.....	\$36,678 54
June 30, 1921—To balance.....	41,140 04	June 30, 1921—By receipts.....	125,394 27
	<u>\$162,072 81</u>		<u>\$162,072 81</u>
June 30, 1922—To warrants.....	\$145,132 56	July 1, 1921—By balance.....	\$41,140 04
June 30, 1922—To balance.....	20,640 31	June 30, 1922—By receipts.....	124,632 83
	<u>\$165,772 87</u>		<u>\$165,772 87</u>
		July 1, 1922—By balance.....	\$20,640 31

FOLSOM PRISON FUND.

June 30, 1921—To warrants.....	\$13,756 28	July 1, 1920—By balance.....	\$6,178 21
June 30, 1921—To balance.....	11,825 91	June 30, 1921—By receipts.....	19,403 98
	<u>\$25,582 19</u>		<u>\$25,582 19</u>
June 30, 1922—To warrants.....	\$19,350 82	July 1, 1921—By balance.....	\$11,825 91
June 30, 1922—To balance.....	12,740 31	June 30, 1922—By receipts.....	20,265 22
	<u>\$32,091 13</u>		<u>\$32,091 13</u>
		July 1, 1922—By balance.....	\$12,740 31

REPORT OF THE STATE CONTROLLER.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

PRESTON SCHOOL OF INDUSTRY CONTINGENT FUND.

June 30, 1921—To warrants.....	\$12,622 34	July 1, 1920—By balance.....	\$13,020 59
June 30, 1921—To balance.....	2,939 60	June 30, 1921—By receipts.....	2,541 35
	<u>\$15,561 94</u>		<u>\$15,561 94</u>
June 30, 1922—To warrants.....	\$1,638 08	July 1, 1921—By balance.....	\$2,939 60
June 30, 1922—To balance.....	2,241 68	June 30, 1922—By receipts.....	940 16
	<u>\$3,879 76</u>		<u>\$3,879 76</u>
		July 1, 1922—By balance.....	\$2,241 68

SONOMA STATE HOME CONTINGENT FUND.

June 30, 1921—To warrants.....	\$62,852 31	July 1, 1921—By balance.....	\$26,511 89
June 30, 1921—To balance.....	10,629 15	June 30, 1921—By receipts.....	46,969 57
	<u>\$73,481 46</u>		<u>\$73,481 46</u>
June 30, 1922—To warrants.....	\$11,572 07	July 1, 1921—By balance.....	\$10,629 15
June 30, 1922—To balance.....	49,121 54	June 30, 1922—By receipts.....	50,064 46
	<u>\$60,693 61</u>		<u>\$60,693 61</u>
		July 1, 1922—By balance.....	\$49,121 54

WHITTIER STATE SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$81,492 72	July 1, 1920—By balance.....	\$81,435 55
June 30, 1921—To balance.....	21,727 29	June 30, 1921—By receipts.....	21,784 46
	<u>\$103,220 01</u>		<u>\$103,220 01</u>
June 30, 1922—To warrants.....	\$4,048 37	July 1, 1921—By balance.....	\$21,727 29
June 30, 1922—To balance.....	43,598 51	June 30, 1922—By receipts.....	25,919 59
	<u>\$47,646 88</u>		<u>\$47,646 88</u>
		June 30, 1922—By balance.....	\$43,598 51

CALIFORNIA POLYTECHNIC SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$30,172 96	July 1, 1920—By balance.....	\$1,984 65
June 30, 1921—To balance.....	214 63	June 30, 1921—By receipts.....	28,402 94
	<u>\$30,387 59</u>		<u>\$30,387 59</u>
June 30, 1922—To warrants.....	\$46,500 56	July 1, 1921—By balance.....	\$214 63
June 30, 1922—To balance.....	9,360 92	June 30, 1922—By receipts.....	55,646 85
	<u>\$55,861 48</u>		<u>\$55,861 48</u>
		July 1, 1922—By balance.....	\$9,360 92

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

CALIFORNIA TRAINING SCHOOL FOR GIRLS CONTINGENT FUND.

June 30, 1921—To warrants.....	\$309 15	July 1, 1920—By balance.....	\$1,473 67
June 30, 1921—To balance.....	1,457 08	June 30, 1921—By receipts.....	292 56
	<u>\$1,766 23</u>		<u>\$1,766 23</u>
June 30, 1922—To warrants.....	\$179 92	July 1, 1921—By balance.....	\$1,457 08
June 30, 1922—To balance.....	2,636 50	June 30, 1922—By receipts.....	1,339 34
	<u>\$2,816 42</u>		<u>\$2,816 42</u>
		July 1, 1922—By balance.....	\$2,636 50

CALIFORNIA SCHOOL FOR DEAF AND BLIND CONTINGENT FUND.

June 30, 1921—To warrants.....	\$17,492 45	July 1, 1920—By balance.....	\$3,166 07
June 30, 1921—To balance.....	9 47	June 30, 1921—By receipts.....	14,339 85
	<u>\$17,501 92</u>		<u>\$17,501 92</u>
June 30, 1922—To warrants.....	\$8,559 52	July 1, 1921—By balance.....	\$9 47
June 30, 1922—To balance.....	4,280 97	June 30, 1922—By receipts.....	12,831 02
	<u>\$12,840 49</u>		<u>\$12,840 49</u>
		July 1, 1922—By balance.....	\$4,280 97

CHICO NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$15,606 48	July 1, 1920—By balance.....	\$3,057 98
June 30, 1921—To balance.....	1,333 50	June 30, 1921—By receipts.....	13,882 00
	<u>\$16,939 98</u>		<u>\$16,939 98</u>
June 30, 1922—To warrants.....	\$19,889 13	July 1, 1921—By balance.....	\$1,333 50
June 30, 1922—To balance.....	1,872 80	June 30, 1922—By receipts.....	20,428 43
	<u>\$21,761 93</u>		<u>\$21,761 93</u>
		July 1, 1922—By balance.....	\$1,872 80

FRESNO NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$2,369 09	July 1, 1920—By balance.....	\$2,028 53
June 30, 1921—To balance.....	2,400 26	June 30, 1921—By receipts.....	2,740 82
	<u>\$4,769 35</u>		<u>\$4,769 35</u>
June 30, 1922—To warrants.....	\$10,337 26	July 1, 1921—By balance.....	\$2,400 26
June 30, 1922—To balance.....	3,261 52	June 30, 1922—By receipts.....	11,198 52
	<u>\$13,598 78</u>		<u>\$13,598 78</u>
		July 1, 1922—By balance.....	\$3,261 52

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

HUMBOLDT NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$44 20	July 1, 1920—By balance.....	\$254 99
June 30, 1921—To balance.....	302 54	June 30, 1921—By receipts.....	91 75
	<u>\$346 74</u>		<u>\$346 74</u>
June 30, 1922—To warrants.....	\$126 94	July 1, 1921—By balance.....	\$302 54
June 30, 1922—To balance.....	837 50	June 30, 1922—By receipts.....	661 90
	<u>\$964 44</u>		<u>\$964 44</u>
		July 1, 1922—By balance.....	\$837 50

LOS ANGELES NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$160 84	July 1, 1920—By balance.....	\$160 84
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	
	<u>\$160 84</u>		<u>\$160 84</u>
		No transactions in seventy-third fiscal year.	

SAN DIEGO NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$6,547 50	July 1, 1920—By balance.....	\$1,198 58
June 30, 1921—To balance.....	1,184 82	June 30, 1921—By receipts.....	6,533 74
	<u>\$7,732 32</u>		<u>\$7,732 32</u>
June 30, 1922—To warrants.....	\$7,923 58	July 1, 1921—By balance.....	\$1,184 82
June 30, 1922—To balance.....	2,521 96	June 30, 1922—By receipts.....	9,260 72
	<u>\$10,445 54</u>		<u>\$10,445 54</u>
		July 1, 1922—By balance.....	\$2,521 96

SAN FRANCISCO NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$5,562 66	July 1, 1920—By balance.....	\$5,336 26
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	226 40
	<u>\$5,562 66</u>		<u>\$5,562 66</u>
June 30, 1922—To warrants.....	\$1,288 89	July 1, 1921—By balance.....	
June 30, 1922—To balance.....	1,199 20	June 30, 1922—By receipts.....	\$2,488 09
	<u>\$2,488 09</u>		<u>\$2,488 09</u>
		July 1, 1922—By balance.....	\$1,199 20

SAN JOSE NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$1,823 91	July 1, 1920—By balance.....	\$772 69
June 30, 1921—To balance.....	1,579 61	June 30, 1921—By receipts.....	2,630 83
	<u>\$3,403 52</u>		<u>\$3,403 52</u>
June 30, 1922—To warrants.....	\$1,741 10	July 1, 1921—By balance.....	\$1,579 61
June 30, 1922—To balance.....	3,867 07	June 30, 1922—By receipts.....	4,028 56
	<u>\$5,608 17</u>		<u>\$5,608 17</u>
		July 1, 1922—By balance.....	\$3,867 07

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SANTA BARBARA NORMAL SCHOOL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$4,503 26	July 1, 1920—By balance.....	\$729 06
June 30, 1921—To balance.....	167 93	June 30, 1921—By receipts.....	3,942 13
	<u>\$4,671 19</u>		<u>\$4,671 19</u>
June 30, 1922—To warrants.....	\$4,080 99	July 1, 1921—By balance.....	\$167 93
June 30, 1922—To balance.....	280 56	June 30, 1922—By receipts.....	4,193 62
	<u>\$4,361 55</u>		<u>\$7,361 55</u>
		July 1, 1922—By balance.....	\$280 56

AGNEWS STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$107,638 16	July 1, 1920—By balance.....	\$10,839 08
June 30, 1921—To balance.....	10,841 61	June 30, 1921—By receipts.....	107,640 69
	<u>\$118,479 77</u>		<u>\$118,479 77</u>
June 30, 1922—To warrants.....	\$31,944 23	July 1, 1921—By balance.....	\$10,841 61
June 30, 1922—To balance.....	82,717 30	June 30, 1922—By receipts.....	103,819 92
	<u>\$114,661 53</u>		<u>\$114,661 53</u>
		July 1, 1922—By balance.....	\$82,717 30

MENDOCINO STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$104,548 06	July 1, 1920—By balance.....	\$27,260 51
June 30, 1921—To balance.....	32,251 96	June 30, 1921—By receipts.....	109,539 51
	<u>\$136,800 02</u>		<u>\$136,800 02</u>
June 30, 1922—To warrants.....	\$26,619 81	July 1, 1921—By balance.....	\$32,251 96
June 30, 1922—To balance.....	132,403 65	June 30, 1922—By receipts.....	126,771 50
	<u>\$159,023 46</u>		<u>\$159,023 46</u>
		July 1, 1922—By balance.....	\$132,403 65

NAPA STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$158,797 86	July 1, 1920—By balance.....	\$27,533 04
June 30, 1921—To balance.....	5,940 18	June 30, 1921—By receipts.....	137,205 00
	<u>\$164,738 04</u>		<u>\$164,738 04</u>
June 30, 1922—To warrants.....	\$62,258 39	July 1, 1921—By balance.....	\$5,940 18
June 30, 1922—To balance.....	76,504 58	June 30, 1922—By receipts.....	132,822 79
	<u>\$138,762 97</u>		<u>\$138,762 97</u>
		July 1, 1922—By balance.....	\$76,504 58

REPORT OF THE STATE CONTROLLER.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

NORWALK STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$33,040 37	July 1, 1920—By balance.....	\$5,037 48
June 30, 1921—To balance.....	607 75	June 30, 1921—By receipts.....	28,610 64
	<u>\$33,648 12</u>		<u>\$33,648 12</u>
June 30, 1922—To warrants.....	\$8,675 72	July 1, 1921—By balance.....	\$607 75
June 30, 1922—To balance.....	23,051 65	June 30, 1922—By receipts.....	31,119 62
	<u>\$31,727 37</u>		<u>\$31,727 37</u>
		July 1, 1922—By balance.....	\$23,051 65

STOCKTON STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$140,640 46	July 1, 1920—By balance.....	\$42,812 24
June 30, 1921—To balance.....	4,369 84	June 30, 1921—By receipts.....	102,199 06
	<u>\$145,010 30</u>		<u>\$145,010 30</u>
June 30, 1922—To warrants.....	\$21,256 03	July 1, 1921—By balance.....	\$4,369 84
June 30, 1922—To balance.....	72,651 79	June 30, 1922—By receipts.....	89,537 98
	<u>\$93,907 82</u>		<u>\$93,907 82</u>
		July 1, 1922—By balance.....	\$72,651 79

SOUTHERN CALIFORNIA STATE HOSPITAL CONTINGENT FUND.

June 30, 1921—To warrants.....	\$111,016 80	July 1, 1920—By balance.....	\$51,428 79
June 30, 1921—To balance.....	43,707 98	June 30, 1921—By receipts.....	103,295 99
	<u>\$154,724 78</u>		<u>\$154,724 78</u>
June 30, 1922—To warrants.....	\$55,342 00	July 1, 1921—By balance.....	\$43,707 98
June 30, 1922—To balance.....	91,715 11	June 30, 1922—By receipts.....	103,349 13
	<u>\$147,057 11</u>		<u>\$147,057 11</u>
		July 1, 1922—By balance.....	\$91,715 11

NAPA STATE FARM CONTINGENT FUND.

June 30, 1921—To warrants.....	\$34,710 98	July 1, 1920—By balance.....	\$4,195 87
June 30, 1921—To balance.....	997 15	June 30, 1921—By receipts.....	31,512 26
	<u>\$35,708 13</u>		<u>\$35,708 13</u>
June 30, 1922—To warrants.....	\$36,690 79	July 1, 1921—By balance.....	\$997 15
June 30, 1922—To balance.....	1,216 08	June 30, 1922—By receipts.....	36,909 72
	<u>\$37,906 87</u>		<u>\$37,906 87</u>
		July 1, 1922—By balance.....	\$1,216 08

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

PURCHASING DEPARTMENT REVOLVING FUND.

June 30, 1921—To warrants.....	\$432,222 67	July 1, 1920—By balance.....	\$76,297 90
June 30, 1921—To balance.....	107,731 02	June 30, 1921—By receipts.....	463,655 79
	<u>\$539,953 69</u>		<u>\$539,953 69</u>
June 30, 1922—To warrants.....	\$261,540 29	July 1, 1921—By balance.....	\$107,731 02
June 30, 1922—To balance.....	127,537 15	June 30, 1922—By receipts.....	281,366 42
	<u>\$389,097 44</u>		<u>\$389,097 44</u>
		July 1, 1922—By balance.....	\$127,557 15

SUPPORT AND MAINTENANCE FUND, VETERANS' HOME.

June 30, 1921—To warrants.....	\$275,110 40	July 1, 1920—By balance.....	\$315 70
June 30, 1921—To balance.....	7,945 95	June 30, 1921—By receipts.....	102,740 65
	<u>\$283,056 35</u>	June 30, 1921—By transfer.....	180,000 00
			<u>\$283,056 35</u>
June 30, 1922—To warrants.....	\$291,383 14	July 1, 1921—By balance.....	\$7,945 95
June 30, 1922—To balance.....	29,142 45	June 30, 1922—By receipts.....	92,579 64
	<u>\$320,525 59</u>	June 30, 1922—By transfer.....	220,000 00
			<u>\$320,525 59</u>
		July 1, 1922—By balance.....	\$29,142 45

PETROLEUM AND GAS FUND.

June 30, 1921—To warrants.....	\$150,852 08	July 1, 1920—By balance.....	\$27,032 29
June 30, 1921—To balance.....	7,585 93	June 30, 1921—By receipts.....	131,405 72
	<u>\$158,438 01</u>		<u>\$158,438 01</u>
June 30, 1922—To warrants.....	\$145,522 89	July 1, 1921—By balance.....	\$7,585 93
June 30, 1922—To balance.....	10,312 98	June 30, 1922—By receipts.....	148,249 94
	<u>\$155,835 87</u>		<u>\$155,835 87</u>
		July 1, 1922—By balance.....	\$10,312 98

STATE AGRICULTURAL SOCIETY CONTINGENT FUND.

June 30, 1921—To warrants.....	\$107,591 58	July 1, 1920—By balance.....	\$374 15
June 30, 1921—To balance.....	19,067 66	June 30, 1921—By receipts.....	126,285 09
	<u>\$126,659 24</u>		<u>\$126,659 24</u>
June 30, 1911—To warrants.....	\$111,598 14	July 1, 1921—By balance.....	\$19,067 66
June 30, 1922—To balance.....	26,927 85	June 30, 1922—By receipts.....	119,458 33
	<u>\$138,525 99</u>		<u>\$138,525 99</u>
		July 1, 1922—By balance.....	\$26,927 85

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

STALLION REGISTRATION BOARD CONTINGENT FUND.

June 30, 1921—To warrants.....	\$778 94	July 1, 1920—By balance.....	\$539 77
June 30, 1921—To balance.....	536 33	June 30, 1921—By receipts.....	775 50
	<u>\$1,315 27</u>		<u>\$1,315 27</u>
June 30, 1922—To warrants.....	\$545 34	July 1, 1921—By balance.....	\$536 33
June 30, 1922—To balance.....	704 99	June 30, 1922—By receipts.....	714 00
	<u>\$1,250 33</u>		<u>\$1,250 33</u>
		July 1, 1922—By balance.....	\$704 99

MEDICAL EXAMINERS' CONTINGENT FUND.

June 30, 1921—To warrants.....	\$80,771 70	July 1, 1920—By balance.....	\$63,703 03
June 30, 1921—To balance.....	84,814 86	June 30, 1921—By receipts.....	101,883 53
	<u>\$165,586 56</u>		<u>\$165,586 56</u>
June 30, 1922—To warrants.....	\$79,492 18	July 1, 1921—By balance.....	\$84,814 86
June 30, 1922—To balance.....	92,140 25	June 30, 1922—By receipts.....	\$6,817 57
	<u>\$171,632 43</u>		<u>\$171,632 43</u>
		July 1, 1922—By balance.....	\$92,140 25

DENTISTRY FUND.

June 30, 1921—To warrants.....	\$16,808 26	July 1, 1920—By balance.....	\$3,890 84
June 30, 1921—To balance.....	8,277 65	June 30, 1920—By receipts.....	16,195 07
	<u>\$25,085 91</u>		<u>\$25,085 91</u>
June 30, 1922—To warrants.....	\$14,335 07	July 1, 1921—By balance.....	\$8,277 65
June 30, 1922—To balance.....	9,383 76	June 30, 1922—By receipts.....	15,441 18
	<u>\$23,718 83</u>		<u>\$23,718 83</u>
		July 1, 1922—By balance.....	\$9,383 76

OPTOMETRY FUND.

June 30, 1921—To warrants.....	\$3,600 52	July 1, 1920—By balance.....	\$270 11
June 30, 1921—To balance.....	835 09	June 30, 1921—By receipts.....	4,165 50
	<u>\$4,435 61</u>		<u>\$4,435 61</u>
June 30, 1922—To warrants.....	\$3,930 66	July 1, 1921—By balance.....	\$835 09
June 30, 1922—To balance.....	3,663 28	June 30, 1922—By receipts.....	6,758 85
	<u>\$7,593 94</u>		<u>\$7,593 94</u>
		July 1, 1922—By balance.....	\$3,663 28

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

APPLE STANDARD PROSECUTION FUND.

June 30, 1921—To warrants.....	\$33,946 41	July 1, 1920—By balance.....	\$7,551 09
June 30, 1921—To balance.....	5,598 90	June 30, 1921—By receipts.....	31,994 22
	<u>\$39,545 31</u>		<u>\$39,545 31</u>
June 30, 1922—To warrants.....	\$23,384 07	July 1, 1921—By balance.....	\$5,598 90
June 30, 1922—To balance.....	8,800 27	June 30, 1922—By receipts.....	26,585 44
	<u>\$32,184 34</u>		<u>\$32,184 34</u>
		July 1, 1922—By balance.....	\$8,800 27

DETECTIVE LICENSE FEE FUND.

June 30, 1921—To warrants.....	\$869 38	July 1, 1920—By balance.....	\$2,968 28
June 30, 1921—To balance.....	3,048 90	June 30, 1921—By receipts.....	950 00
	<u>\$3,918 28</u>		<u>\$3,918 28</u>
June 30, 1922—To warrants.....	\$1,144 33	July 1, 1921—By balance.....	\$3,048 90
June 30, 1922—To balance.....	3,104 57	June 30, 1922—By receipts.....	1,200 00
	<u>\$4,248 90</u>		<u>\$4,248 90</u>
		July 1, 1922—By balance.....	\$3,104 57

NURSES' EXAMINATION AND REGISTRATION FUND.

June 30, 1921—To warrants.....	\$11,523 20	July 1, 1920—By balance.....	\$1,405 35
June 30, 1921—To balance.....	3,673 38	June 30, 1921—By receipts.....	13,791 23
	<u>\$15,196 58</u>		<u>\$15,196 58</u>
June 30, 1922—To warrants.....	\$14,399 16	July 1, 1921—By balance.....	\$3,673 38
June 30, 1922—To balance.....	9,149 97	June 30, 1922—By receipts.....	19,875 75
	<u>\$23,549 13</u>		<u>\$23,549 13</u>
		July 1, 1922—By balance.....	\$92,149 97

BALLOT PAPER REVOLVING FUND.

June 30, 1921—To warrants.....	\$69,059 29	July 1, 1920—By balance.....	\$635 95
June 30, 1921—To balance.....	206 75	June 30, 1921—By receipts.....	48,630 09
	<u>\$69,266 04</u>	June 30, 1921—By transfer.....	20,000 00
			<u>\$69,266 04</u>
June 30, 1922—To warrants.....	\$4,410 11	July 1, 1921—By balance.....	\$206 75
June 30, 1922—To balance.....	82 97	June 30, 1922—By receipts.....	4,286 33
	<u>\$4,493 08</u>		<u>\$4,493 08</u>
		July 1, 1922—By balance.....	\$82 97

REPORT OF THE STATE CONTROLLER.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

MINING BUREAU FUND.

June 30, 1921—To warrants.....	\$4,510 46	July 1, 1920—By balance.....	\$693 20
June 30, 1921—To balance.....	920 58	June 30, 1921—By receipts.....	4,737 84
	<u>\$5,431 04</u>		<u>\$5,431 04</u>
June 30, 1922—To warrants.....	\$7,721 06	July 1, 1921—By balance.....	920 58
June 30, 1922—To balance.....	77 37	June 30, 1922—By receipts.....	6,877 85
	<u>\$7,798 43</u>		<u>\$7,798 43</u>
		July 1, 1922—By balance.....	\$77 37

COMPENSATION INSURANCE FUND.

June 30, 1921—To warrants.....	\$7,224,310 59	July 1, 1920—By balance.....	\$71,169 10
June 30, 1921—To balance.....	14,328 77	June 30, 1921—By receipts.....	7,167,470 26
	<u>\$7,238,639 36</u>		<u>\$7,238,639 36</u>
June 30, 1922—To warrants.....	\$6,480,040 15	July 1, 1921—By balance.....	\$14,328 77
June 30, 1922—To transfer.....	100,000 00	June 30, 1922—By receipts.....	6,611,522 80
June 30, 1922—To balance.....	45,811 42		
	<u>\$6,625,851 57</u>		<u>\$6,625,851 57</u>
		July 1, 1922—By balance.....	\$45,811 42

ACCIDENT PREVENTION FUND.

June 30, 1921—To warrants.....	\$150,929 32	July 1, 1920—By balance.....	\$496 77
June 30, 1921—To balance.....	1,190 55	June 30, 1921—By receipts.....	143,999 52
	<u>\$152,119 87</u>	June 30, 1921—By transfer.....	7,623 58
			<u>\$152,119 87</u>
June 30, 1922—To warrants.....	\$118,512 24	July 1, 1921—By balance.....	\$1,190 55
June 30, 1922—To balance.....	4,204 74	June 30, 1922—By receipts.....	116,526 43
	<u>\$122,716 98</u>	June 30, 1922—By transfer.....	5,000 00
			<u>\$122,716 98</u>
		July 1, 1922—By balance.....	\$4,204 74

OPERATORS' LICENSE FUND.

June 30, 1921—To warrants.....	\$6 50	July 1, 1920—By balance.....	\$30,665 80
June 30, 1921—To balance.....	30,659 30	June 30, 1921—By receipts.....	-----
	<u>\$30,665 80</u>		<u>\$30,665 80</u>
		July 1, 1921—By balance.....	\$30,659 30
		No transactions during seventy-third fiscal year.	

MEAT HYGIENE FUND.

June 30, 1921—To warrants.....	\$1,383 81	July 1, 1920—By balance.....	\$81 86
June 30, 1921—To balance.....	563 05	June 30, 1921—By receipts.....	1,865 00
	<u>\$1,946 86</u>		<u>\$1,946 86</u>
June 30, 1922—To warrants.....	\$8,073 64	July 1, 1921—By balance.....	\$563 05
June 30, 1922—To balance.....	364 76	June 30, 1922—By receipts.....	7,875 35
	<u>\$8,438 40</u>		<u>\$8,438 40</u>
		July 1, 1922—By balance.....	\$364 76

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SIXTH DISTRICT AGRICULTURAL ASSOCIATION CONTINGENT FUND.

June 30, 1921—To warrants.....	\$483 33	July 1, 1920—By balance.....	\$2,645 58
June 30, 1921—To balance.....	3,897 19	June 30, 1921—By receipts.....	1,734 94
	<u>\$4,380 52</u>		<u>\$4,380 52</u>
June 30, 1922—To warrants.....	\$365 64	July 1, 1921—By balance.....	\$3,897 19
June 30, 1922—To balance.....	4,275 83	June 30, 1922—By receipts.....	744 28
	<u>\$4,641 47</u>		<u>\$4,641 47</u>
		July 1, 1922—By balance.....	\$4,275 83

SAN FRANCISCO STATE BUILDING FUND.

June 30, 1921—To warrants.....	\$428,460 27	July 1, 1920—By balance.....	\$813,350 40
June 30, 1921—To balance.....	385,347 44	June 30, 1921—By receipts.....	457 31
	<u>\$813,807 71</u>		<u>\$813,807 71</u>
June 30, 1922—To warrants.....	\$292,126 66	July 1, 1921—By balance.....	\$385,347 44
June 30, 1922—To balance.....	126,351 27	June 30, 1922—By receipts.....	33,130 49
	<u>\$418,477 93</u>		<u>\$418,477 93</u>
		July 1, 1922—By balance.....	\$126,351 27

TORRENS TITLE ASSURANCE FUND.

June 30, 1921—To warrants.....		July 1, 1920—By balance.....	\$16,258 06
June 30, 1921—To balance.....	\$19,186 42	June 30, 1921—By receipts.....	2,928 36
	<u>\$19,186 42</u>		<u>\$19,186 42</u>
June 30, 1922—To balance.....	\$20,343 32	July 1, 1921—By balance.....	\$19,186 42
	<u>\$20,343 32</u>	June 30, 1922—By receipts.....	1,156 90
			<u>\$20,343 32</u>
		July 1, 1922—By balance.....	\$20,343 32

PANAMA-PACIFIC INTERNATIONAL EXPOSITION FUND.

June 30, 1921—To warrants.....	\$328 90	July 1, 1920—By balance.....	\$14,343 46
June 30, 1921—To balance.....	14,014 56	June 30, 1921—By receipts.....	
	<u>\$14,343 46</u>		<u>\$14,343 46</u>
		July 1, 1921—By balance.....	\$14,014 56
		No transactions during seventy-third fiscal year.	

DISSOLVED SAVINGS BANK FUND.

June 30, 1921—To warrants.....		July 1, 1920—By balance.....	\$7,666 34
June 30, 1921—To balance.....	\$13,060 64	June 30, 1921—By receipts.....	5,394 30
	<u>\$13,060 64</u>		<u>\$13,060 64</u>
June 30, 1922—To warrants.....	\$12 40	July 1, 1921—By balance.....	\$13,060 64
June 30, 1922—To balance.....	16,535 74	June 30, 1922—By receipts.....	3,487 50
	<u>\$16,548 14</u>		<u>\$16,548 14</u>
		July 1, 1922—By balance.....	\$16,535 74

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SAN FRANCISCO HARBOR IMPROVEMENT FUND.

June 30, 1921—To warrants.....	\$1,651,852 41	July 1, 1920—By balance.....	\$55,980 98
June 30, 1921—To transfers.....	607,226 96	June 30, 1921—By receipts.....	2,420,678 96
June 30, 1921—To balance.....	217,591 53	June 30, 1921—By canceled warrants.....	10 96
	<u>\$2,476,670 90</u>		<u>\$2,476,670 90</u>
June 30, 1922—To warrants.....	\$1,685,050 94	July 1, 1921—By balance.....	\$217,591 53
June 30, 1922—To transfers.....	621,536 65	June 30, 1922—By receipts.....	2,438,358 58
June 30, 1922—To reissue canceled warrant.....	4 46		
June 30, 1922—To balance.....	349,358 06		
	<u>\$2,655,950 11</u>		<u>\$2,655,950 11</u>
		July 1, 1922—By balance.....	\$349,358 06

RECEIVERS' FUND.

June 30, 1921—To warrants.....	-----	July 1, 1920—By balance.....	\$8,434 56
June 30, 1921—To balance.....	\$8,434 56	June 30, 1921—By receipts.....	-----
	<u>\$8,434 56</u>		<u>\$8,434 56</u>
		July 1, 1921—By balance.....	\$8,434 56
		No transactions during seventy-third fiscal year.	

INDUSTRIAL ACCIDENT FUND.

June 30, 1921—To warrants.....	\$5,933 28	July 1, 1920—By balance.....	\$8,015 61
June 30, 1921—To balance.....	5,039 23	June 30, 1921—By receipts.....	2,956 90
	<u>\$10,972 51</u>		<u>\$10,972 51</u>
June 30, 1922—To warrants.....	\$1,955 84	July 1, 1921—By balance.....	\$5,039 23
June 30, 1922—To balance.....	5,885 94	June 30, 1922—By receipts.....	2,802 55
	<u>\$7,841 78</u>		<u>\$7,841 78</u>
		July 1, 1922—By balance.....	\$5,885 94

ESTATE DECEASED PERSONS FUND.

June 30, 1921—To warrants.....	\$268,323 19	July 1, 1920—By balance.....	\$192,567 71
June 30, 1921—To balance.....	43,515 03	June 30, 1921—By receipts.....	119,270 51
	<u>\$311,838 22</u>		<u>\$311,838 22</u>
June 30, 1922—To warrants.....	\$98,696 87	July 1, 1921—By balance.....	\$43,515 03
June 30, 1922—To balance.....	106,419 74	June 30, 1922—By receipts.....	156,527 54
		June 30, 1922—By cancelled warrant.....	74 04
		June 30, 1922—By transfer.....	5,000 00
	<u>\$205,116 61</u>		<u>\$205,116 61</u>
		July 1, 1922—By balance.....	\$106,419 73

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SCHOOL LAND DEPOSIT FUND.

June 30, 1921—To warrants.....	\$2,140 00	July 1, 1920—By balance.....	\$7,140 00
June 30, 1921—To balance.....	5,020 00	June 30, 1921—By receipts.....	20 00
	<u>\$7,160 00</u>		<u>\$7,160 00</u>
June 30, 1922—To warrants.....	\$260 00	July 1, 1921—By balance.....	\$5,020 00
June 30, 1922—To balance.....	4,780 00	June 30, 1922—By canceled warrant.....	20 00
	<u>\$5,040 00</u>		<u>\$5,040 00</u>
		July 1, 1922—By balance.....	\$4,780 00

SAN FRANCISCO SEAWALL SINKING FUND.

June 30, 1921—To warrants.....	\$131,300 00	July 1, 1920—By balance.....	\$49,369 58
June 30, 1921—To balance.....	51,176 54	June 30, 1921—By transfers.....	133,106 96
	<u>\$182,476 54</u>		<u>\$182,476 54</u>
June 30, 1922—To warrants.....	\$131,600 00	July 1, 1921—By balance.....	\$51,176 54
June 30, 1922—To balance.....	47,548 75	June 30, 1922—By transfers.....	127,972 21
	<u>\$179,148 75</u>		<u>\$179,148 75</u>
		July 1, 1922—By balance.....	\$47,548 75

INDIA BASIN SINKING FUND.

June 30, 1921—To warrants.....	\$34,120 00	July 1, 1920—By balance.....	-----
June 30, 1921—To transfers.....	5,686 66	June 30, 1921—By transfers.....	\$39,806 66
June 30, 1921—To balance.....	-----	June 30, 1921—By receipts.....	-----
	<u>\$39,806 66</u>		<u>\$39,806 66</u>
June 30, 1922—To warrants.....	\$34,120 00	July 1, 1921—By balance.....	-----
June 30, 1922—To transfers.....	5,686 66	June 30, 1922—By transfer.....	\$39,806 66
	<u>\$39,806 66</u>		<u>\$39,806 66</u>
		July 1, 1922—By balance.....	-----

SECOND SAN FRANCISCO SEAWALL SINKING FUND.

June 30, 1921—To warrants.....	\$360,000 00	July 1, 1920—By balance.....	-----
June 30, 1921—To transfers.....	60,000 00	June 30, 1921—By transfers.....	\$420,000 00
June 30, 1921—To balance.....	-----		-----
	<u>\$420,000 00</u>		<u>\$420,000 00</u>
June 30, 1922—To warrants.....	\$360,000 00	July 1, 1921—By balance.....	-----
June 30, 1922—To transfers.....	60,000 00	June 30, 1922—By transfers.....	\$420,000 00
	<u>\$420,000 00</u>		<u>\$420,000 00</u>
		July 1, 1922—By balance.....	-----

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

THIRD SAN FRANCISCO SEAWALL SINKING FUND.

June 30, 1921—To warrants.....	\$80,000 00	July 1, 1920—By balance.....	-----
June 30, 1921—To transfers.....	13,333 32	June 30, 1921—By receipts.....	-----
June 30, 1921—To balance.....	-----	June 30, 1921—By transfers.....	\$93,333 32
	\$93,333 32		\$93,333 32
June 30, 1922—To warrants.....	\$120,000 00	July 1, 1921—By balance.....	-----
June 30, 1922—To transfers.....	16,111 10	June 30, 1922—By receipts.....	\$17,222 22
	-----	June 30, 1922—By transfers.....	118,888 88
	\$136,111 10		\$136,111 10
		July 1, 1922—By balance.....	-----

THIRD SAN FRANCISCO SEAWALL FUND.

June 30, 1921—To warrants.....	-----	July 1, 1920—By balance.....	\$899 61
June 30, 1921—To balance.....	\$899 61	June 30, 1921—By receipts.....	-----
	\$899 61		\$899 61
June 30, 1922—To warrants.....	\$92,503 18	July 1, 1921—By balance.....	\$899 61
June 30, 1922—To balance.....	908,396 43	June 30, 1922—By receipts.....	1,000,000 00
	\$1,000,899 61		\$1,000,899 61
		July 1, 1922—By balance.....	\$908,396 43

INDIA BASIN FUND.

June 30, 1921—To balance.....	\$451 28	July 1, 1920—By balance.....	\$451 28
June 30, 1922—To balance.....	\$451 28	July 1, 1921—By balance.....	\$451 28
		July 1, 1922—By balance.....	\$451 28

SECOND SAN FRANCISCO SEAWALL FUND.

June 30, 1921—To balance.....	\$1,000 00	July 1, 1920—By balance.....	\$1,000 00
June 30, 1922—To balance.....	\$1,000 00	July 1, 1921—By balance.....	\$1,000 00
		July 1, 1922—By balance.....	\$1,000 00

STATE PRINTING FUND.

June 30, 1921—To warrants.....	\$532,774 85	July 1, 1920—By balance.....	\$45,157 81
June 30, 1921—To reissue canceled warrant... 5 20		June 30, 1921—By receipts.....	581,196 63
June 30, 1921—To balance.....	93,579 59	June 30, 1921—By canceled warrant.....	5 20
	\$626,359 64		\$626,359 64
June 30, 1922—To warrants.....	\$534,229 69	July 1, 1921—By balance.....	\$93,579 59
June 30, 1922—To balance.....	73,370 55	June 30, 1922—By receipts.....	514,020 65
	\$607,600 24		\$607,600 24
		July 1, 1922—By balance.....	\$73,370 55

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

STATE HIGHWAY INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$1,456,000 00	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By transfers.....	\$1,456,000 00
	<u>\$1,456,000 00</u>		<u>\$1,456,000 00</u>
June 30, 1922—To warrants.....	\$1,040,000 00	July 1, 1921—By balance.....	
June 30, 1922—To balance.....		June 30, 1922—By transfer.....	\$1,040,000 00
	<u>\$1,040,000 00</u>		<u>\$1,040,000 00</u>
		July 1, 1922—By balance.....	

RAILROAD COMMISSION FUND.

June 30, 1921—To warrants.....	\$216,710 96	July 1, 1920—By balance.....	\$119,707 64
June 30, 1921—To balance.....	18,573 68	June 30, 1921—By receipts.....	115,577 00
	<u>\$235,284 64</u>		<u>\$235,284 64</u>
June 30, 1922—To warrants.....	\$90,990 36	July 1, 1921—By balance.....	\$18,573 68
June 30, 1922—To balance.....	41,280 24	June 30, 1922—By receipts.....	113,696 92
	<u>\$132,270 60</u>		<u>\$132,270 60</u>
		July 1, 1922—By balance.....	\$41,280 24

UNIVERSITY OF CALIFORNIA BUILDING, INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$120,100 00	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By transfers.....	\$120,100 00
	<u>\$120,100 00</u>		<u>\$120,100 00</u>
June 30, 1922—To warrants.....	\$118,300 00	July 1, 1921—By balance.....	
June 30, 1922—To balance.....		June 30, 1922—By transfers.....	\$118,300 00
	<u>\$118,300 00</u>		<u>\$118,300 00</u>
		July 1, 1922—By balance.....	

SECOND HIGHWAY INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$630,000 00	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	\$20,500 00
	<u>\$630,000 00</u>	June 30, 1921—By transfers.....	609,500 00
			<u>\$630,000 00</u>
June 30, 1922—To warrants.....	\$675,000 00	July 1, 1921—By balance.....	
June 30, 1922—To balance.....		June 30, 1922—By receipts.....	\$19,250 00
	<u>\$675,000 00</u>	June 30, 1922—By transfers.....	655,750 00
			<u>\$675,000 00</u>
		July 1, 1922—By balance.....	

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

THIRD HIGHWAY FUND.

June 30, 1921—To warrants.....	\$5,896,119 61	July 1, 1920—By balance.....	\$2,151 07
June 30, 1921—To balance.....	528,295 47	June 30, 1921—By receipts.....	6,422,264 01
	<u>\$6,424,415 08</u>		<u>\$6,424,415 08</u>
June 30, 1922—To warrants.....	\$14,273,040 04	July 1, 1921—By balance.....	\$58,295 47
June 30, 1922—To balance.....	6,691,228 56	June 30, 1922—By receipts.....	20,435,973 13
	<u>\$20,964,268 60</u>		<u>\$20,964,268 60</u>
		July 1, 1922—By balance.....	\$6,691,228 56

THIRD HIGHWAY INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$282,990 00	June 30, 1921—By receipts.....	\$58,749 55
June 30, 1921—To balance.....	-----	June 30, 1921—By transfer.....	224,240 45
	<u>\$282,990 00</u>		<u>\$282,990 00</u>
June 30, 1922—To warrants.....	\$1,136,785 00	July 1, 1921—By balance.....	-----
June 30, 1922—To balance.....	-----	June 30, 1922—By receipts.....	\$154,707 70
	<u>\$1,136,785 00</u>	June 30, 1922—By transfer.....	982,077 30
			<u>\$1,136,785 00</u>
		July 1, 1922—By balance.....	-----

LABOR BUREAU CONTINGENT FUND.

June 30, 1921—To warrants.....	\$10,553 70	July 1, 1920—By balance.....	\$3,152 90
June 30, 1921—To balance.....	10,090 71	June 30, 1921—By receipts.....	17,491 51
	<u>\$20,644 41</u>		<u>\$20,644 41</u>
June 30, 1922—To warrants.....	\$22,163 93	July 1, 1921—By balance.....	\$10,090 71
June 30, 1922—To balance.....	5,507 78	June 30, 1922—By receipts.....	17,581 00
	<u>\$27,671 71</u>		<u>\$27,671 71</u>
		July 1, 1922—By balance.....	\$5,507 78

SAN FRANCISCO STATE BUILDING SINKING FUND.

June 30, 1921—To warrants.....	\$76,000 00	July 1, 1920—By balance.....	-----
June 30, 1921—To balance.....	-----	June 30, 1921—By transfers.....	\$76,000 00
	<u>\$76,000 00</u>		<u>\$76,000 00</u>
June 30, 1922—To warrants.....	\$55,200 00	July 1, 1921—By balance.....	-----
June 30, 1922—To balance.....	-----	June 30, 1922—By transfer.....	\$55,200 00
	<u>\$55,200 00</u>		<u>\$55,200 00</u>
		July 1, 1922—By balance.....	-----

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SCHOOL TEACHERS' PERMANENT FUND.

June 30, 1921—To warrants.....	\$133,293 36	July 1, 1920—By balance.....	\$68,676 89
June 30, 1921—To transfers.....	412,500 00	June 30, 1921—By receipts.....	373,431 42
June 30, 1921—To balance.....	30,222 88	June 30, 1921—By transfer.....	133,907 93
	<u>\$576,016 24</u>		<u>\$576,016 24</u>
June 30, 1922—To warrants.....	\$366,352 34	July 1, 1921—By balance.....	\$30,222 88
June 30, 1922—To transfers.....	262,340 00	June 30, 1922—By receipts.....	314,679 79
June 30, 1922—To balance.....	56,446 93	June 30, 1922—By transfer.....	340,236 60
	<u>\$685,139 27</u>		<u>\$685,139 27</u>
		July 1, 1922—By balance.....	\$56,446 93

BOND INVESTMENT FUND.

June 30, 1921—To transfers.....	\$227,268 47	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	\$227,268 47
	<u>\$227,268 47</u>		<u>\$227,268 47</u>
June 30, 1922—To transfers.....	\$217,146 25	July 1, 1921—By balance.....	
June 30, 1922—To balance.....		June 30, 1922—By receipts.....	\$217,146 25
	<u>\$217,146 25</u>		<u>\$217,146 25</u>
		July 1, 1922—By balance.....	

STATE UNIVERSITY FUND.

June 30, 1921—To warrants.....	\$1,399,758 05	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By transfers.....	\$1,399,758 05
	<u>\$1,399,758 05</u>		<u>\$1,399,758 05</u>
June 30, 1922—To warrants.....	\$1,883,868 28	July 1, 1921—By balance.....	
June 30, 1922—To balance.....	23,904 05	June 30, 1922—By transfers.....	\$1,882,849 83
	<u>\$1,907,772 33</u>	June 30, 1922—By transfer to reimburse error.....	24,922 50
			<u>\$1,907,772 33</u>
		July 1, 1922—By balance.....	\$23,904 05

EXAMINERS IN VETERINARY MEDICINE CONTINGENT FUND.

June 30, 1921—To warrants.....	\$460 77	July 1, 1920—By balance.....	\$727 13
June 30, 1921—To balance.....	666 36	June 30, 1921—By receipts.....	400 00
	<u>\$1,127 13</u>		<u>\$1,127 13</u>
June 30, 1922—To warrants.....	\$276 42	July 1, 1921—By balance.....	\$666 36
June 30, 1922—To balance.....	619 94	June 30, 1922—By receipts.....	230 00
	<u>\$896 36</u>		<u>\$896 36</u>
		July 1, 1922—By balance.....	\$619 94

NAUTICAL SCHOOL FUND.

June 30, 1921—To balance.....	\$24,957 10	July 1, 1920—By balance.....	\$24,957 10
June 30, 1922—To balance.....	\$24,957 10	July 1, 1921—By balance.....	\$24,957 10
		July 1, 1922—By balance.....	\$24,957 10

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

CATTLE PROTECTION FUND.

June 30, 1921—To warrants.....	\$62,751 15	July 1, 1920—By balance.....	\$16,562 75
June 30, 1921—To balance.....	18,123 00	June 30, 1921—By receipts.....	64,311 40
	<u>\$80,874 15</u>		<u>\$80,874 15</u>
June 30, 1922—To warrants.....	\$72,141 80	July 1, 1921—By balance.....	\$18,123 00
June 30, 1922—To balance.....	15,016 86	June 30, 1922—By receipts.....	69,035 66
	<u>\$87,158 66</u>		<u>\$87,158 66</u>
		July 1, 1922—By balance.....	\$15,016 86

REAL ESTATE COMMISSIONERS' FUND, 1917.

June 30, 1921—To balance.....	\$29,495 66	July 1, 1920—By balance.....	\$29,495 66
June 30, 1922—To warrants.....	\$29,495 66	July 1, 1921—By balance.....	\$29,495 66
June 30, 1922—To balance.....		June 30, 1922—By receipts.....	
	<u>\$29,495 66</u>		<u>\$29,495 66</u>
		July 1, 1922—By balance.....	

REAL ESTATE COMMISSIONER'S FUND, 1919.

June 30, 1921—To warrants.....	\$42,294 73	June 30, 1920—By balance.....	\$61,496 52
June 30, 1921—To transfer.....	37,785 43	June 30, 1921—By receipts.....	18,583 64
June 30, 1921—To balance.....			
	<u>\$80,080 16</u>		<u>\$80,080 16</u>

FISH EXCHANGE FUND.

June 30, 1921—To warrants.....	\$19,129 48	July 1, 1920—By balance.....	\$14,507 59
June 30, 1921—To balance.....	15,554 17	June 30, 1921—By receipts.....	20,176 06
	<u>\$34,683 65</u>		<u>\$34,683 65</u>
June 30, 1922—To warrants.....	\$27,929 57	July 1, 1921—By balance.....	\$15,554 17
June 30, 1922—To balance.....	9,082 04	June 30, 1922—By receipts.....	21,457 44
	<u>\$37,011 61</u>		<u>\$37,011 61</u>
		July 1, 1922—By balance.....	\$9,082 04

UNIVERSITY FUND.

June 30, 1921—To warrants.....	\$49,845 00	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By receipts.....	\$49,845 00
	<u>\$49,845 00</u>		<u>\$49,845 00</u>
June 30, 1922—To warrants.....	\$24,922 50	July 1, 1921—By balance.....	
June 30, 1922—To transfers.....	24,922 50	June 30, 1922—By receipts.....	\$49,845 00
June 30, 1922—To balance.....			
	<u>\$49,845 00</u>		<u>\$49,845 00</u>
		July 1, 1920—By balance.....	

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

RAILWAY TAX FUND.

June 30, 1921—To balance	\$30,251 36	July 1, 1920—By balance	\$30,251 36
June 30, 1921—To balance	\$30,251 36	July 1, 1921—By balance	\$30,251 36
		July 1, 1922—By balance	\$30,251 36

WAR BOND FUND.

June 30, 1921—To balance	\$2,829 76	July 1, 1920—By balance	\$2,829 76
June 30, 1922—To balance	\$2,829 76	July 1, 1921—By balance	\$2,829 76
		July 1, 1922—By balance	\$2,829 76

UNITED STATES FOREST RESERVE FUND.

June 30, 1921—To warrants	\$181,003 31	July 1, 1920—By balance	
June 30, 1921—To balance		June 30, 1921—By receipts	\$181,003 31
	\$181,003 31		\$181,003 31
June 30, 1922—To warrants	\$166,450 18	July 1, 1921—By balance	
		June 30, 1922—By receipts	\$166,450 18
	\$166,450 18		\$166,450 18
		July 1, 1922—By balance	

NEEDLES SCHOOL DISTRICT BOND TAX FUND.

June 30, 1921—To balance	\$183 75	July 1, 1920—By balance	\$183 75
June 30, 1922—To balance	\$183 75	July 1, 1921—By balance	\$183 75
		July 1, 1922—By balance	\$183 75

FORESTRY FUND.

June 30, 1921—To balance	\$169 88	July 1, 1920—By balance	\$169 88
June 30, 1922—To warrants	\$169 88	July 1, 1921—By balance	\$169 88
June 30, 1922—To balance		June 30, 1922—By receipts	
	\$169 88		\$169 88
		July 1, 1922—By balance	

FOLSOM HOSPITAL CONTINGENT FUND.

June 30, 1921—To balance	\$179 00	July 1, 1920—By balance	\$179 00
June 30, 1922—To balance	\$179 00	July 1, 1921—By balance	\$179 00
		July 1, 1922—By balance	\$179 00

REPORT OF THE STATE CONTROLLER.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

TEXTBOOK ROYALTY FUND.

June 30, 1921—To balance.....	\$340 43	July 1, 1920—By balance.....	\$340 43
June 30, 1922—To balance.....	\$340 43	July 1, 1921—By balance.....	\$340 43
		July 1, 1922—By balance.....	\$340 43

SACRAMENTO DRAINAGE DISTRICT FUND.

June 30, 1921—To balance.....	\$138 84	July 1, 1920—By balance.....	\$138 84
June 30, 1922—To balance.....	\$138 84	July 1, 1921—By balance.....	\$138 84
		July 1, 1922—By balance.....	\$138 84

SAN DIEGO HARBOR IMPROVEMENT FUND.

June 30, 1921—To balance.....	\$5,560 91	July 1, 1920—By balance.....	\$4,657 12
		June 30, 1921—By receipts.....	903 79
	\$5,560 91		\$5,560 91
June 30, 1922—To balance.....	\$6,300 36	July 1, 1921—By balance.....	\$5,560 91
		June 30, 1922—By receipts.....	739 45
	\$6,300 36		\$6,300 36
		July 1, 1922—By balance.....	\$6,300 36

SAN JOSE HARBOR IMPROVEMENT FUND.

June 30, 1921—To balance.....	\$2,495 27	July 1, 1920—By balance.....	\$2,495 27
June 30, 1922—To balance.....	\$2,495 27	July 1, 1921—By balance.....	\$2,495 27
		July 1, 1922—By balance.....	\$2,495 27

LOS ANGELES NORMAL SCHOOL BUILDING AND IMPROVEMENT FUND.

June 30, 1921—To balance.....	\$3 32	July 1, 1920—By balance.....	\$3 32
June 30, 1922—To balance.....	\$3 32	July 1, 1921—By balance.....	\$3 32
		July 1, 1922—By balance.....	\$3 32

BOARD OF PHARMACY CONTINGENT FUND.

June 30, 1921—To balance....	\$46,114 03	July 1, 1920—By balance.....	\$29,835 37
		June 30, 1921—By receipts.....	16,278 66
	\$46,114 03		\$46,114 03
June 30, 1922—To balance.....	\$53,026 20	July 1, 1921—By balance.....	\$46,114 03
		June 30, 1922—By receipts.....	6,912 17
	\$53,026 20		\$53,026 20
		July 1, 1922—By balance.....	\$53,026 20

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

SUPERINTENDENT CAPITOL BUILDING AND GROUNDS REVOLVING FUND.

June 30, 1921—To balance.....	\$6,218 33	July 1, 1920—By balance.....	\$6,218 33
June 30, 1922—To balance.....	\$6,218 33	July 1, 1921—By balance.....	\$6,218 33
		July 1, 1922—By balance.....	\$6,218 33

SACRAMENTO STATE BUILDING, INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$56,533 33	June 30, 1921—By receipts.....	\$2,205 00
June 30, 1921—To balance.....	52,933 17	June 30, 1921—By transfers.....	107,261 50
	\$109,466 50		\$109,466 50
June 30, 1922—To warrants.....	\$176,748 88	July 1, 1921—By balance.....	\$52,933 17
June 30, 1922—To balance.....	1,014 29	June 30, 1922—By receipts.....	50,590 00
	\$177,763 17	June 30, 1922—By transfer.....	74,240 00
			\$177,763 17
		July 1, 1922—By balance.....	\$1,014 29

KERN COUNTY UNION HIGH SCHOOL DISTRICT CONDEMNATION FUND.

June 30, 1921—To balance.....	\$140 15	July 1, 1920—By balance.....	\$140 15
June 30, 1922—To balance.....	\$140 15	July 1, 1921—By balance.....	\$140 15
		July 1, 1922—By balance.....	\$140 15

TESTING FEE FUND.

June 30, 1921—To warrants.....	\$4,301 51	July 1, 1920—By balance.....	\$5,032 20
June 30, 1921—To balance.....	2,380 69	June 30, 1921—By receipts.....	1,650 00
	\$6,682 20		\$6,682 20
June 30, 1922—To warrants.....	\$2,486 96	July 1, 1921—By balance.....	\$2,380 69
June 30, 1922—To balance.....	2,943 73	June 30, 1922—By receipts.....	3,050 00
	\$5,430 69		\$5,430 69
		July 1, 1922—By balance.....	\$2,943 73

TRANSFER AND OPERATORS' LICENSE FUND.

June 30, 1921—To warrants.....	\$307,886 11	July 1, 1920—By balance.....	\$143,180 98
June 30, 1921—To transfer.....	923 30	June 30, 1921—By receipts.....	317,034 97
June 30, 1921—To balance.....	151,406 54		
	\$460,215 95		\$460,215 95
July 30, 1922—To warrants.....	\$256,550 88	July 1, 1921—By balance.....	\$151,406 54
July 30, 1922—To balance.....	304,362 54	June 30, 1922—By receipts.....	409,506 88
	\$560,913 42		\$506,913 42
		July 1, 1922—By balance.....	\$304,362 54

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

REAL ESTATE COMMISSION FUND, 1921.

June 30, 1922—To warrants.....	\$39,840 19	June 30, 1921—By receipts.....	\$120,210 05
June 30, 1922—To balance.....	80,369 86		
	<u>\$120,210 05</u>		<u>\$120,210 05</u>
June 30, 1922—To warrants.....	\$59,871 93	July 1, 1922—By balance.....	\$80,369 86
June 30, 1922—To transfer.....	35,763 13	June 30, 1922—By receipts.....	15,265 20
	<u>\$95,635 06</u>		<u>\$95,635 06</u>

REAL ESTATE COMMISSION FUND, 1922.

June 30, 1922—To warrants.....	\$53,601 12	June 30, 1922—By receipts.....	\$143,420 97
June 30, 1922—To balance.....	89,819 85		
	<u>\$143,420 97</u>		<u>\$143,420 97</u>
		July 1, 1922—By balance.....	\$89,819 85

VOCATIONAL REHABILITATION FUND.

Act 1921, chapter 758.

June 30, 1922—To warrants.....	\$38,776 97	June 30, 1922—By receipts.....	\$24,465 63
June 30, 1922—To balance.....	10,102 75	June 30, 1922—By transfer.....	24,414 09
	<u>\$48,879 72</u>		<u>\$48,879 72</u>
		July 1, 1922—By balance.....	\$10,102 75

CALIFORNIA IRRIGATION BOARD REVOLVING FUND.

June 30, 1921—To balance.....	\$4,840 00	July 1, 1920—By balance.....	\$4,840 00
June 30, 1922—To balance.....	\$4,840 00	July 1, 1921—By balance.....	\$4,840 00
		July 1, 1922—By balance.....	\$4,840 00

PANAMA-CALIFORNIA INTERNATIONAL EXPOSITION FUND.

June 30, 1921—To warrants.....	\$29,330 94	July 1, 1920—By balance.....	\$28,900 50
June 30, 1921—To balance.....	27 33	June 30, 1921—By receipts.....	457 77
	<u>\$29,358 27</u>		<u>\$29,358 27</u>
June 30, 1922—To warrants.....	\$15 45	July 1, 1921—By balance.....	\$27 33
June 30, 1922—To balance.....	11 88		
	<u>\$27 33</u>		<u>\$27 33</u>
		July 1, 1922—By balance.....	\$11 88

MALIBU RANCH LAND CONDEMNATION FUND.

June 30, 1921—To balance.....	\$7,500 00	July 1, 1920—By balance.....	\$7,500 00
June 30, 1922—To warrants.....	\$7,500 00	July 1, 1921—By balance.....	\$7,500 00
June 30, 1922—To balance.....			
	<u>\$7,500 00</u>		<u>\$7,500 00</u>
		July 1, 1922—By balance.....	

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

INTEREST AND SINKING FUND.

June 30, 1921—To warrants.....	\$141,435 00	July 1, 1920—By balance.....	
June 30, 1921—To balance.....		June 30, 1921—By transfer.....	\$141,435 00
	<u>\$141,435 00</u>		<u>\$141,435 00</u>
June 30, 1922—To warrants.....	\$141,435 00	July 1, 1921—By balance.....	
June 30, 1922—To balance.....		June 30, 1922—By transfer.....	\$141,435 00
	<u>\$141,435 00</u>		<u>\$141,435 00</u>
		July 1, 1922—By balance.....	

PACIFIC COLONY CONTINGENT FUND.

June 30, 1921—To balance.....	\$7,997 99	July 1, 1920—By balance.....	\$3,530 00
		June 30, 1921—By receipts.....	4,467 99
	<u>\$7,997 99</u>		<u>\$7,997 99</u>
June 30, 1922—To warrants.....	\$437 10	July 1, 1921—By balance.....	\$7,997 99
June 30, 1922—To balance.....	13,152 94	June 30, 1922—By receipts.....	5,592 05
	<u>\$13,590 04</u>		<u>\$13,590 04</u>
		July 1, 1922—By balance.....	\$13,152 94

SACRAMENTO STATE BUILDING FUND.

June 30, 1921—To warrants.....	\$1,579 67	July 1, 1920—By balance.....	\$6,550 48
June 30, 1921—To balance.....	4,970 81		
	<u>\$6,550 48</u>		<u>\$6,550 48</u>
June 30, 1922—To warrants.....	\$30,297 30	July 1, 1921—By balance.....	\$4,970 81
June 30, 1922—To balance.....	2,834,893 11	June 30, 1922—By receipts.....	2,860,219 60
	<u>\$2,865,190 41</u>		<u>\$2,865,190 41</u>
		July 1, 1922—By balance.....	\$2,834,893 11

INDUSTRIAL FARM FOR WOMEN CONTINGENT FUND.

June 30, 1921—To balance.....	\$123 00	June 30, 1921—By receipts.....	\$123 00
June 30, 1922—To balance.....	\$350 20	July 1, 1921—By balance.....	\$123 00
		June 30, 1922—By receipts.....	227 20
	<u>\$350 20</u>		<u>\$350 20</u>
		July 1, 1922—By balance.....	\$350 20

SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT, FUND No. 8.

June 30, 1922—To warrants.....	\$84,786 04	June 30, 1922—By balance.....	\$84,786 04
July 1, 1922—To balance.....	\$84,786 04		

PREDATORY ANIMAL CONTROL FUND.

No transactions.

STATEMENT No. 5—Continued.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

CITY OF REDDING AND NORTHERN CALIFORNIA POWER CO., CONDEMNATION FUND.

June 30, 1922—To balance.....	\$57,356 18	June 30, 1922—By receipts.....	\$57,356 18
		July 1, 1922—By balance.....	\$57,356 18

LOS ANGELES-RINDGE CONDEMNATION FUND.

June 30, 1922—To warrant.....	\$2,000 00	June 30, 1922—By receipt.....	\$2,000 00
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WATER COMMISSION REVOLVING FUND.

Act 1921, chapter 854.

June 30, 1922—By warrants.....	\$416 07	June 30, 1922—By transfer.....	\$50,000 00
June 30, 1922—By balance.....	49,583 93		
	\$50,000 00		\$50,000 00
		July 1, 1922—By balance.....	\$49,583 93

DIVISION OF CHEMISTRY FUND.

Act 1921, chapter 729.

June 30, 1922—To warrants.....	\$27,451 81	June 30, 1922—By receipts.....	\$27,114 36
June 30, 1922—To balance.....	5,483 56	June 30, 1922—By transfer.....	5,791 01
	\$32,935 37		\$32,935 37
		July 1, 1922—By balance.....	\$5,483 56

STATE JUNIOR COLLEGE FUND.

Act 1921, chapter 470.

June 30, 1922—To balance.....	\$777,061 32	June 30, 1922—By receipts.....	\$777,061 32
		July 1, 1922—By balance.....	\$777,061 32

STANDARDIZATION FUND.

Act 1921, chapter 719.

June 30, 1922—To warrants.....	\$18,571 47	June 30, 1922—By receipts.....	\$26,973 09
June 30, 1922—To transfer.....	312 00		
June 30, 1922—To balance.....	8,089 62		
	\$26,973 09		\$26,973 09
		July 1, 1922—By balance.....	\$8,089 62

STATEMENT No. 5—Concluded.

Condition of the Several Funds in Seventy-second and Seventy-third Fiscal Years.

WAREHOUSE STANDARDIZATION FUND.

June 30, 1922—To warrants.....	\$1,355 31	June 30, 1922—By transfer.....	\$312 00
		June 30, 1922—By receipts.....	1,043 31
	<u>\$1,355 31</u>		<u>\$1,355 31</u>

GRAIN STANDARDIZATION FUND.

Act 1921, chapter 718.

June 30, 1922—To balance.....	\$2,224 74	June 30, 1922—By receipts.....	\$2,224 74
		July 1, 1922—By balance.....	\$2,224 74

TAX LAND FUND.

Act 1921, chapter 349.

June 30, 1922—To transfer.....	\$755 01	June 30, 1922—By receipts.....	\$755 01
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VETERANS' WELFARE FUND.

Act 1921, chapter 580.

June 30, 1922—To balance.....	\$450,000 00	June 30, 1922—By transfer.....	\$450,000 00
		July 1, 1922—By balance.....	\$450,000 00

VETERANS' FARM AND HOME BUILDING FUND.

Act 1921, chapter 519.

June 30, 1922—To balance.....	\$950,000 00	June 30, 1922—By transfer.....	\$950,000 00
		July 1, 1922—By balance.....	\$950,000 00

VETERANS' DEPENDENTS' EDUCATION FUND.

Act 1921, chapter 349.

June 30, 1922—By balance.....	\$755 01	June 30, 1922—By transfer.....	\$755 01
		July 1, 1922—By balance.....	\$755 01

AIRCRAFT FUND.

Act 1921, chapter 783.

June 30, 1922—To balance.....	\$83 15	June 30, 1922—By receipts.....	\$83 15
		July 1, 1922—By balance.....	\$83 15

AIRCRAFT OPERATORS' FUND.

Act 1921, chapter 783.

June 30, 1922—To balance.....	\$170 00	June 30, 1922—By receipts.....	\$170 00
		July 1, 1922—By balance.....	\$170 00

STATEMENT No. 6.

Disbursements from United States Forest Reserve Fund During the Seventy-second and Seventy-third Fiscal Years Ending June 30, 1921, and June 30, 1922.

County	Seventy-second fiscal year	Seventy-third fiscal year
Alpine	\$4,568 83	\$5,372 31
Amador	500 63	498 56
Butte	2,759 84	1,973 29
Calaveras	1,783 85	2,245 13
Colusa	257 18	246 14
Del Norte	2,261 53	2,235 19
El Dorado	2,828 01	2,816 38
Fresno	11,580 88	13,163 86
Glenn	750 39	718 71
Humboldt	850 05	655 54
Inyo	3,163 09	2,897 31
Kern	1,668 31	1,412 50
Lake	985 54	943 94
Lassen	12,250 06	8,426 69
Los Angeles	4,425 67	5,013 86
Madera	3,594 03	4,250 21
Mariposa	2,012 53	2,472 12
Mendocino	683 34	655 01
Modoc	8,307 83	8,845 52
Mono	5,294 73	5,485 73
Monterey	996 74	622 27
Nevada	1,999 79	2,583 42
Orange	94 89	61 94
Placer	2,965 32	3,738 96
Plumas	28,363 72	19,254 66
Riverside	597 45	458 41
San Bernardino	4,511 80	5,069 24
San Diego	534 57	349 53
San Luis Obispo	291 45	365 07
Santa Barbara	971 24	1,226 57
Shasta	13,636 69	9,978 15
Sierra	5,157 99	6,200 33
Siskiyou	17,253 20	12,748 89
Tehama	4,694 22	3,238 71
Trinity	7,182 72	6,414 74
Tulare	6,720 14	5,531 79
Tuolumne	12,991 60	16,351 06
Ventura	853 39	1,079 40
Yuba	660 07	849 04
Totals	\$181,003 31	\$166,450 18

STATEMENT OF SALES AND REDEMPTIONS FOR DELINQUENT TAXES, JULY 1, 1920, TO JULY 30, 1921.

Sales by the tax collectors under Section 3771 and 3771A of the Political Code.

Counties	Sales to state: taxes, 1915		For the seventy-second fiscal year					For the seventy-third fiscal year					Sales by the state under Section 3897 of the Political Code from July 1, 1920 to June 30, 1922			
	1920	1921	Number of tracts advertised to be sold, taxes, 1915	Number of tracts redeemed or cancelled	Number of tracts sold	Gross amount received from sales	Number of deeds to state for taxes of 1915	Number of tracts advertised to be sold, taxes, 1916	Number of tracts redeemed or cancelled	Number of tracts sold	Gross amount received from sales	Number of deeds to state for taxes of 1916	Number of tracts advertised	Number redeemed or withdrawn	Number sold	Gross amount received from sales
Alameda	4,218	4,405	313	124	90	\$1,158 05	99	334	78	85	\$3,804 84	171	8	8	\$460 13	
Alameda	40	62	10	5	2	602 92	3	7	0	0	0 0	2	0	1	122 09	
Butte	404	278	60	5	2	759 25	35	50	5	7	30 40	37	10	10	286 29	
Clavara	71	47	31	23	5	577 28	3	33	23	6	310 73	6	4	4	2,393 20	
Colusa	1,117	1,116	2	2				2	0	0		0	0	0		
Del Norte	1,118	1,107	08	5	44	463 10	22	08	8	2	257 53	42	0	1	125 88	
Del Norte	0	0	2	2				1	3	1	0 0	0	1	1		
El Dorado	93	120	20	10	4	397 72	6	21	15	4	159 70	3	2	1	79 49	
Francisco	628	628	33	3	24	3,889 00	3	27	18	13	632 00	1	0	2	572 86	
Glenn	167	164	8	7	2	8 36	2	0	2	2	202 00	0	0	0		
Humboldt	176	164	8	17	12	1,085 50	4	34	30	8	305 44	6	14	6	685 91	
Imperial	2,089	1,390	237	120			117	483	381	11	238 46	93	4	2	2 02	
Inyo	90	47	17	10	4	100 90	3	20	11	4	100 90	5	2	2	53 75	
Kern	653	1,012	129	55	52	1,922 15	22	22	26	29	1,858 45	15	13	7	3,794 60	
Kings	308	279	5	4			1	14	5	7	50 85	2	1	0	69 67	
Lake	49	42	67	39	1	7 60	27	95	4	4	26 93	82	4	3	303 00	
Lassen	264	263	33	17	42	1 26	42	15	38	10	5	00	23	23		
Los Angeles	23,795	24,450	2,307	1,327	829	24,674 32	241	3,415	1,464	957	44,107 95	994	0	287	23 264 10,275 56	
Madera	194	214	8	3				11	73	17	3	00				
Marin	273	273	28	8	9	160 54										
Mariposa	113	153	11	1	7	23 77	1	31	23	2	146 10	0	18	1	465 57	
Mendocino	302	318	66	15	1	1 03	40	46	11	35	3	32	2	1	150 00	
Merced	446	426	12	7	2	3 73	3	13	1	8	54 76	4	4			
Modoc	169	182	58	16	7	46 22	35	56	10	4	98 47	4	2	2	0 0	
Monterey	51	15					1	14	00	0	0 00	0	0	0	3,075 00	
Monterey	564	353	128	45	31	90 16	52	222	42	61	395 16	120	26	13	13 2,669 87	
Napa	250	250	90	33	9	179 89	8	35	27	4	25 26	3	0	0		
Nevada	972	943	70	39	31	1,036 00		15	7	8	552 00	0	1	0	8 949 55	
Placer	670	670	224	160	21	1,026 75	122	153	98	17	145 74	38				
Plumas	211	271	0	3	3	20 24	32	54	10	0	0 00	44				
Riverside	2,102	4,331	126	42	67	1,279 35	27	141	55	60	357 48	26	66	13	53 2,019 55	
Sacramento	1,580	1,580	316	296	78	429 83	2	114	72	73	40 17	71	2	1	0 0	
San Benito	80	75	9				25	746	67	7	40 91	3	2	2	118 25	
San Bernardino	2,612	2,335	451	206	66	746 67	89	295	74	78	1,313 25	283	3			
San Diego	3,976	2,883	943	843	221	1,924 41	319	1,924	99	220	3,250 99	1,924	33	11	22 2,098 72	
San Francisco	1,909	2,347	150	93	48	6,089 44	20	175	100	72	11,325 20	20				
San Joaquin	804	804	19	3	307	01 32	2	13	1	1	174 70	2	1	1	58 29	
San Luis Obispo	653	899	120	93	5	785 02	46	123	18	25	549 42	80	77	5	72 2,638 19	
San Mateo	1,582	1,424	149	11	121	1,263 38	17	423	107	129	2,082 52	187	2	2	227 71	
Santa Barbara	178	8	17	8	15	85 60	9	8	5	5	151 00	2	0	0	530 00	
Santa Clara	548	659	19	19	28	251 00	32	202	107	15	271 95	169				
Santa Cruz	304	265	133	4	44	500 51	85	107	10	51	724 88	46				
Shasta	446	275	44	9	8	173 63	84	63	8	6	245 24	47	12	2	10 1,051 84	
Sierra	46	46	21	7	1	171 52	5	12	8	1	209 09	3	5	2	3 1,685 74	
Siskiyou	324	304	290	94	9	903 1	01	8	8	2	9 12	82				
Solano	150	181	14	4	10	38 73	103	63	13	12	19 14	4				
Sonoma	306	423	92	36	43	1,122 67	11	63	28	12	42 91	23	51	2	49 228 02	
Stanislaus	286	652	26	3	13	306 03	3	3	03	5	44 19	5	1	1	369 69	
Sutter	80	85	25	5	25	55 62	2	22	8	14	143 16	0	0	0		
Tahama	212	147	21	4	17	144 27	7	9	5	15	83 42	0	5	1	5 364 65	
Trinity	127	119	13	6				1	8	5	12 80	3				
Tulare	887	863	76	15	47	677 60	14	86	18	29	503 10	30	9	3	6 338 44	
Tuolumne	31	81	17	7				7	19	0	28 51	7	9	6	948 36	
Ventura	344	335	18	14	2	20 38	1	5	24	20	38 10	0	0	0	459 14	
Yolo	113	96	2	2	2	56 44		6	1	8	137 94	0	0	1	178 22	
Yuba	34	29						6	4	2	1,330 00	0	1	0		
Totals	57,046	59,822	7,126	3,343	2,156	\$83,883 15	1,656	8,308	3,180	2,113	\$77,025 64	3,038	705	104	592 \$39,364 35	

Under Section 3771 and 3771-A, Political Code.—Amount for which property was sold to the state for taxes of 1915 and 1916, \$18,057.63.

Gross amount for which this property was sold at auction, \$130,909.79.

It was received from sales, \$112,551.16.

Nett sales resulted in redemptions clearing the record of the lien on 11,937 parcels sold to the state for the taxes of 1915 and 1916.

Receipts from redemptions in which the state has an interest	Property tax	Interest at 7 per cent per annum	Penalties on redemptions	Total	State's portion of tax	State's portion of interest	State's portion of penalties	Total of state's portion	State's portion from sales by the Tax Collector under Sections 3771, 3771A and 3897 of the Political Code	Total state's portion from redemptions and sales
From May 1, 1920 to May 1, 1921	\$88,085 55	\$22,576 46	\$15,469 80	\$126,161 81	\$2,361 10	\$3,297 25	\$684 07	\$6,342 42	\$3,281 51	\$3,281 51
From May 1, 1921 to May 1, 1922	\$1,828 97	\$7,875 23	\$2,704 90	\$15,617 10	\$2,983 34	\$3,088 15	\$684 07	\$6,755 56	\$1,241 42	\$1,241 42
Totals	\$86,212 52	\$30,361 69	\$18,204 70	\$145,778 91	\$3,774 44	\$5,386 00	\$968 49	\$10,149 93	\$4,500 43	\$14,653 40

Total number of Controller's receipts and cancellations from delinquent rolls for the seventy-second and seventy-third fiscal years, 74,645.



STATEMENT No. 22.

Value of Property and Amounts of Taxes Charged to Tax Collectors for the Year 1932 (Exclusive of Railroads Assessed by the State Board of Equalization), and Taxes Due Thereon.

(No ad valorem taxes for State purposes levied this year.)

County	Value of Property										Taxes					
	Operative value of real estate and improvements	Operative value of personal property and amount of money	Operative total value of taxable property	Nonoperative value of real estate and improvements	Nonoperative value of real property and amount of money	Nonoperative total value of taxable property	Operative value of real estate and improvements	Operative value of personal property and amount of money	Operative total value of taxable property	Nonoperative value of real estate and improvements	Nonoperative value of real property and amount of money	Total value of taxable property of railroads as assessed by State Board of Equalization	Total amount of taxes for county purposes	Total amount of taxes for county purposes	Total amount of county taxes	
Alameda	\$13,415,700	\$17,348,600	\$30,764,300	\$205,042,225	\$43,401,331	\$248,443,556	\$586,450	\$322,425	\$908,875	\$2,217,065	\$3,693,411	\$26,408,476	\$306,525,207	\$3,776,342 05	\$507,042 74	\$1,483,384 79
Alpine	42,803	35,830	78,633	1,503,025	256,910	1,759,935	95,876	118,770	214,646	684,157	2,290,94	717,061	812,567	45,758 31	121,290 04	12,196 06
Amador	159,643	115,320	274,963	6,636,950	2,469,625	9,106,575	1,667,035	534,810	2,201,845	23,939,440	3,800,883	27,740,323	39,340,908	197,134 02	72,124 39	913,382 41
Calaveras	61,030	31,500	92,530	314,330	11,345	325,675	345,193	2,805	347,998	6,239,453	922,955	7,182,100	8,014,273	10,026 86	197,707 75	207,734 61
Colusa	377,014	383,864	760,878	1,416,826	2,604,290	4,021,116	1,463,013	1,026,813	2,489,826	10,626,263	1,876,253	12,506,079	32,063 44	409,973 65	442,041 09	
Contra Costa	8,138	581,230	1,199,765	22,589,365	8,908,333	31,497,998	732,833	510,470	1,243,405	35,326,383	12,296,220	47,622,603	8,513,725	494,517 81	942,333 57	1,436,051 38
Del Norte	2,750	12,500	15,250	448,810	243,656	692,466	19,800	19,800	39,600	2,860,635	460,290	8,729,925	12,810 53	196,423 21	209,233 74	
El Dorado	22,700	55,600	78,300	117,790	226,005	343,795	195,100	195,100	390,200	7,953,700	1,207,145	9,160,745	10,597,880	84,822 74	339,791 53	
Fresno	304,630	3,048,990	3,443,620	34,348,365	13,098,595	47,447,160	1,401,495	4,308,010	5,709,505	96,904,939	16,989,912	113,894,010	170,695,150	683,618 88	2,305,688 02	3,389,376 90
Glenn	96,809	238,013	334,822	1,861,633	957,166	2,818,799	180,715	30,210	210,925	18,539,447	2,488,174	21,047,619	24,412,166	33,825 58	57,875 14	412,882 72
Humboldt	1,174,675	513,938	1,688,613	7,096,413	2,750,624	9,847,037	1,419,185	891,075	2,310,260	38,911,755	23,307,356	62,219,111	40,665,304	207,775 49	1,051,971 92	
Imperial	545,130	1,068,315	1,613,445	8,107,382	3,180,885	11,288,267	960,188	74,308	1,034,496	25,075,717	3,613,777	28,689,494	43,238,082	166,241 59	1,150,810 49	6,892,194 32
Inyo	896,848	791	897,639	892,105	328,475	1,220,580	1,251,538	15,573	1,267,111	7,707,568	1,316,498	9,114,124	11,959,534	17,001 84	164,034 22	181,106 06
Kern	1,174,675	965,285	2,139,960	12,665,365	3,821,888	16,491,248	1,419,185	891,075	2,310,260	38,911,755	23,307,356	62,219,111	2,156,877 53	2,599,371 15	4,756,248 68	
Kings	172,915	484,530	657,445	3,014,800	49,850	3,064,650	155,523	19,800	175,323	2,504,330	19,977,875	17,881 44	599,236 23	7,097,077 60	7,097,077 60	
Lake	75	16,085	16,160	489,220	124,795	614,015	2,300	6,720	9,020	5,437,580	639,041	6,116,621	10,192 43	126,009 47	136,191 71	
Mariposa	22,700	73,099	95,799	697,224	191,645	888,869	44,330	329,622	373,952	2,910,795	40,744,578	40,744,578	2,169,877 33	740,763 79	2,910,641 12	
Madera	26,490	19,842	46,332	1,284,255	487,320	1,771,575	558,587	99,837	658,424	15,166,935	2,180,225	17,347,280	30,632 26	3,296 52	30,928 78	
Marietta	148,415	297,237	445,652	1,106,970	1,270,965	2,377,935	30,637	3,000	33,637	4,650,794	4,693,431	9,344,225	268,886 72	397,281 74	666,168 46	
Mendocino	96,667	421,720	518,387	3,058,560	1,557,555	4,616,115	318,628	106,269	424,897	18,438,590	3,096,432	21,765,022	37,323,481	85,380 17	440,682 34	57,041 51
Merced	1,174,675	136,475	1,311,150	940,890	2,320,390	3,261,280	241,750	283,305	525,055	5,016,800	26,170,100	29,186,900	75,380 01	738,034 91	813,414 92	
Modoc	11,100	136,715	147,815	387,455	136,715	524,170	111,100	815,550	926,650	1,766,005	374,810	2,140,815	2,065,465	53,320 37	35,320 37	
Monterey	71,825	373,685	445,510	7,496,000	1,994,990	9,490,990	94,330	329,622	373,952	2,910,795	40,744,578	40,744,578	147,110 34	293,165 43	340,275 77	
Mono	137,900	216,508	354,408	5,637,250	1,360,395	7,197,645	111,100	12,965	124,065	1,038,555	21,196,345	21,816,308	143,952 90	346,342 33	490,295 23	
Nevada	80,200	179,730	259,930	1,799,025	408,345	2,207,370	84,770	90,270	175,040	4,098,795	739,310	4,838,105	5,130,115	64,751 10	190,333 67	255,084 77
Nevada	3,092,435	3,092,435	6,184,870	15,849,400	40,650,600	56,500,000	2,248,470	40,650,600	42,899,070	2,248,470	45,147,540	122,088,221	1,026,822 21	1,026,822 21	2,053,644 42	
Placer	198,530	35,020	233,550	2,602,875	99,104	3,201,979	1,623,598	87,840	1,711,438	9,963,767	9,973,320	19,937,087	82,299 47	288,649 18	370,948 65	
Plumas	405,640	1,902,160	2,307,740	14,862,330	2,551,860	17,414,390	1,838,334	1,312,220	3,150,554	10,094,716	3,490,440	13,585,186	17,275,720	303,666 68	303,666 68	
Butte	3,018,500	10,186,775	13,205,275	54,426,680	12,921,165	67,347,845	642,570	3,138,880	3,781,450	19,316,364	19,316,364	38,632,714	453,550 78	693,214 18	1,146,764 96	
Sacramento	1,000,000	669,335	1,669,335	14,000,355	5,129,535	19,129,890	68,345	3,880,035	4,568,380	9,800,035	1,949,592	10,849,900	42,342 32	274,240 00	316,582 32	
San Bernardino	2,426,250	3,012,410	5,438,660	19,890,940	3,889,740	23,780,680	2,181,840	2,013,870	4,195,710	20,237,100	3,182,280	23,419,380	281,810 17	898,177 85	1,179,988 02	
San Diego	1,599,955	4,957,840	6,557,795	5,829,080	11,148,743	16,976,528	329,885	217,360	547,245	11,953,882	2,093,677	13,957,559	141,332 20	397,825 20	1,811,067 40	
San Francisco	14,437,840	243,828,823	258,266,663	439,227,463	107,884,467	609,151,130	1,014,661	969,355	1,984,016	144,880,445	6,886,210	151,766,655	1,248,580 96	1,248,580 96	2,497,161 92	
San Joaquin	1,790,347	21,888,874	23,679,221	337,221,463	10,145,611	347,364,834	969,355	144,880	1,114,235	47,386,845	6,886,210	54,273,055	867,136 27	2,194,157 12	2,194,157 12	
San Luis Obispo	83,125	709,859	792,984	3,411,305	1,286,342	4,698,347	261,603	313,475	575,078	2,066,570	6,761,820	33,327,354	87,372 23	626,622 97	714,000 20	
Shasta	679,059	1,770,440	2,449,499	14,200,090	1,770,440	15,970,530	146,035	783,588	929,623	15,855,865	1,131,900	17,007,763	318,327 25	316,737 24	635,064 49	
Shasta	114,625	17,040,040	17,154,665	4,033,635	1,770,440	5,804,075	721,890	273,960	995,850	2,740,290	21,904,780	24,095,070	649,834 87	649,834 87	1,299,668 74	
Shasta	1,017,770	13,460,880	14,478,650	35,535,025	7,783,885	43,262,535	240,645	1,163,345	1,304,000	46,882,640	35,178,185	82,056,825	1,143,330 99	1,143,330 99	1,888,159 98	
Shasta	228,460	3,512,860	3,741,320	1,647,270	10,185,700	11,832,970	154,015	296,335	450,350	3,119,220	2,124,185	10,359,505	310,663 63	310,663 63	621,327 26	
Shasta	88,935	1,082,880	1,171,815	1,478,730	905,755	2,384,565	1,018,275	117,835	1,136,110	4,388,285	18,088,775	19,224,885	418,778 40	418,778 40	827,556 80	
Sierra	27,100	8,100	35,200	226,215	78,835	305,105	16,050	17,700	33,750	2,023,400	212,200	2,235,600	6,684 86	61,495 30	68,180 16	
Siskiyou	72,465	365,235	437,700	1,551,215	258,335	1,809,550	1,019,065	804,705	1,823,770	15,759,290	3,263,440	18,462,660	25,956,000	51,326 70	51,326 70	
Solano	91,230	921,964	1,013,194	7,801,810	2,009,500	9,811,310	280,040	422,580	702,620	3,908,365	4,379,985	35,253,270	49,300,665	320,053 61	1,162,897 91	1,491,752 82
Sonoma	184,845	1,022,685	1,207,530	9,638,650	2,628,595	12,267,125	280,040	422,580	702,620	3,908,365	4,379,985	35,253,270	49,300,665	320,053 61	1,162,897 91	1,491,752 82
Stanislaus	1,286,160	1,386,160	2,672,320	12,601,680	3,601,680	16,203,360	1,463,013	1,026,813	2,489,826	10,626,263	1,876,253	12,506,079	32,063 44	409,973 65	442,041 09	
Sutter	4,750	67,136	71,886	486,320	253,305	739,625	28,910	264,444	293,354	3,893,995	3,491,645	7,385,640	18,411 92	349,833 88	368,245 80	
Tehama	75,820	283,905	359,725	1,959,485	999,925	2,959,410	468,125	28,220	496,345	1,398,210	14,009,145	17,825,627	61,334 93	346,023 88	407,367 81	
Tehama	584,420	171,130	755,550	9,350,540	3,128,055	12,478,595	4,133,330	39,840	4,173,170	22,888,680	693,605	23,582,285	293,448 18	107,742 61	1,088,690 79	
Tuolumne	2,790	331,690	334,390	808,445	207,805	1,016,250	1,908,015	385,556	2,293,571	33,867,780	2,789,170	36,656,951	43,083,210	131,219 10	827,615 20	2,090,834 30
Yuba	51,050	576,755	627,805	2,864,480	922,535	3,787,015	38,440	278,810	317,250	818,290	97,327,075	97,32				

STATEMENT No. 12.

Value of Property and Amounts of Taxes Charged to Tax Collectors for the Year 1923 (Exclusive of Railroads Assessed by the State Board of Equalization), and Taxes due thereon. (No Ad Valorem Taxes for State Purposes Levied This Year.)

County	Operative value of real estate and improvements	Operative value of personal property and chattels	Operative value of real estate and improvements	Operative value of personal property and chattels	Non-operative value of real estate and improvements	Non-operative value of personal property and chattels	Operative value of real estate and improvements	Operative value of personal property and chattels	Operative value of real estate and improvements	Operative value of personal property and chattels	Non-operative value of real estate and improvements	Non-operative value of personal property and chattels	Total value of taxable property, exclusive of railroads assessed by State Board of Equalization	Total amount of taxes for county purposes	Total amount of taxes for state purposes	Total amount of county taxes	
Alameda	\$11,709,600	\$18,112,200	\$29,851,310	\$211,329,750	\$44,855,174	\$251,884,923	\$617,275	\$418,025	\$965,300	\$22,873,305	\$3,779,988	\$20,651,290	\$4,076,204 80	\$22,101 48	\$1,108,009 28	\$1,108,009 28	
Albany	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	
Alameda	259,775	28,680	288,455	6,589,119	1,701,995	8,291,405	1,815,410	429,215	2,271,925	2,369,825	3,980,140	38,800,780	216,181 91	852,250 49	1,068,531 49	1,068,531 49	
Alameda	16,400	303,270	319,670	1,186,896	555,390	2,021,970	28,900	98,820	126,220	16,723,765	8,036,700	25,760,465	17,078 35	182,075 52	199,153 87	199,153 87	
Alameda	624,311	368,210	1,192,525	23,034,117	7,363,985	30,118,100	919,875	368,155	1,418,590	30,948,190	10,988,865	47,037,805	5,047,367 41	1,001,210 27	1,011,788 54	1,011,788 54	
Alameda	11,700	15,170	26,870	113,960	262,960	713,960	1,828,800	1,828,800	1,828,800	1,828,800	1,828,800	1,828,800	25,916 05	23,917 25	23,917 25	23,917 25	
Alameda	11,700	15,170	26,870	113,960	262,960	713,960	1,828,800	1,828,800	1,828,800	1,828,800	1,828,800	1,828,800	25,916 05	23,917 25	23,917 25	23,917 25	
Alameda	182,000	3,018,100	38,388,800	11,827,917	50,213,042	1,411,010	4,811,887	6,253,745	97,701,965	14,776,600	111,908,625	172,036,422	1,222,248 98	3,179,908 38	4,405,157 83	4,405,157 83	
Alameda	18,100	278,220	296,320	1,875,134	2,003,210	3,878,344	1,288,647	227,992	1,288,647	2,316,747	25,914 82	25,914 82	37,750 23	401,801 61	439,551 84	439,551 84	
Alameda	28,112	282,210	820,322	2,159,192	3,376,167	128,141	29,950	34,200,430	357,210	8,874,832	29,075,292	39,209,261	211,833 61	843,182 10	1,465,015 71	1,465,015 71	
Alameda	36,000	2,030,327	2,596,283	8,751,274	2,010,557	11,001,831	931,115	95,229	1,026,335	26,249,557	3,710,124	29,000,981	45,234,590	10,479,752 57	626,173 67	81,026 21	81,026 21
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	
Alameda	1,229,874	1,001,845	2,292,680	16,427,740	16,821,740	8,939,730	1,822,635	109,416,700	26,139,455	135,006,115	165,322,265	185,581 00	1,380,285 01	2,088,297 01	2,088,297 01	2,088,297 01	
Alameda	7,928	167,800	542,728	3,003,755	984,185	3,987,240	156,018	167,381	323,309	17,438,170	2,251,610	19,689,810	24,341,177	98,184 82	601,477 16	702,661 98	702,661 98
Alameda	10,885	16,000	30,885	106,975	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480	15,480
Alameda	2,000	24,000	26,000	74,000	194,500	243,250	47,660	123,042	165,716	3,387,154	19,080,618	13,108,994	13,108,994	265,310 20	282,289 83	282,289 83	282,289 83
Alameda	30,200,900	157,991,411	209,283,311	880,062,770	247,207,285	1,127,270,055	3,561,145	7,740,650	11,297,105	127,672,654	29,514,810	192,287,471	1,540,138,636	11,767,272 27	2,180,103 22	18,247,040 94	18,247,040 94
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	210,647 30
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	81,627	42,009	123,636	1,001,170	1,427,251	4,456,241	341,686	1,393	416,379	18,130,200	2,883,220	21,013,520	26,282,637	80,128 48	201,602 81	281,731 29	281,731 29
Alameda	163,574	163,574	327,148	2,186,930	1,013,211	3,199,141	296,010	296,010	296,010	2,774,230	2,774,230	2,774,230	79,883 27	79,883 27	83,845 01	83,845 01	
Alameda	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	229,114 84
Alameda	139,400	213,910	353,310	6,620,275	1,562,265	7,196,480	105,145	14,395	119,740	12,249,510	2,149,500	14,484,240	22,023,830	141,051 00	346,660 00	487,711 18	487,711 18
Alameda	29,000	179,100	208,100	1,729,650	411,195	2,140,845	901,185	339,615	1,280,800	16,272,740	3,107,340	19,380,080	61,281 00	429,660 00	490,941 00	490,941 00	490,941 00
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	210,647 30
Alameda	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	229,114 84
Alameda	139,400	213,910	353,310	6,620,275	1,562,265	7,196,480	105,145	14,395	119,740	12,249,510	2,149,500	14,484,240	22,023,830	141,051 00	346,660 00	487,711 18	487,711 18
Alameda	29,000	179,100	208,100	1,729,650	411,195	2,140,845	901,185	339,615	1,280,800	16,272,740	3,107,340	19,380,080	61,281 00	429,660 00	490,941 00	490,941 00	490,941 00
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	210,647 30
Alameda	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	229,114 84
Alameda	139,400	213,910	353,310	6,620,275	1,562,265	7,196,480	105,145	14,395	119,740	12,249,510	2,149,500	14,484,240	22,023,830	141,051 00	346,660 00	487,711 18	487,711 18
Alameda	29,000	179,100	208,100	1,729,650	411,195	2,140,845	901,185	339,615	1,280,800	16,272,740	3,107,340	19,380,080	61,281 00	429,660 00	490,941 00	490,941 00	490,941 00
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	210,647 30
Alameda	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	229,114 84
Alameda	139,400	213,910	353,310	6,620,275	1,562,265	7,196,480	105,145	14,395	119,740	12,249,510	2,149,500	14,484,240	22,023,830	141,051 00	346,660 00	487,711 18	487,711 18
Alameda	29,000	179,100	208,100	1,729,650	411,195	2,140,845	901,185	339,615	1,280,800	16,272,740	3,107,340	19,380,080	61,281 00	429,660 00	490,941 00	490,941 00	490,941 00
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	21,300	37,169	67,468	808,820	315,335	1,214,253	1,238,141	530,117	1,356,258	7,057,050	12,391,008	20,156,000	201,656 00	180,991 30	210,647 30	210,647 30	210,647 30
Alameda	67,711	16,618	199,882	1,393,270	217,169	1,610,450	538,434	118,770	9,006	6,522,167	16,611	6,538,778	50,655 48	17,086 36	229,114 84	229,114 84	229,114 84
Alameda	139,400	213,910	353,310	6,620,275	1,562,265	7,196,480	105,145	14,395	119,740	12,249,510	2,149,500	14,484,240	22,023,830	141,051 00	346,660 00	487,711 18	487,711 18
Alameda	29,000	179,100	208,100	1,729,650	411,195	2,140,845	901,185	339,615	1,280,800	16,272,740	3,107,340	19,380,080	61,281 00	429,660 00	490,941 00	490,941 00	490,941 00
Alameda	37,200,000	15,700	15,700	1,840,000	300,075	1,776,075	441,289	221,184	688,472	15,284,915	1,803,757	17,088,600	10,633,130	31,267 82	301,341 60	332,609 42	332,609 42
Alameda	21,300	37,169	67,468	808,													



STATEMENT No. 8.

Statement of the Assessed Valuation of the Various Railroads, Upon Assessments Made by the State Board of Equalization for the Year 1921.

(No ad valorem taxes for State purposes this year.)

Name of each railroad assessed by the State Board of Equalization	Number of miles of railroad operated in the state	Total value per mile of each railroad	Total assessed valuation
Central Pacific Railway Company	1,212.413	\$31,000	\$37,584,803
South Pacific Coast Railway Company	84.048	40,000	3,361,920
Northwestern Pacific Railroad Company	490.49	20,000	9,809,800
Southern Pacific Railroad Company	2,624.274	40,000	104,970,960
The Atchison, Topeka and Santa Fe Railway Co.	1,403.47	31,000	43,507,570
Western Pacific Railroad Company	415.306	27,000	11,213,262
Sacramento Northern Railroad	147.16	11,000	1,618,760
Los Angeles and Salt Lake Railroad Company	241.22	30,000	7,236,600
San Francisco-Sacramento Railroad Company	97.80	8,000	782,400
Pacific Electric Railway Company	578.988	22,000	12,737,736
Pajaro Valley Consolidated Railroad Company	41.360	6,300	260,568
Tonopah and Tidewater Railroad Company	138.12	5,000	690,600
Sierra Railroad Company of California	75.95	9,000	683,550
Yosemite Valley Railroad Company	78.429	11,000	862,719
Lake Tahoe Railway and Transportation Company	16.47	4,000	65,880
Tidewater Southern Railway Company	61.40	7,000	429,800
San Francisco, Napa and Calistoga Railway	41.659	13,000	541,567
Trona Railway Company	30.397	5,700	173,262
California Central Railroad Company	7.947	3,000	23,841
Central California Traction Company	55.70	8,500	473,450
Nevada County Narrow Gauge Railroad Company	20.654	10,000	206,540
Nevada-California-Oregon Railway Company	157.35	2,500	393,375
Pacific Coast Railway Company	99.58	3,000	298,740
The Pullman Company	4,570.964	1,200	5,485,156
Totals	12,691.149		\$243,412,859

STATEMENT No. 9.

Statement of Assessed Valuations of the Various Railroads, Upon Assessment Made by the State Board of Equalization for the Year 1922.

(No ad valorem taxes for State purposes this year.)

Name of each railroad assessed by the State Board of Equalization	Number of miles of railroad operated in the State	Total value per mile of each railroad	Total assessed valuation
Central Pacific Railroad Company	1,212.527	\$38,750 00	\$46,985,421 00
South Pacific Coast Railway Company	84.048	50,000 00	4,202,400 00
Northwestern Pacific Railroad Company	490.26	30,000 00	14,707,800 00
Southern Pacific Railroad Company	2,624.081	50,000 00	131,204,050 00
The Atchison, Topeka and Santa Fe Railway Company	1,444.98	33,330 00	48,161,183 00
Western Pacific Railroad Company	441.456	19,700 00	8,696,683 00
Sacramento Northern Railroad	149.90	11,870 00	1,779,313 00
Los Angeles and Salt Lake Railroad Company	257.59	43,700 00	11,256,683 00
San Francisco-Sacramento Railroad Company	97.80	15,950 00	1,559,910 00
Pacific Electric Railway Company	578.988	32,300 00	18,701,312 00
Pajaro Valley Consolidated Railroad Company	40.033	4,920 00	196,962 00
The Tonopah and Tidewater Railroad Company	138.12	4,090 00	564,911 00
Sierra Railway Company of California	75.95	17,600 00	1,336,720 00
Yosemite Valley Railroad Company	78.429	15,035 00	1,179,180 00
Lake Tahoe Railway and Transportation Company	16.47	3,260 00	53,692 00
Tidewater Southern Railway Company	61.42	4,320 00	265,334 00
San Francisco, Napa and Calistoga Railway Company	42.394	13,000 00	551,122 00
Trona Railway Company	30.397	3,050 00	92,710 00
California Central Railroad Company	7.947	11,082 00	88,069 00
Central California Traction Company	55.70	14,800 00	824,369 00
Nevada County Narrow Gauge Railroad Company	20.654	11,230 00	231,944 00
Nevada-California-Oregon Railway Company	157.35	3,000 00	472,050 00
Pacific Coast Railway Company	99.58	3,670 00	365,459 00
The Pullman Company	4,840.964	1,000 00	4,840,964 00
Totals	13,053.224		\$298,318,232 00

STATEMENT No. 14.

Mileage and Commissions for Collecting and Paying in Revenues Belonging to the State for the Seventy-second and Seventy-third Fiscal Years, Ending June 30, 1921, and June 30, 1922, respectively.

Counties	Seventy-second fiscal year			Seventy-third fiscal year		
	Treasurer's expenses	Treasurer's commission and appraiser's fees on inheritance taxes	Total	Treasurer's expenses	Treasurer's commission and appraiser's fees on inheritance taxes	Total
Alameda	\$18 08	\$10,605 45	\$10,623 53	\$22 69	\$7,548 31	\$7,571 00
Alpine	85 83	1 15	86 98	43 44		43 44
Amador	12 36	3 46	15 82	13 18	48 26	61 44
Butte	8 04	571 42	579 46	9 54	1,666 87	1,676 41
Calaveras		42 65	42 65		99 97	99 97
Colusa	7 67	38 50	46 17		391 07	391 07
Contra Costa	12 22	868 19	880 41	10 26	863 15	873 41
Del Norte	133 41	4 63	138 04			
El Dorado	12 23	238 52	250 75	12 28	101 17	113 45
Fresno	36 53	2,931 34	2,967 87	19 73	1,484 96	1,504 69
Glenn	8 00	453 48	461 48	15 10	248 89	263 99
Humboldt	42 78	852 20	894 98	89 89	263 46	353 35
Imperial	163 04	497 97	661 01	179 05	21 76	200 81
Inyo	65 78	64 29	130 07	74 43	23 39	97 82
Kern	60 27	162 67	222 94	28 16	263 55	291 71
Kings	22 29	14 95	37 24		30 25	30 25
Lake		171 53	171 53			
Lassen	100 00	14 18	114 18	102 50	60 79	163 29
Los Angeles	48 62	20,049 44	20,098 06	93 88	24,021 16	24,115 04
Madera	24 05	410 04	434 09		85 00	85 00
Marin	28 56	1,370 88	1,399 44	24 18	2,276 23	2,300 41
Mariposa		99 28	99 28			
Mendocino		307 07	307 07		32 84	32 84
Merced		198 76	198 76		265 34	265 34
Modoc	94 37	40 92	135 29	108 24	267 99	376 23
Mono	53 40	13 35	66 75			
Monterey		329 84	329 84		737 38	737 38
Napa	6 14	975 68	981 82		1,088 29	1,088 29
Nevada	22 48	43 50	65 98	19 17	180 09	199 26
Orange	112 30	1,364 89	1,477 19	103 93	1,457 74	1,561 67
Placer	10 28	154 56	164 84	8 84	63 74	72 58
Plumas	52 76	46 83	99 59	54 81	31 04	85 85
Riverside	110 64	786 21	896 85	58 67	373 64	432 31
Sacramento		2,744 27	2,744 27		3,861 80	3,861 80
San Benito	47 28	17 01	64 29		69 19	69 19
San Bernardino	118 39	2,131 42	2,249 81	120 54	1,148 95	1,269 49
San Diego		2,511 03	2,511 03	51 90	3,700 25	3,752 15
San Francisco		20,944 90	20,944 90		21,394 31	21,394 31
San Joaquin	10 98	2,801 72	2,812 70	4 65	3,393 47	3,398 12
San Luis Obispo		469 83	469 83	35 90	501 92	537 82
San Mateo		545 10	545 10		5,162 55	5,162 55
Santa Barbara	48 33	2,424 53	2,472 86	105 63	1,613 52	1,719 15
Santa Clara	30 77	3,596 84	3,627 61	33 62	3,640 40	3,674 02
Santa Cruz	41 48	611 80	653 28	16 53	1,491 53	1,508 06
Shasta	19 79	4 94	24 73	42 59	13 17	55 76
Sierra		14	14			
Siskiyou		413 22	413 22		174 98	174 98
Solano	19 81	1,252 62	1,272 43	21 66	1,152 78	1,174 44
Sonoma	12 10	479 16	491 26	23 70	1,149 19	1,172 89
Stanislaus	40 43	471 90	512 33	11 91	585 17	597 08
Sutter	4 24	305 98	310 22		204 27	204 27
Tehama	31 80	92 70	124 50	34 47	495 98	530 45
Trinity					7 64	7 64
Tulare	45 45	771 38	816 83	43 05	528 59	571 64
Tuolumne		7 44	7 44		32 41	32 41
Ventura		1,065 92	1,065 92		302 78	302 78
Yolo		1,007 44	1,007 44	4 64	1,210 54	1,215 18
Yuba	5 22	107 18	112 40		337 99	337 99
Totals	\$1,828 20	\$88,506 30	\$90,334 50	\$1,642 76	\$96,169 71	\$97,812 47

STATEMENT No. 16.

Values of Property in, and Indebtedness of Each County for the Year 1931, and Rates of Taxation.
(No rate for State purposes this year.)

County	Classification	Number of acres of land assessed	Value of real estate	Value of improvements on real estate	Value of personal property	Money and credits	Value of nonoperative property	Value of property assessed on operative roll	Total value of property as returned by auditors	Value of railroads as assessed by State Board of Equalization	Grand total of all property	Funded debt	Floating debt with estimated interest	Total county indebtedness	Total county rate of taxation on each \$100 (no state rate)	Inside	Outside
Alameda	3d Class	459,796	\$149,324,640	\$78,430,650	\$44,842,705	\$2,254,037	\$274,852,032	\$31,673,175	\$306,525,207	\$7,519,092	\$314,044,299	\$105,000 00	\$11,211 80	\$116,211 80	1.52	1.92	
Alpine	5th Class	48,185	549,397	114,790	32,904		95,876	812,937	812,937		812,937		7,587 46	7,587 46	2.60	3.00	
Amador	4th Class	363,019	2,855,078	1,174,790	1,110,809		6,577,131	6,577,131	6,577,131		6,577,131				2.16	2.60	
Butte	Class	808,906	24,287,920	6,308,470	6,163,418	107,090	36,866,808	2,476,710	39,343,608	4,975,890	44,319,507	500,000 00		500,000 00	2.35	2.75	
Calaveras	4th Class	510,804	5,062,020	1,511,845	1,200		7,608,775	405,598	8,014,373	563,770	8,578,143			262,000 00	2,620,000 00	1.60	2.20
Colusa	4th Class	630,375	15,646,225	2,397,185	2,554,073	42,000	20,639,483	553,702	21,193,185	3,028,550	24,221,735			2,561,000 00	2,561,000 00	1.57	1.98
Colusa (City)	13th Class	450,426	33,551,525	24,291,525	21,140,080		24,803,725	2,443,170	27,246,895	8,892,962	36,139,857						
Del Norte	54th Class	222,673	8,327,190	391,255	702,960		9,422,391	35,050	9,457,441	9,457,441	170,000 00		6,849 88	176,849 88	1.85	2.25	
El Dorado	4th Class	860,776	7,248,855	1,568,025	1,613,550	1,600	10,251,890	1,057,580	11,309,470	1,208,160	11,507,630			100,000 00	100,000 00	1.60	2.00
Fresno	4th Class	2,176,590	97,861,434	38,582,000	29,372,740	816,165	161,935,105	10,573,274	172,508,379	12,037,374	184,545,753	4,800,000 00		4,800,000 00	2.80	3.20	
Glenn	3rd Class	626,770	12,937,604	2,485,444	3,489,890		17,912,938	1,747,747	19,660,685	3,191,791	22,852,476	450,000 00		450,000 00	1.20	1.80	
Humboldt	10th Class	1,681,437	28,756,640	4,645,565	7,142,577		38,069,254	1,096,250	39,165,504	2,495,400	41,660,904			42,560,904	2.25	2.90	
Imperial	17th Class	1,171,860	27,752,002	6,033,397	6,794,642		40,580,941	2,657,141	43,238,082	4,272,051	47,510,133		25,649 35	1,525,649 35	1.40	1.80	
Kern	4th Class	2,927,515	6,505,452	2,054,511	1,615,561	31,380	10,394,704	1,654,750	11,950,454	4,755,110	16,714,564			1,500,000 00	1,500,000 00	1.46	1.80
Kings	20th Class	3,486,956	121,323,273	14,778,878	26,699,846	159,395	163,231,392	10,561,145	173,792,537	12,240,494	186,033,031			2,445,000 00	2,445,000 00	1.07	1.47
Kings	20th Class	835,159	16,399,130	4,089,195	3,687,110		24,175,435	862,798	25,038,233	3,168,552	28,206,785			510,000 00	510,000 00	2.40	3.00
Lake	51st Class	371,883	4,642,465	1,304,335	1,740,770	29,070	6,730,640	25,180	6,755,820	6,755,820	16,200 00		1,130 52	17,330 52	1.66	2.06	
Lassen	4th Class	940,743	8,674,425	2,485,560	2,855,849		12,778,834	106,141	12,884,975	3,664,880	16,549,855			100,000 00	1,400 00	1.40	1.85
Los Angeles	1st Class	1,177,796	612,073,810	300,555,885	232,505,965	\$30,127,988	1,175,262,858	214,452,245	1,389,715,103	24,849,614	1,414,564,717	2,801,000 00	887,942 02	3,688,942 02	1.23	1.73	
Madera	37th Class	820,098	14,677,370	1,753,840	2,667,245	400	19,098,855	19,833,881	22,632,009	2,635,820	25,267,829			2,635,820 00	1.75	2.15	
Marin	25th Class	306,075	14,800,850	6,403,530	2,884,160	53,555	24,142,005	792,627	24,934,632	1,793,200	26,727,832			2,667,922 00	2.19	2.59	
Mariposa	5th Class	382,858	3,212,112	546,378	866,464	4,644	4,659,794	4,693,431	9,353,225	3,296,388	12,649,613			2,996,388 00	2.00	2.40	
Merced	28th Class	1,808,668	18,222,850	3,094,300	4,811,837	52,150	26,381,137	942,344	27,323,481	2,506,400	29,829,881	47,500 00	2,089 29	49,689 29	1.85	2.25	
Merced	27th Class	1,186,380	10,079,934	4,406,454	5,905,439	63,056	29,443,474	473,285	29,916,759	4,951,894	34,868,653	1,250,000 00		1,250,000 00	2.30	2.90	
Modoc	52d Class	746,329	5,071,860	1,151,835	1,755,445	77,815	5,938,895	243,500	6,182,395	170,375	6,352,770	400,000 00		400,000 00	1.95	2.50	
Monterey	17th Class	187,340	1,844,825	221,480	374,810		2,219,635	6,065,465	8,285,100	4,102,570	12,387,670			1,200,000 00	1.50	2.00	
Monterey	24th Class	1,487,594	25,747,795	6,667,820	7,509,321		39,925,126	819,462	40,744,578	5,507,176	46,251,754	232,000 00		232,000 00	1.55	1.95	
Napa	31st Class	447,709	11,730,420	5,946,885	6,661,810	15,560	21,354,475	461,588	21,816,063	2,602,762	24,418,825			700,000 00	2.00	2.45	
Nevada	30th Class	837,775	13,939,570	3,139,250	3,139,250		17,218,070	1,146,166	18,364,236	1,146,166	19,510,402			350,000 00	3.50	4.00	
Orange	10th Class	444,388	58,924,490	21,403,955	35,270,910	129,830	115,729,585	6,479,036	122,208,621	6,347,990	128,556,171	1,468,000 00		1,468,000 00	1.50	1.90	
Placer	4th Class	627,543	8,144,165	3,626,030	1,482,149	13,400	13,245,744	1,941,018	15,186,762	3,728,401	18,915,163			95,100 00	2.50	2.90	
Plumas	5th Class	540,134	8,929,791	1,164,955	3,479,460	10,690	13,585,186	3,150,564	16,735,750	3,077,924	19,813,674	95,100 00		95,100 00	2.75	3.15	
Riverside	15th Class	1,809,190	23,571,400	10,809,190	14,808,180		38,608,600	3,881,870	42,490,470	3,392,411	45,882,881			1,235,000 00	2.70	3.10	
Sacramento	7th Class	584,535	67,665,871	26,824,030	16,551,525	1,184,522	112,253,954	15,663,225	127,917,179	5,863,203	133,000,382	3,016,100 00	15,853 00	3,032,953 00	1.70	2.14	
San Benito	43d Class	100,098	8,131,225	2,169,165	2,431,460		12,731,850	736,730	13,468,580	14,207,227	213,000 00			213,000 00	2.25	2.50	
San Bernardino	4th Class	2,413,961	13,523,990	16,533,140	7,059,490	39,330	54,161,950	9,641,470	63,803,420	23,708,289	87,511,709	1,800,000 00	183,750 00	1,983,750 00	2.457	2.94	
San Diego	5th Class	1,400,067	14,406,962	5,406,962	6,949,406	949,406	80,836,002	6,105,806	87,041,808	3,392,411	90,434,059	3,152,000 00		3,152,000 00	2.11	2.55	
San Francisco	3d Class	29,760	267,625,295	204,022,007	99,491,146	14,385,316	609,911,764	257,221,463	867,133,227	480,777	867,614,004	49,722,600 00		49,722,600 00	3.47	3.87	
San Joaquin	8th Class	826,858	56,105,825	21,457,960	16,243,028	786,875	97,563,686	5,049,696	102,613,382	8,147,717	110,761,099	1,400,000 00		1,400,000 00	1.70	2.30	
San Joaquin	8th Class	1,452,968	19,413,050	4,452,968	8,048,162		31,916,057	1,160,515	33,076,572	3,084,918	36,161,472	1,546,000 00		1,546,000 00	1.85	2.30	
San Mateo	21st Class	305,850	29,272,845	10,644,145	2,559,119	209,495	35,915,569	7,708,427	43,623,991	1,447,942	45,071,933	1,242,200 00		1,242,200 00	2.015	2.415	
Santa Barbara	16th Class	1,040,135	22,314,180	11,141,450	11,335,475	2,740	36,622,525	5,603,625	42,226,150	5,957,456	48,183,606	250,000 00		250,000 00	2.00	2.40	
Santa Clara	16th Class	748,807	11,606,325	30,701,140	13,410,420	691,010	96,496,095	15,627,375	112,123,470	1,869,489	113,992,959	260,000 00		260,000 00	1.72	2.15	
Santa Cruz	35th Class	209,790	5,276,790	6,175,890	2,820,370		14,273,050	2,128,505	16,401,555	3,808,345	20,210,000	1,040,000 00		1,040,000 00	2.00	2.40	
Shasta	35th Class	1,541,640	10,276,320	2,680,875	2,896,670	20,150	15,574,085	2,190,000	18,064,175	2,589,830	20,654,005			2,040,000 00	2.40	3.00	
Sierra	56th Class	327,582	1,784,795	464,475	280,135	1,000	2,541,305	68,920	2,610,225	320,635	2,930,860			2,930,860 00	2.25	2.75	
Siskiyou	33d Class	1,031,216	13,985,995	3,421,480	3,978,523	10,695	21,408,995	2,086,995	23,495,990	4,850,260	28,346,250			140,000 00	2.00	2.60	
Solano	10th Class	527,655	16,919,520	13,400,455	4,299,086	30,370	32,288,083	1,654,662	33,942,745	3,478,095	37,420,840			140,000 00	1.65	2.05	
Sonoma	14th Class	922,880	28,807,320	11,704,495	6,871,635	36,865	47,420,513	1,910,150	49,330,663	4,071,120	53,401,783			1,752,000 00	2.70	3.30	
Stanislaus	14th Class	870,305	32,840,470	9,882,815	8,698,425	165,000	51,388,710	2,324,865	53,713,575	4,311,139	58,024,714	1,431,000 00		1,431,000 00	1.90	2.30	
Sutter	4th Class	1,377,413	12,873,885	2,977,885	3,447,360	11,800	18,300,000	1,708,427	20,008,427	19,841,881	39,850,308			799,000 00	2.08	2.58	
Tehama	30th Class	1,358,370	10,703,660	2,654,665	4,380,595	12,900	19,867,855	8,647,075	28,514,930	2,589,830	31,104,760			2,200,000 00	2.35	2.95	
Trinity	54th Class	601,687	2,585,740	3,624,845	3,220	3,220	3,524,755	72,880	3,597,635	246,000	3,843,235			799,000 00	2.08	2.58	
Tulare	11th Class	1,440,31															

STATEMENT No. 17.

Values of Property in, and Indebtedness of, Each County for the Year 1922, and Rates of Taxation. (No Rate for State Purposes This Year).

Counties	Classification	Number of acres of land assessed	Value of real estate	Value of improvements on real estate	Value of personal property	Money and solvent credits	Value of non-operative property	Value of property assessed on operative roll	Total value of property as returned by auditors	Value of railroads as assessed by State Board of Equalization	Grand total of all property	Funded debt	Floating debt with estimated interest	Total county indebtedness	Total county rate of taxation on each \$100 (No state rate)	Inside	Outside
Alameda	3d class	452,294	\$151,557,375	\$82,645,375	\$45,440,126	\$1,895,032	\$281,538,213	\$30,816,610	\$312,354,823	\$8,656,278	\$321,011,184	\$56,000 00	\$19,690 67	\$75,690 67	\$1 56	\$1 96	
	58th class	47,983	544,127	108,989	50,041		708,148	96,036	804,184		804,184		7,587 46	7,587 46		2 40	1 90
	43th class	398,181	1,301,258	680,387	1,870,211		666,529	666,529	1,401,950		1,401,950					3 40	2 41
	22d class	932,333	24,242,365	6,309,700	5,626,660	58,775	36,237,200	2,563,080	38,800,780	5,348,317	44,149,097	1,800,000 00		1,800,000 00		3 10	3 05
	49th class	530,896	5,081,250	1,462,485	888,495	150	7,432,350	406,520	7,838,870	765,990	8,604,860					2 08	2 48
	42d class	630,575	15,619,175	2,590,270	3,365,084	18,190	21,523,020	530,490	22,144,490	7,352,747	29,577,166	249,000 00		249,000 00		1 80	2 30
	13th class	450,623	1,363,870	267,730	18,250,690	67,760	75,530,835	2,316,015	77,846,850	7,233,669	85,080,519	2,461,000 00		2,461,000 00		2 20	2 22
	14th class	222,480	8,160,985	398,133	739,277		8,900,262	83,530	9,033,447		9,033,447	160,000 00		160,000 00		2 15	2 55
	El Dorado	721,699	7,199,360	1,584,730	1,192,775	2,575	9,959,440	334,485	10,293,925	1,510,200	11,804,125	96,000 00		96,000 00		2 50	2 90
	4th class	2,178,000	95,697,410	40,488,530	25,348,398	655,309	162,184,367	9,871,755	172,056,322	14,430,563	186,306,885	4,800,000 00		4,800,000 00		2 44	2 84
	38th class	631,330	17,652,475	2,528,238	14,313		23,244,421	2,322,428	25,566,849		25,566,849	435,000 00		435,000 00		2 35	2 90
	Humboldt	1,048,381	29,818,435	4,718,635	6,805,805	228,524	39,841,729	1,177,332	40,929,261	3,318,370	44,347,631	1,500,000 00		1,500,000 00		2 35	2 90
	17th class	1,102,638	6,620,981	2,860,931	41,621,912	19,550	41,621,912	45,244,530	52,670,066		52,670,066	1,500,000 00	8,630 26	1,508,630 26		1 67	2 07
	Inyo	260,411	6,635,692	2,176,631	1,887,095		10,728,968	1,652,940	12,391,088	1,652,940	14,044,028					1 66	2 00
	Kern	3,575,576	107,738,590	14,911,485	29,061,285	145,800	152,777,566	12,375,045	165,362,205	15,113,532	180,465,737	2,405,000 00		2,405,000 00		1 10	1 40
	King	299,485	16,391,710	3,281,130	2,233,125		23,627,967	807,127	24,444,177	7,753,341	28,297,518	483,000 00		483,000 00		1 37	1 67
	Lake	367,598	4,502,180	1,345,990	6,370,575	10,305	6,379,150	41,040	6,820,190		6,820,190	13,500 00		13,500 00		1 98	2 38
	Lassen	507,080	8,657,540	1,763,296	2,582,017		13,002,853	196,141	13,198,994	3,844,284	17,043,278	100,000 00		100,000 00		1 80	2 20
	Los Angeles	1,283,233	684,214,583	355,660,840	24,345,104	32,438,997	1,319,557,526	220,581,110	1,540,138,636	33,253,521	1,573,418,157	2,705,000 00	907,329 00	3,612,329 00		1 31	1 81
	Modoc	824,623	14,716,580	1,848,355	2,199,770	80	18,944,765	768,771	19,623,136	8,118,943	27,742,079					1 89	2 29
	Marin	303,291	14,812,960	6,565,900	24,023,170	152,890	24,023,170	739,445	24,762,615	2,716,800	27,479,415					2 19	2 59
	Mariposa	393,200	3,226,716	536,789	759,739	4,612	4,524,836	42,171	4,567,027	810,462	5,377,489					2 40	2 80
	Mendocino	1,798,598	18,018,910	3,171,699	4,254,560	36,524	25,841,534	901,103	26,742,637	3,560,680	30,243,317	1,230,000 00	1,000 25	1,230,000 00		2 00	2 40
	Merced	1,188,376	19,061,916	4,753,987	29,917,871	18,230	29,917,871	553,380	30,070,884	5,934,373	36,005,257					2 30	2 90
	Miner	524,236	5,057,250	1,140,365	1,756,185	34,030	7,988,330	242,970	8,231,000	267,360	8,498,360	400,000 00		400,000 00		2 30	2 65
	Monterey	194,610	1,504,610	294,020	338,585	6,690	2,233,905	1,254,659	3,488,564	1,296,381	4,784,945					1 50	1 90
	Mount Shasta	1,480,211	25,785,070	6,541,560	5,783,995		38,170,655	928,425	39,099,080	6,787,970	45,887,050	181,000 00		181,000 00		1 35	2 29
	Napa	411,883	11,877,421	6,037,344	3,640,830	15,905	21,580,730	473,110	22,053,840	3,244,532	25,298,372	500,000 00		500,000 00		1 30	1 60
	Nevada	393,507	3,408,960	2,393,415	1,179,200	7,235	6,988,810	1,216,620	8,205,430	1,393,157	9,598,587					3 00	3 50
	Orange	444,377	63,100,300	29,233,395	44,028,570	80,030	136,418,295	7,135,175	143,553,470	7,831,736	151,415,206	1,400,000 00		1,400,000 00		1 50	1 90
	22d class	399,427	8,572,745	4,030,355	1,327,030	13,000	14,005,964	1,939,010	15,944,974	4,371,368	20,327,342					2 48	2 88
	Plumas	536,880	10,853,880	1,983,560	2,937,882		17,821,662	4,747,659	22,569,321		22,569,321	95,100 00		95,100 00		3 05	3 55
	Riverside	1,751,415	23,603,100	11,123,270	4,037,630	4,450	38,768,630	3,128,550	41,897,200	11,965,440	53,862,640	1,230,000 00		1,230,000 00		2 53	3 13
	Sacramento	501,796	60,848,464	28,135,605	14,984,856	963,877	110,932,802	15,394,950	126,327,752	6,564,443	132,892,195	2,800,000 00	45,610 00	2,845,610 00		2 00	2 46
	43d class	638,238	8,153,180	2,339,080	2,308,770		12,801,190	518,225	13,319,415	377,608	14,291,963	200,000 00		200,000 00		2 43	2 70
	40th class	307,242	17,690,860	6,310,065	29,805		29,805	64,636,376	29,714,221	94,350,597	1,730,000 00	180,000 00		1,910,000 00		3 05	3 55
	San Bernardino	1,212,747	55,503,560	14,503,070	12,775,295	455,787	82,064,712	6,188,925	88,951,637	3,610,411	92,562,048	3,064,000 00		3,064,000 00		1 96	2 71
	San Francisco	29,790	296,908,570	122,462,451	90,331,120	15,322,956	615,316,957	240,347,777	855,664,734	598,381	856,261,255	71,117,200 00		71,117,200 00		3 47	4 20
	San Jose	80,000	58,653,840	22,561,050	14,410,179	769,705	96,396,779	5,516,735	101,912,514	8,903,448	110,815,962	1,350,000 00		1,350,000 00		1 90	2 50
	30th class	1,000,235	10,137,430	4,938,495	8,203,123		14,099,478	4,099,478	18,198,956	1,818,846	20,017,802	1,549,000 00		1,549,000 00		1 80	2 30
	San Mateo	305,800	23,010,585	11,154,090	2,758,455	241,530	37,170,660	1,698,722	38,869,382	1,787,700	40,657,082	1,208,000 00	176 58	1,208,176 58		2 37	2 87
	Santa Barbara	1,070,028	27,780,530	12,316,443	11,919,790	3,200	51,419,785	2,682,115	54,001,900	6,288,292	60,290,192	240,000 00		240,000 00		1 70	2 20
	43d class	638,238	8,153,180	2,339,080	2,308,770		12,801,190	518,225	13,319,415	377,608	14,291,963	200,000 00		200,000 00		1 72	2 15
	26th class	256,724	12,535,885	6,290,780	2,843,315	26,345	19,900,885	1,590,150	21,491,035	2,296,152	23,787,187	250,000 00		250,000 00		1 80	2 20
	35th class	1,533,783	10,149,885	2,868,440	2,843,315		15,561,560	2,492,760	18,354,410	3,185,730	21,540,140					2 60	3 10
	36th class	329,793	1,820,975	469,255	267,105	1,000	2,588,335	74,750	2,633,085	2,587,776	2,891,351					2 25	2 75
	33d class	190,600	13,682,455	3,427,360	3,240,995	5,245	20,536,085	1,914,810	22,450,895	5,987,775	28,438,670					1 66	2 26
	19th class	521,244	16,892,955	8,056,475	4,176,878	250	29,096,338	1,648,581	30,744,919	4,566,690	35,311,609	130,000 00		130,000 00		1 70	2 10
	31st class	919,408	25,380,840	11,843,925	5,277,662	33,060	42,335,347	1,925,485	44,460,872	5,893,590	50,296,922	1,698,000 00		1,698,000 00		3 10	3 50
	Stanislaus	807,205	32,590,860	10,541,795	7,906,935	159,010	51,198,600	2,310,255	53,508,855	11,809,827	65,318,682	1,404,000 00		1,404,000 00		1 95	2 30
	4th class	373,616	13,036,980	2,192,795	2,381,745	9,900	17,621,245	376,621	17,997,866	3,514,101	21,511,967	825,000 00		825,000 00		2 80	3 40
	30th class	1,380,118	10,744,820	2,730,885	6,290,885	26,245	15,772,325	952,965	16,725,290	2,296,152	20,219,214	791,000 00		791,000 00		2 10	2 50
	Trinity	1,651,389	2,578,515	308,385	498,790	4,220	3,887,910	3,887,910	7,861,740	382,230	3,843,970					3 17	3 17
	11th class	1,493,460	41,631,020	16,855,715	11,876,500	11,220	6,674,455	2,600,130	72,475,585	11,168							

STATEMENT No. 15.

Valuation of Real and Personal Property, and the Rate of Taxation (for State Purposes) on Each One Hundred Dollars, from the Organization of the State Government to the Year 1922, inclusive. (Table Revised and Corrected in 1910.)

Year	Total assessed value of property in California	Value of personal property including money	Percentage of personal property	State rate of taxation
1850	\$57,670,689	\$13,968,797	24.22	.50
1851	49,231,052	20,935,116	42.52	.65
1852	64,579,375	24,213,395	37.49	.65
1853	95,335,646	33,654,000	35.32	.60
1854	111,191,630	39,040,428	35.11	.60
1855	103,887,193	34,858,319	33.56	.60
1856	115,007,440	40,942,699	35.60	.70
1857	126,059,461	59,149,630	46.92	.70
1858	125,955,877	54,185,728	43.01	.60
1859	131,060,279	56,580,344	43.17	.60
1860	148,193,540	68,369,383	46.06	.60
1861	147,811,617	73,350,591	49.62	.60
1862	160,369,071	74,014,666	46.15	.77
1863	174,104,955	80,496,645	46.23	.92
1864	179,164,730	78,117,375	43.60	1.20
1865	183,534,312	79,782,436	43.47	1.15
1866	200,368,826	92,490,635	46.15	1.13
1867	212,205,339	100,105,600	47.17	1.13
1868	237,483,175	105,112,083	44.26	1.00
1869	260,563,879	104,723,592	40.19	.97
1870	277,538,134	108,001,588	38.90	.865
1871	267,868,126	86,074,230	32.13	.865
1872	637,232,823	219,942,323	34.51	.50
1873	528,747,043	118,425,520	22.20	.50
1874	611,495,197	210,779,127	34.46	.649
1875	618,083,315	199,243,292	32.07	.605
1876	595,073,177	140,431,866	23.60	.735
1877	586,953,022	128,780,824	21.77	.63
1878	584,578,036	118,304,451	20.23	.55
1879	549,142,610	112,325,850	20.45	.625
1880	666,399,985	174,514,906	26.18	.64
1881	659,835,762	160,058,309	24.24	.655
1882	608,555,960	134,048,617	22.02	.506
1883	765,729,430	167,338,644	21.85	.497
1884	821,078,767	166,394,997	20.26	.452
1885	859,512,384	172,760,681	20.09	.544
1886	817,445,729	152,889,567	18.70	.56
1887	956,740,805	165,663,387	17.31	.608
1888	1,107,952,700	173,273,458	10.63	.504
1889	1,111,550,979	170,661,836	15.35	.722
1890	1,101,137,290	169,489,475	15.39	.58
1891	1,242,300,434	190,163,597	15.30	.446
1892	1,275,678,822	186,579,990	14.62	.434
1893	1,216,880,398	173,509,311	14.26	.576
1894	1,204,347,291	162,641,812	13.50	.493
1895	1,132,512,903	157,050,570	13.87	.685
1896	1,264,973,043	187,676,729	14.84	.429
1897	1,089,373,316	152,449,506	13.99	.51
1898	1,132,230,221	158,694,274	14.01	.488
1899	1,193,961,761	218,138,436	18.27	.601
1900	1,217,648,863	228,664,981	18.78	.498
1901	1,241,359,555	236,208,276	19.03	.48
1902	1,290,238,964	251,112,343	19.46	.382
1903	1,597,944,240	312,220,698	19.54	.561
1904	1,545,698,785	282,409,057	18.27	.535
1905	1,624,023,172	281,852,033	17.35	.49
1906	1,594,231,577	270,632,329	16.97	.476
1907	1,879,950,692	336,156,302	17.35	.445
1908	1,990,256,945	329,131,342	16.54	.40
1909	2,439,566,433	366,841,396	15.04	.364
1910	2,372,944,301	334,294,790	14.09	.353
1911	2,602,344,933	393,093,875	15.10	.05
1912	2,919,855,033	441,353,450	15.11	.044
1913	3,114,821,281	542,178,904	17.41	.042
1914	3,232,981,478	543,809,923	16.82	.039
1915	3,314,492,798	578,775,844	17.46	None
1916	3,577,877,764	765,607,899	21.40	None
1917	3,717,087,414	845,366,375	22.74	None
1918	3,806,257,623	898,537,594	23.60	None
1919	4,069,449,770	1,009,278,448	24.8	None
1920	4,551,583,324	1,184,286,428	26.02	None
1921	4,921,786,485	1,271,185,663	25.83	None
1922	5,135,925,963	1,247,706,973	24.29	None

EXPLANATION.—The excessive increase in personal property for 1913 over 1912 is due to Los Angeles, San Francisco and other counties assessing franchises as personal property and Kern County switching approximately \$18,000,000 on oil wells from real estate and improvements to personal property. In 1914 Kern County returned the oil well assessments to the real estate and improvements column on her rolls.

STATEMENT No. 18.
Showing Collections of Taxes as Levied by the State Board of Equalization Under Section 14, Article XIII, of the Constitution, for the Year Ending June 30, 1921.

	Total taxes levied	Total taxes collected	Penalties collected	Taxes delinquent	Penalties delinquent	Total delinquency	Duplications illegal levies under Sec. 22	Lieu taxes	Taxes collected on 1920 assessment roll during 7 1st fiscal year
I. Public service corporations taxed on percentage basis:									
Railroads and street railroads.....	\$10,121,346 22	\$10,118,939 54	\$223 50	\$2,142 66	\$267 83	\$2,410 49	\$264 12	\$525 56	-----
Gas and electric companies.....	4,002,430 00	4,087,463 33	1,354 54	4,491 39	300 22	4,791 61	351 63	-----	\$123 65
Telephone and telegraph companies.....	1,977,688 22	1,073,476 50	196 67	2 10	26	2 36	3,609 72	-----	-----
Car companies.....	16,539 14	155,522 14	-----	-----	-----	-----	-----	-----	-----
Express companies.....	83,926 24	83,926 24	-----	-----	-----	-----	-----	-----	-----
National banks.....	1,284,733 61	1,280,889 89	842 36	844 06	83 00	927 06	-----	-----	-----
State and savings banks.....	1,337,397 88	1,326,000 24	1,156 91	11,397 64	1,424 70	12,822 34	-----	-----	-----
Insurance companies.....	1,864,866 74	1,852,526 10	789 03	9,502 30	1,187 79	10,708 09	2,778 34	-----	-----
II. Public service corporations (not operating tax on franchise):									
Railroads and street railroads.....	1,443 00	1,389 00	4 05	54 00	6 75	60 75	-----	-----	-----
Gas and electric companies.....	1,941 00	1,914 00	9 90	27 00	1 35	28 35	-----	-----	-----
Telephone and telegraph companies.....	459 00	447 00	1 80	6 00	30	6 30	-----	-----	6 00
Insurance companies.....	144 00	126 00	1 35	18 00	2 25	20 25	-----	-----	-----
III. General corporations—franchise taxes (named above):									
Oil companies.....	547,518 00	547,087 50	148 88	382 50	45 28	427 78	-----	99 00	48 00
Water companies.....	53,308 00	53,167 50	154 76	313 50	38 04	351 54	-----	9 00	27 00
Mining companies.....	37,719 00	37,107 00	583 90	579 00	70 50	649 50	-----	345 00	83 00
Building and loan companies.....	26,877 00	26,877 00	111 24	-----	-----	-----	-----	-----	-----
General, including all mercantile and all others not named above.....	1,627,680 00	1,605,370 50	6,518 35	15,685 50	1,804 67	17,490 17	2,403 00	1,611 00	4,221 00
Totals.....	\$22,310,820 59	\$22,251,509 48	\$12,097 24	\$45,445 65	\$5,232 94	\$50,696 59	\$9,406 81	\$2,589 56	\$4,458 65

Total taxes, and penalties collected on 1920 assessment roll during seventy-second fiscal year.....	\$22,263,606 63
Total lieu taxes collected in connection with corporations reviving.....	2,580 56
	<hr/>
	\$22,266,196 19
Total taxes, penalties and lieu taxes collected as shown by the different assessment rolls during the seventy-second fiscal year:	
Taxes and penalties collected on 1911 assessment roll.....	\$95 63
Taxes and penalties collected on 1912 assessment roll.....	30 98
Taxes and penalties collected on 1913 assessment roll.....	41 96
Taxes and penalties collected on 1914 assessment roll.....	101 27
Taxes and penalties collected on 1915 assessment roll.....	221 42
Taxes and penalties collected on 1916 assessment roll.....	459 01
Taxes and penalties collected on 1917 assessment roll.....	771 90
Taxes and penalties collected on 1918 assessment roll.....	1,576 43
Taxes and penalties collected on 1919 assessment roll.....	22,266,196 28
Taxes and penalties collected on 1920 assessment roll.....	1,930 00
Taxes collected on 1921 assessment roll during seventy-second fiscal year (See laws 1911).....	\$22,272,149 04
	<hr/>
	\$22,272,149 04

Total taxes and penalties reported received by the State Treasurer.....

Collections on 1920 petroleum and gas assessment roll during seventy-second fiscal year:		
Total levy.....	\$127,427 20	\$123,914 94
Cancelled.....	901 62	93 48
	<hr/>	
Amount collected.....	\$126,525 58	\$124,008 42
Amount unpaid.....	123,914 94	1,377 06
Amount penalties unpaid.....	\$2,610 64	4,364 09
	318 49	33 55
Total amount unpaid.....	\$2,929 13	132 66

Collections on 1920 petroleum and gas assessment roll during seventy-second fiscal year:

Total petroleum and gas charges collected.....	\$123,914 94
Total penalties collected.....	93 48
	<hr/>
Total collections on 1920 assessment roll.....	\$124,008 42
Total collections on 1919 assessment roll.....	1,377 06
Total collections on 1918 assessment roll.....	4,364 09
Total collections on 1917 assessment roll.....	33 55
Total collections on 1916 assessment roll.....	132 66
	<hr/>
Total actual collections.....	\$129,935 78

STATEMENT No. 19.
Showing Collections of Taxes as Levied by the State Board of Equalization Under Section 14, Article XIII, of the Constitution, for the Year Ending June 30, 1922.

	Total taxes levied	Total taxes collected	Penalties collected	Taxes delinquent	Penalties delinquent
I. Public service corporations taxed on percentage basis:					
Railroad companies (steam).....	\$12,594,251 28	\$9,933,539 01	\$3,870 26	\$2,630,933 90	\$208 85
Railroad companies (electric).....	2,633,750 44	2,633,443 68	382 22	2,069 08	255 64
Gas and electric companies.....	6,771,629 76	6,610,711 48	139 72	797 64	99 70
Telephonic and telegraph companies.....	1,733,523 30	1,705,161 94	1,069 11	295 34	36 87
Car companies.....	232,384 06	229,268 86	1 51	-----	-----
Express companies.....	105,994 86	105,994 86	-----	-----	-----
National banks.....	1,634,613 82	1,652,376 23	396 74	2,038 59	238 31
Banks—state and savings.....	1,995,460 46	1,978,255 90	911 10	1,515 56	189 45
Insurance companies.....	3,108,150 90	3,089,953 69	2,730 65	9,815 90	1,078 12
II. Public service corporations (not operating taxed on franchise):					
Railroad companies.....	1,964 00	1,928 00	2 60	36 00	3 60
Gas and electric companies.....	2,708 00	2,348 00	29 20	10 00	10 00
Telephonic and telegraph companies.....	236 00	216 00	2 40	20 00	2 20
Insurance companies.....	264 00	192 00	-----	72 00	9 00
III. General corporations (franchise taxes):					
Oil companies.....	760,852 00	759,390 00	1,093 60	1,342 00	154 10
Water companies.....	71,432 00	70,476 00	174 00	896 00	104 20
Mining companies.....	43,416 00	42,692 00	176 10	668 00	76 60
Building and loan companies.....	42,764 00	42,748 00	85 90	16 00	1 40
General corporations including all mercantile and all others not named above.....	2,174,011 00	2,148,187 00	8,910 30	22,586 00	2,570 35
Totals.....	\$33,949,407 68	\$31,037,082 65	\$20,045 61	\$2,673,182 01	\$5,038 39

Union Tank Line Company reassessment for year 1917..... \$2,233 20
 Union Tank Line Company reassessment for year 1918..... 2,775 10
 Union Tank Line Company reassessment for year 1919..... 2,336 52
 Union Tank Line Company reassessment for year 1920..... 2,331 10

These taxes paid by allowance of credit of moneys heretofore paid by these corporations as evidenced by minute order of the State Board of Equalization on page 319, under date of September 27, 1921.

*\$2,629,263.06 of the delinquent railroad taxes as shown, represents the amount which the Controller was restrained from collecting by a Federal Court order, pending decision as to the validity of the said assessment. If decision is favorable to the State, penalties is favorable to the State, will accrue.

	Total delinquency	Duplications illegal levies under Sec. 22	Lieu taxes	Taxes collected on 1921 assessment roll during 72d fiscal year	Paid by allowance of credit on moneys heretofore paid
I. Public service corporations taxed on percentage basis:					
Railroad companies (steam).....	\$2,631,142 75				\$29,778 37
Railroad companies (electric).....	2,324 72	\$237 68			
Gas and electric companies.....	897 34	80,848 28			49,272 36
Telephone and telegraph companies.....	332 21	48,066 22			
Car companies.....		3,115 80			
Express companies.....	2,276 90				
National banks.....	1,705 01	15,689 00			
Insurance companies.....	10,894 02	8,381 31	\$40 62		
Banks—state and savings.....					
II. Public service corporations (not operating taxed on franchise):					
Railroad companies.....	39 60				
Gas and electric companies.....	90 00				
Telephone and telegraph companies.....	22 20	294 00	20 00		
Insurance companies.....	81 00				
III. General corporations (franchise taxes):					
Oil companies.....	1,496 10			\$120 00	
Water companies.....	1,000 20			28 00	
Mining companies.....	744 60	34 40	224 00	56 00	
Building and loan companies.....	17 40		196 00		
General corporations including all mercantile and all others not named above.....	25,156 35	1,538 50	8,656 00	1,726 00	
Totals.....	\$2,678,210 40	\$158,205 19	\$9,852 62	\$1,930 00	\$79,050 73

STATEMENT No. 19—Concluded.

Showing Collection of Taxes as Levied by the State Board of Equalization Under Section 14, Article XIII, of the Constitution, for the Year Ending June 30, 1922.

Total taxes and penalties collected on 1921 assessment roll during seventy-third fiscal year.....					\$31,057,128 26
Total lieu taxes collected in connection with corporations reviving.....					9,852 62
Total collections 1921 assessment roll.....					<u>\$31,066,980 88</u>
Total collections as shown by the various assessment rolls during the year ending June 30, 1922.:					
Taxes and penalties collected on 1911 assessment roll.....				\$92 52	
Taxes and penalties collected on 1913 assessment roll.....				22 50	
Taxes and penalties collected on 1914 assessment roll.....				213 40	
Taxes and penalties collected on 1915 assessment roll.....				27,172 36	
Taxes and penalties collected on 1916 assessment roll.....				224 71	
Taxes and penalties collected on 1917 assessment roll.....				1,377 71	
Taxes and penalties collected on 1918 assessment roll.....				991 89	
Taxes and penalties collected on 1919 assessment roll.....				968 72	
Taxes and penalties collected on 1920 assessment roll.....				9,980 53	
Taxes and penalties collected on 1921 assessment roll.....				31,066,980 88	
Taxes collected on 1922 assessment roll during seventy-third fiscal year.....				3,586 00	
Total taxes reported collected by State Treasurer.....				\$31,111,611 22	
Collections on 1921 petroleum and gas assessment roll during seventy-third fiscal year:				\$31,111,611 22	
Total levy.....	\$149,892 07				
Amount collected.....	147,767 05				
Amount penalties unpaid.....	\$2,125 02				
Total amount unpaid.....	265 45				
Total amount unpaid.....	\$2,390 47				
Total 1921 petroleum and gas charges collected.....					\$147,767 05
Total penalties collected.....					169 47
Total collections 1921 assessment roll.....					<u>\$147,936 52</u>
Total collections 1920 assessment roll.....					18 72
Total collections 1919 assessment roll.....					18 49
Total collections 1917 assessment roll.....					27 09
Total.....					<u>\$148,000 82</u>

STATEMENT No. 20.

Bond Refunds Paid to Counties and Municipalities Under Chapter 335, Statutes of 1911.

TABLE I. Bond refund paid to counties for the years 1920-1921 and 1921-1922.

County	1920-21			1921-22		
	Refunds paid for county purposes	Refunds paid for school districts	Total refund	Refunds paid for county purposes	Refunds paid for school districts	Total refund
Alameda		\$12,995 92	\$12,995 92		\$10,898 28	\$10,898 28
Butte		261 69	261 69			
Colusa		28 78	28 78		22 58	22 58
Contra Costa	\$319 34	1,029 31	1,348 65	\$555 66	1,061 27	1,616 93
Fresno		2,977 79	2,977 79		893 36	893 36
Glenn		556 28	556 28		1,050 42	1,050 42
Humboldt		253 59	253 59		251 60	251 60
Imperial		1,311 22	1,311 22		709 54	709 54
Inyo		330 33	330 33		378 92	378 92
Kern	5,402 30	754 90	6,157 20	6,794 42	691 32	7,485 74
Kings		185 77	185 77			
Lake	11 06		11 06	4 39		4 39
Los Angeles	7,505 29	40,286 42	47,791 71	8,407 60	43,190 68	51,598 28
Marin		658 43	658 43		698 61	698 61
Mendocino	362 28	32 41	394 69	481 95	32 24	514 19
Merced		520 81	520 81		433 42	433 42
Monterey	487 82	244 29	732 11		248 37	248 37
Napa		384 32	384 32		230 60	230 60
Orange		1,228 12	1,228 12		1,314 61	1,314 61
Placer		703 85	703 85		661 93	661 93
Plumas	2,203 60	25 17	2,228 77	3,864 12	25 19	3,889 31
Riverside	1,623 77	3,307 80	4,931 57	2,367 21	4,263 45	6,630 66
Sacramento	12,802 42	278 62	13,081 04	13,636 21	203 89	13,840 10
San Benito		194 45	194 45		265 86	265 86
San Bernardino		5,384 49	5,384 49		10,350 59	10,350 59
San Diego	2,826 18	2,722 28	5,548 46	1,831 52	2,881 55	4,713 07
San Francisco	(See cities)					
San Joaquin	4,603 76	626 76	5,230 52	5,302 26	144 27	5,446 53
San Luis Obispo	605 32	645 52	1,250 84	750 40	400 12	1,100 52
San Mateo	541 85	1,169 20	1,711 05	543 28	1,664 82	2,208 10
Santa Barbara	1198 37	519 70	718 07	1243 02	684 73	927 75
Santa Clara	1,160 74	1,867 31	3,028 05	1,282 42	1,562 48	2,844 90
Shasta		170 59	170 59		219 55	219 55
Sierra		239 13	239 13		152 71	152 71
Siskiyou		11 76	11 76		11 40	11 40
Solano	1,986 86	461 20	2,448 06	2,130 82	565 65	2,696 47
Sonoma	1,423 61	838 80	2,262 41	1,051 37	907 60	1,958 97
Stanislaus		3,236 35	3,236 35		2,545 37	2,545 37
Tehama						
Tulare		3,836 27	3,836 27		4,079 39	4,079 39
Tuolumne		73 84	73 84		95 73	95 73
Ventura		506 03	506 03		576 30	576 30
Yolo		60 86	60 86		112 39	112 39
Yuba		514 91	514 91		391 04	391 04
Totals	\$44,063 75	\$91,436 09	\$135,499 84	\$49,246 65	\$94,872 03	\$144,118 68

1Road district bond.

STATEMENT No. 20—Continued.

Bond Refunds Paid to Counties and Municipalities Under Chapter 335, Statutes of 1911.

TABLE II. Bond refunds paid to municipalities for the years 1920-1921 and 1921-1922.

City	1920-21			1921-22		
	Operative assessment subject to past bond taxes	Past bond tax rate	Refund	Operative assessment subject to past bond taxes	Past bond tax rate	Refund
Alameda	\$1,813,516 00	.1396	\$2,531 00	\$1,977,381 00	.1358	\$2,685 28
Alhambra	645,509 00	.05	322 75	722,934 00	.058	419 29
Anaheim	252,390 00	.115	290 24	327,430 00	.0825	270 12
Antioch	68,384 00	1.553	106 20	76,620 00	1.405	107 65
Arcaata	63,405 00	.20	126 81	63,105 00	.16	100 97
Auburn	120,409 00	.058	69 84	136,229 00	.06	89 91
Azusa	185,880 00	.237641	441 73	205,815 00	.2198899	452 57
Bakersfield	1,219,250 00	.03	365 77	1,285,420 00	.02	333 58
Belvedere	5,944 00	.67	39 82	765,060 00	.01	30 68
Benicia	111,046 00	.33	366 45	4,795 00	.64	245 49
Berkeley	28,570 00	.015	428 55	81,830 00	.30	727 94
Biggs	27,447 00	.15	41 17	3,639,708 00	.02	87 65
Brawley	168,755 00	.103	173 82	35,059 00	.25	209 68
Chico	126,666 00	.067	84 86	139,415 00	.1504	102 01
Chico	196,139 00	.40	784 56	146,398 00	.06968	785 16
Claremont	261,081 00	.082	214 08	201,325 00	.39	200 16
Cloverdale	36,937 00	.33	121 90	281,914 00	.071	86 02
Colton	913,331 00	.50	4,566 65	37,402 00	.23	2,897 82
Colusa	60,035 00	.32	192 10	643,961 00	.45	173 58
Compton	183,152 00	.20	366 30	59,855 00	.29	355 64
Corona	281,362 00	.11	309 50	209,200 00	.17	576 00
Coronado	130,639 00	.17	220 08	360,000 00	.16	218 50
El Centro	249,871 00	.105	262 36	145,669 00	.15	339 60
El Paso de Robles	112,662 00	.15	169 00	247,889 00	.137	208 44
Elsinore	80,538 00	.1954	157 37	109,710 00	.19	701 15
Eureka	645,728 00	.11	710 30	701,148 00	.10	88 26
Fairfield	25,894 00	.20	51 78	27,582 00	.32	2 24
Fairdale	3,682 00	.06	2 21	3,741 00	.06	1,113 67
Fresno	1,516,533 00	.0074	1,201 50	1,519,220 00	.00666	162 00
	1,723,549 00	.0632		1,746,570 00	.05797	48 94
Gilroy	105,242 00	.136	143 12	126,560 00	.128	98 70
Glendale	845,145 00	.01	84 51	906,294 00	.0054	213 16
Grass Valley	66,322 00	.15	99 48	65,812 00	.15	142 08
Gridley	35,809 00	.536	191 93	46,340 00	.46	348 47
Hanford	193,041 00	.07	135 13	202,975 00	.07	92 48
Hayward	239,861 00	.14	335 80	256,226 00	.136	161 40
Healdsburg	41,517 00	.27	112 09	36,995 00	.25	230 31
Hollister	113,808 00	.13	147 94	124,160 00	.13	575 97
Holtville	62,775 00	.30	188 32	76,770 00	.30	10 82
Imperial	92,579 00	.72	666 56	98,269 00	.66	77 75
Lakeport	8,225 00	.13	10 69	8,325 00	.13	240 57
Lemoore	62,493 00	.12	74 99	70,047 00	.111	253 66
Lincoln	61,360 00	.34	208 62	77,604 00	.31	662 94
Livermore	169,447 00	.18	305 00	169,109 00	.15	138 43
Lodi	295,579 00	.225	665 05	328,843 00	.2016	
Lompoc	100,439 00	.15	150 65	138,435 00	.10	
	3,073,323 00	.02671		3,363,981 00	.02461	
Long Beach	3,168,880 00	.00207	2,098 90	3,460,931 00	.00185	2,092 61
	4,904,692 00	.02472		5,275,591 00	.02276	
	84,243,741 00	.00771		97,017,612 00	.006694	
	85,750,192 00	.03908		98,507,126 00	.034430	
	91,965,326 00	.01250		104,907,327 00	.011103	
	85,750,192 00	.00261		98,507,126 00	.002311	
Los Angeles	95,840,293 00	.14400	193,694 03	108,643,777 00	.125013	191,792 50
	1,521,670 00	.03550		1,567,222 00	.024316	
	2,317,896 00	.01480		1,818,978 00	.014000	
	2,450,708 00	.01590		1,973,210 00	.014427	
	1,135,362 00	.05910		1,285,254 00	.055909	
Los Banos	50,620 00	.25	126 55	61,475 00	.20	122 95
Los Gatos	92,818 00	.08	74 25	110,939 00	.06	66 56
Madera	120,642 00	.30	361 92	140,058 00	.15	210 08
Mayfield	66,693 00	.59	393 49	78,330 00	.57	446 48
Merced	304,560 00	.28	852 76	360,690 00	.28	1,009 94
Mill Valley	92,217 00	.247	227 77	78,150 00	.2187	170 91
Modesto	428,583 00	.06	257 15	447,320 00	.05	223 66
Monrovia	369,289 00	.2390	882 58	475,542 00	.203	965 34
Monterey	179,877 00	.20	359 74	202,308 00	.14	283 22
Mountain View	55,914 00	.45	251 61	63,868 00	.45	287 41
Napa	244,669 00	.045	110 10	246,671 00	.0558	137 64
National City	468,270 00	.045	210 70	537,122 00	.05	268 56

STATEMENT No. 20—Continued.

Bond Refunds Paid to Counties and Municipalities Under Chapter 335, Statutes of 1911.

TABLE II. Bond refunds paid to municipalities for the years 1920-1921 and 1921-1922.—Continued.

City	1920-21			1921-22		
	Operative assessment subject to past bond taxes	Past bond tax rate	Refund	Operative assessment subject to past bond taxes	Past bond tax rate	Refund
Nevada City	\$42,261 00	.56	\$236 66	\$41,195 00	.56	\$230 69
Newman	58,182 00	.25	145 45	87,977 00	.15	131 96
Oakland	20,075,983 00	.1213	24,352 16	21,731,281 00	.1138	24,730 20
Oceanside	133,753 00	.36	481 50	165,815 00	.30	497 44
Ontario	291,515 00	.05	681 10	262,750 00	.045	988 82
Orange	535,344 00	.10		956,696 00	.091	
Orange	246,382 00	.076	187 23	269,936 00	.0823	222 15
Oroville	149,364 00	.58	866 30	173,015 00	.39	674 75
Oxnard	134,408 00	.075	100 80	191,778 00	.07	134 24
Pacific Grove	96,869 00	.02	19 37	126,790 00	.02	25 35
Palo Alto	115,050 00	.220	253 11	114,150 00	.2125	242 57
	2,756,810 00	.036		2,603,261 00	.02	
Pasadena	3,247,244 00	.011	1,481 99	3,011,888 00	.007	866 21
	3,676,566 00	.0036		3,368,258 00	.004	
Petaluma	242,781 00	.03	72 83	250,345 00	.03	75 10
Piedmont	152,120 00	.15	228 18	152,120 00	.15	228 18
Pinole	65,857 00	.50	329 28	88,893 00	.50	444 46
Pittsburg	64,540 00	.02	12 90	77,892 00	.015	11 68
Placerville	76,128 00	.24	182 71	90,880 00	.195	177 22
Pleasanton	49,003 00	.66	323 41	60,109 00	.64	384 70
Pomona	1,320,188 00	.0797	1,052 13	1,456,982 00	.076	1,107 29
Porterville	223,062 00	.142	316 75	290,195 00	.156681	454 68
Red Bluff	85,237 00	.07	59 67	110,602 00	.07	77 42
Redding	286,500 00	.25	716 25	345,605 00	.19	656 64
Redlands	874,358 00	.125	1,092 94	941,250 00	.115	1,082 43
Redondo Beach	1,913,365 00	.105	2,009 03	1,982,909 00	.105	2,082 05
Redwood City	154,056 00	.30	462 17	199,942 00	.29	579 84
Rio Vista	11,465 00	.25	28 67	11,950 00	.25	29 87
Riverside	1,315,634 00	.03	394 69	2,572,988 00	.03	771 90
Ross	32,329 00	.265	85 67	35,595 00	.255	90 77
Sacramento	9,397,687 00	.077	7,236 21	9,909,658 00	.079	7,828 63
Salinas	195,933 00	.22	431 03	227,202 00	.20	454 40
San Anselmo	90,278 00	.2387	261 52	97,225 00	.2296	268 72
	29,890 00	.154		31,270 00	.1455	
San Bernardino	2,452,851 00	.19	4,660 41	2,709,630 00	.19	5,148 29
San Buenaventura	296,785 00	.41	1,216 82	341,940 00	.415	1,419 03
San Diego	6,020,271 00	.13234	7,967 22	6,450,053 00	.1085	6,998 30
San Francisco	157,441,846 00	.142	223,567 41	164,123,725 00	.13120	215,330 33
San Jacinto	39,221 00	.48	188 26	55,500 00	.50	277 50
San Jose	1,476,137 00	.078	1,384 73	1,077,312 00	.078	1,017 39
	1,666,752 00	.014		1,264,927 00	.014	
San Juan	2,030 00	.38	7 71	2,030 00	.35	7 10
San Leandro	198,631 00	.02	107 33	153,650 00	.02	138 14
	169,027 00	.04		218,536 00	.04	
San Luis Obispo	473,876 00	.42	1,990 26	445,528 00	.415	1,848 94
San Mateo	250,589 00	.095	238 05	274,561 00	.085	233 37
San Rafael	240,118 00	.058	139 27	255,870 00	.054	139 16
Santa Ana	1,229,110 00	.09	1,106 20	1,432,009 00	.075	1,074 00
Santa Barbara	1,916,492 00	.21	4,024 63	1,993,745 00	.238	4,745 09
Santa Clara	115,568 00	.346	399 87	136,380 00	.321	437 78
Santa Cruz	513,484 00	.24	1,232 36	594,470 00	.23	1,367 28
	1,063,189 00	.04		1,130,128 00	.03	
Santa Monica	1,068,869 00	.028	1,206 53	1,139,198 00	.03	1,195 25
	1,071,069 00	.045		1,143,248 00	.045	
Santa Rosa	332,355 00	.24	797 61	333,165 00	.22	732 96
Sausalito	174,580 00	.23	401 53	200,351 00	.23	460 81
Sebastopol	79,810 00	.30	239 43	81,820 00	.30	245 46
Selma	75,638 00	.20	151 27	92,761 00	.12	111 31
Sonoma	30,191 00	.282	85 14	34,660 00	.27	93 57
Sonora	30,690 00	.31	95 14	30,890 00	.30	92 67
Stockton	2,808,441 00	.02482	697 07	2,936,949 00	.02348	689 60
Suisun City	47,613 00	.63	299 97	59,253 00	.565	334 77
Tulare	307,924 00	.12	369 50	316,539 00	.12	379 84
Turlock	137,171 00	.15	205 75	157,696 00	.10	157 60
Ukiah	47,752 00	.10	47 75	59,525 00	.16	95 24
Upland	368,329 00	.13391	493 23	403,817 00	.11817	477 19
Yacaville	40,606 00	.25	101 50	51,440 00	.20	102 88
Vallejo	620,677 00	.1751	1,086 80	799,916 00	.1736	1,388 63
Venice	749,776 00	.07	524 84	752,996 00	.07	527 10
Visalia	387,679 00	.165	639 67	426,672 00	.165	704 01
Watsonville	155,337 00	.11	170 86	154,900 00	.13	201 37

STATEMENT No. 20—Concluded.

Bond Refunds Paid to Counties and Municipalities Under Chapter 335, Statutes of 1911.

TABLE II. Bond refunds paid to municipalities for the years 1920-1921 and 1921-1922.—Concluded.

City	1920-21			1921-22		
	Operative assessment subject to past bond taxes	Past bond tax rate	Refund	Operative assessment subject to past bond taxes	Past bond tax rate	Refund
Watts.....	\$233,498 00	.1943	\$453 69	\$248,310 00	.18	\$446 96
Wheatland.....	19,719 00	.36	70 98	22,185 00	.30	66 55
Whittier.....	\$63,450 00	.13	2,333 94	1,258,385 00	.16	3,147 62
	\$65,330 00	.14		1,260,265 00	.09	
Willits.....	47,087 00	.18	84 76	49,492 00	.25	123 73
Willows.....	85,976 00	.13	111 76	105,725 00	.10	105 73
Winters.....	36,523 00	.15	54 78	40,945 00	.1930	79 02
Woodland.....	178,837 00	.20	357 67	193,672 00	.07	135 57
Yreka.....	49,070 00	.33	161 93	54,829 00	.33	180 93
Yuba City.....	95,885 00	.25	239 71	105,615 00	.20	211 23
Totals.....			\$521,955 21			\$513,364 25

TABLE III. Bond refunds paid to levee districts for the years 1920-1921 and 1921-1922.

District	1920-21	1921-22
Sutter County—Levee District No. 1.....	\$1,077 68	\$2,054 79

TABLE IV. Refunds to State on account of excessive claims in previous years.

	1920-21	1921-22
Cities.....		\$64 27
Counties.....	\$1,832 04	1,212 24
Totals.....	\$1,832 04	\$1,276 51

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